The impact of Global Competitiveness Index (GCI) on Economic Growth in Iran and some selected countries

Yadollah Dadgar [a], Rouhollah Nazari [b], Fatemeh Fahimifar [c]

[a] Department of Economics, Economics, Beheshty University, Iran.
[b] Department of Economics, Ferdowsi University, Iran.
[c] Department of Economics , Allame Tabatabaie University, Iran.
[a] Corresponding author: y_dadgar@sbu.ac.ir, yydadgar@gmail.com

Abstract: The starting point for achieving to high economic growth requires realizing factors affecting growth in question. A key factor for economic growth would be improving competiveness. Thus, this paper is investigating the impact of competiveness on economic growth for two groups of countries including Iran. Meanwhile we are stressing on Iranian case much more seriously. Our selected countries includes two high income and upper middle income ones for 2006- 2016 period. Some findings of this paper indicate that in addition to competiveness, there is a positive and significant relationship between labor force and physical capital on economic growth for both groups of countries. The impact of human capital and competitiveness on economic growth is significantly positive too. The impact of human capital and competitiveness are, however, higher in upper middle-income countries. Iranian competiveness circumstances, although better after applying, joint comprehensive plan of action, JCPA, is not in its desirable status yet. For, it lags behind its competitors among developing countries in the region.

Keywords: competiveness, economic growth, high- income countries, upper middle-income countries, Iran.

Introduction

Competition, the process of rivalry between firms striving to gain sales and make profits, is the driving force behind markets. Yet, while markets work fairly well much of the time, effective competition is not automatic, and can be harmed by inappropriate policies and by the anti-competitive conduct of firms. The problem of how to foster effective competition to encourage economic growth is challengingissue (Godfrey 2008). There is no however a consensus regarding theexact meaning of competitiveness. We maintain on the definition of World Economic Forum, WEF in this paper. According to the WEF, The World Economic Forum (Cann 2017), economic competitiveness is the set of institutions, policies and factors that determine the level of productivity of a country. Other research centers, which define the term, though, somehow are different but all use the word productivity in their own definitions. WEF, which reports the value of competitiveness for all countries, has been doing this job since 1979.There is a positive relationship between the degree of competitiveness of the country on one hand and the wellbeing of citizen of very country on the other. The competitiveness is measured according to the following pillars: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, labor market efficiency, business sophistication and innovation.

In a more globalized economic environment, economies face various competitiveness. National policy makers have been paying increasing attention to various international competitiveness rankings and aim at improving their country's relevant policies in the quest for competitiveness gains. At the global level, international economic organizations take increasing competitiveness of nations as a prerequisite for the stability and growth of global economy and for the deeper integration of the developing economies in the international economic flows. Companies and general population pay particular attention to international comparison of nations' competitiveness with the aim of both rapidly identifying business opportunities and having a more clear understanding of their nation's relative welfare status(Voinescu and Moisoiu, 2015: 513, BEST 1990, 2001).

Thus, the importance of competitiveness has been a recurring theme in OECD assessments of the advanced economies. Similarly, the European Commission has become much exercisedby what it sees as the inferior competitiveness of the European Union, and has set as one of its goals the catch-up of EU competitiveness with that of the US. Well-developed private sector, standard taxing system and efficient monitoring of public sector (a part of good governance) are some prerequisites for improving competitiveness. Iranian economy due to a structural difficulties and bad governance suffers from lack of appropriate competiveness. One reason is relying Iranian economy onrevenue of selling crude oil for financing her public expenditures .One obvious result of this issue isinvolving in Dutch diseases.In other word,relying on revenue of selling crude oil for financing public expenditures, less developed private sector and non-standard taxing system are both causes and effects of ill competiveness indices in Iran. Consequently, Iran suffers from ill competiveness indices (Dadgar and Nazari 2012).

Literature Review and Empirical Studies

The traditional explanation for international trade and specializationof international competitivenessamong countries rests on the doctrine of comparative costs. According to this doctrine, the pattern of trade and specialization depends on the relative costs of production. Specialization based on comparative cost is inherently efficient. Engaging in international trade therefore is of mutual benefit to all countries. Each countrycan find based on its factor endowments at least one product in which it can specializeand trade to its advantage. This implies that under free trade, the terms of trade would be fair.

Theoretically, free trade outcomes are shown to be generally superior to the results of government interference, a conclusion that has an intuitive as well as common sense appeal. Free trade encourages intensive use of the factor of production, which in turn, leads to a more efficient allocation of resources. It also makes sense for labor-abundant countries to export labor-intensive products, and for capital-abundant countries to export capital-intensive products.At the empirical level, protection has not done much to create efficient industry. In fact, protection is held to have encouraged rent-seeking behavior on the part of investors andcivil servants and to have distorted investment decisions, eroded productive structures, andgenerally contributed to economic and political instability(Ul Haque, 1990: 2-3).

Generally, economists have measured the development of a nation (country) in terms of increasing per capitaincome, or gross domestic product. The Working Group on Statistics for Sustainable Development (Eurostat, 2008) sustains that if "the distribution of income is skewed and the poor part of the population is getting poorer even while average income increases, many people, including many economists, would hesitate to call this development (Herciu and Ogrean, 2015). According to Hausman and Rodrik (2003), "the theory and practice of economic development have converged in the last two decades on a remarkably simple view of growth fundamentals. Stated in its starkest form, this view is that economic growth requires two things: foreign technology and good institutions. This perspective is well grounded in the neoclassical model of economic growth, which predicts that poor countries will experience rapid convergence with advanced economies once they have access to state-of-the-art technologies and their governments respect property rights.

Competitiveness is closely related to development, the level of development in turn, can be influenced by a variety of factors. These includegeography, modernization processes, culture, liberalization and genuine savings(Lynn and Vanhanen 2002; Yang, 2011,Pearce, Hamilton, and Atkinson, 1996).In addition, one can add the state of education and health in the society. For, education creates knowledge, skills and capabilities (Bontis, 2001, Malhotra, 2002, Benhabib and Spiegel, 1994, Aiginger, 2006).Because of the paucity of data and the problem of attribution where competition reforms were part of a wider package of economic reforms, it is clear those barriers to competition resulting from the conduct of firms and from government policies are widespread across the continent (Evenett et al, 2006). According to WEF (2014), a country's competitiveness is a set of 12 pillars, structured into three groups. The first group is related to the basic requirements of institutions, infrastructure, macroeconomic stability, health and primary education. The second group represents the sources of efficiency—higher education, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size and business sophistication. The third group includes innovation and its requirements.

All 12 pillars tend to reinforce each other (WEF 2014). All of the pillars matter to a certain extent for all economies; however, due to different stages of countries' development, they affect them in different ways. The basic requirements are critical for countries still in the factor-driven stage, and the efficiency enhancers are important for countries that had progressed towards the efficiency-driven stage. The innovation and sophistication factors affect the countries in the innovation-driven stage. For each of the 12 pillars of a country's competitiveness, there exists empirical evidence about their impact on economic growth (Korez-Vide and Tominc, 2016).

Competitiveness is defined here as the 'ability to produce goods and services which meet the test of international markets (European commission, 1999: 75).The lack of competitiveness of Central and Eastern European economies reflects the long period before transition when they were protected from market forces. State planning led to a distorted allocation of resources and insufficient investment in sectors with the highest return in the long-term and key aspects of competitiveness were often neglected. However, because of the lack of reliable data on the different aspects which determine overall trade performance,the focus here is on research and technological development, physical infrastructure, the environment and human resources (European commission, 1999, 186).

Fagerberg and Srholec (2007) examined several relations including the relations between GDP per capita in real GDP growth rate, unit labor costs and real GDP growth rate etc. In order to detect and analyze competitiveness in a certain time, Podobnik et al. (2012) examined how the level of competitiveness affects the dynamics of a country's wealth during a recession.Some authors developed a new measure, which is called a relative competitiveness, to evaluate an economy's competitiveness relative to its GDP.

Auzina-Emsina (2014) have tested the impact of changes in labor productivity on the nation's global competitiveness. The research focuses on the European Union countries that experienced the most severe crisis and afterwards the most rapid recovery in post-crisis period (as Latvia, Lithuania, and Estonia). The research findings argue that there are weak or no relations between productivity increase and economic growth in pre-crisis period and the first phase of post-crisis period; however, the increase of productivity during the crisis is a significant driver of the economy after a period.Naderi and Sharbatogly (2007) estimated an empirical model of economic growth. The findings indicate that the more competiveness the country is, the higher the economic growth. The result of Totonchian and Mehrnoosh work (2009) indicated that the most influential factors of competiveness in Iran include R&D, innovative activities and technical education. Mohseni Zenuzi and Esmaeli (2014) showed that economic growth has had influential impact on competiveness in Iran. This research also indicated that the government intervention has led to decrease the international competiveness of Iran. Gharakhani etal (2016) indicates that innovation index has had a positive and significant relationship on competiveness in Iran.

Analysis ofIranian status in competitive index

In the past decade or even before the issues related to the competitiveness of a certain industry, region and nation are examined in numerous studies. Global Competitiveness Index (GCI), elaborated by World Economic Forum (WEF), is widely applied to evaluate and rank countries depending on the level of global competitiveness(Auzina-Emsina, 2014, Lall 2001).In this paper we try to compare the Iranian competitiveness with some selected countries.Competitive center in its 2018 report has indicated rank 69 for Iranian competitiveness among 137 countries.In addition, Iran has gotten rank 13 among her 20 competitor countries of her2025 vision document. Figure (1) indicates Iranian status in 12 competitor pillars.
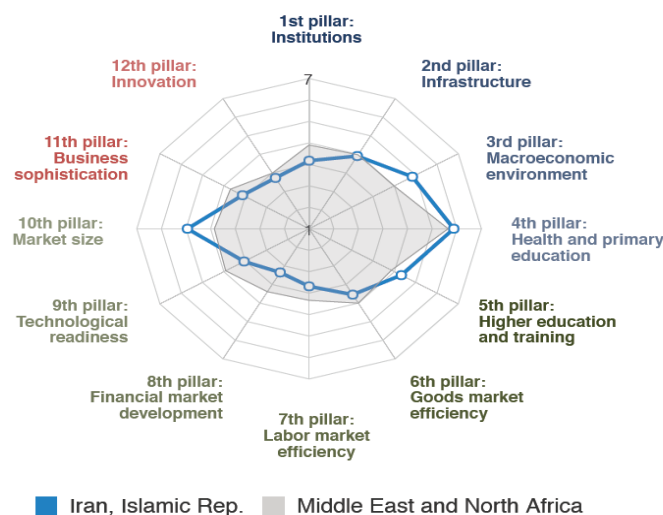
Source: WEF, Global Competitiveness Report2017-1018, p.150.
Figure 1- Iranian competitiveness pillars

Table (1) shows the Iranian circumstances in competitive pillars. Iran has had the hugest fluctuation in some competitive pillars including institutions, macroeconomic stabilization and innovation. Due to structural difficulties (Dadgar 2017), Iranian labor market and financial market pillars got the lowest score in competitiveness reports during eight years ago.

Table (1): Iranian competitiveness pillars

Pillar/year	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Institutions	72	82	68	83	108	94	90	85
Infrastructure	67	74	69	65	69	63	59	57
Macroeconomic environment	27	45	57	100	62	66	72	44
Health and primary education	50	54	46	51	52	47	49	50
Higher education and training	89	87	78	88	78	69	60	51
Goods market efficiency	103	98	98	110	120	109	111	100
Labor market efficiency	139	135	141	145	142	138	134	130
Financial market development	123	120	123	130	128	134	131	128
Technological readiness	104	96	111	116	107	99	97	91
Market size	21	20	18	19	21	19	19	19
Business sophistication	92	91	93	104	110	110	109	97
Innovation	70	66	65	71	86	90	89	66
Rank	69	62	66	82	83	74	76	69

Source: WEF (2017) along with the results of research

We can maintain on the following points regarding competitiveness framework in Iranian case:

1. Iran could be accounted in jargon of countries with abundance of natural resources. Thus and potentially speaking it could have an acceptable status in competitiveness. In actual life, however, it could not. For, Iran suffers from considerable number of structural difficulties, including bad governance (Dadgar, Nazari 2012, 2016).
2. Although Iran owns so many banks, these are no indication of well-developed financial markets. A crucial problem in Iranian financial market is taking over the major parts of banking system by semi-governmental bankers. They work in a rentier framework without any role in enhancing economic productivity.
3. Witness to benefiting from a suitable markets size, the Iranian policy makers do not have prudential plans or programs targeting for deepness of their financial and other economic sub-systems.
4. Although Iran does benefit from higher saving in some yearsthis high saving, however, does not lead to new investment and production in its economy. It is however used in pure speculation activities
5. Although apparently, Iran does have innovative capacity, there is no natural and standardized relationship between its innovative capacity on one hand and its real economy on the other. This indicates the weak ground for technological advancements.
6. Iran also suffers from low doing business ranking, which shows massive shortcomings in her firms and microeconomic sectors.7- Table (1) also implies bad circumstances of formal and informal institutions in Iran.8- Bad governance, inefficient judicial and legislative systems, inefficient property rights and non-transparent government policies in Iran are amongst other factors behind current economic status. In Schumpeter's term, Iran requires a serous innovative destruction in different institutions.

Model and Analysis of Results

The aim of current research is analyzing the role of competiveness on economic growth in Iran and some selected countries, in 2006-2016 period. These countries include high income and upper middle-incomeones. Thus, here we are investigating the characteristics of two groups of our selected countries. Our statistical population include the following two groups:

1). High income countries: These includeAustralia, Austria, Belgium, Canada, Chile, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong SAR, China, Hungary, Iceland, Ireland, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Malta, New Zealand, Norway, Poland, Portugal, Saudi Arabia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, and United States.

2). Upper middle income countries: the second group includesAlbania, Algeria, Argentina, Azerbaijan, Botswana, Brazil, Bulgaria, China, Colombia, Costa Rica, Croatia, Ecuador, Iran, Jamaica, Kazakhstan, Macedonia, Malaysia, Mexico, Panama, Russian, Serbia, South Africa, Thailand, Turkey.We are using annual data published by WDI office of World Bank. In addition, we are using competiveness data from world economic forum. Maintaining on the competitiveness we are testing the roles of following variables as influential factors behind economic growth. Accordingly our model and its variables, generally speaking, are: GDP=f(K,L,H,GCI)

Where GDP: GDP (constant 2010 US$), K: Gross fixed capital formation (percentage of GDP),L: Labor force, total, H: School enrollment, secondary (percentage gross), GCI: Global Competitiveness Index. Table (2) indicates some statistical status of variables of the model.

Table (2): Statistical Indices for the Model Variables

Statistical Indices	group	Log(GCI)	Log(GDP)	Log(H S)	Log(K)	Log(L)
Mean	high	1.58	26.4	4.65	3.08	15.35
	middle	1.43	25.83	4.49	3.18	16.16
Std.Dev	high	0.09	1.73	0.11	0.18	1.55
	middle	0.077	1.77	0.132	0.22	1.71
Skewness	high	-0.2	0.015	1.18	-0.29	-0.05
	middle	0.45	0.14	-0.37	0.94	0.54
Kurtosis	high	1.82	2.5	4.99	4.08	2.76
	middle	3.34	2.17	3.24	3.85	2.87

Source: the findings of research

As table 2 shows all variables are estimated on logarithmic base. All variables but K and L, in higher income countries are more than middle income ones. As skewness is concerned in high-income countries, K, GCI and L are negative. In middle-income countries, however just HS shows negative value. Finally the value of kurtosis in GCI and L in higher income countries is less than middle income ones.

Analyzing the model and estimation of coefficients:

Now stressing on the competiveness we are estimating the influential factors affecting on economic growth in two groups of selected countries. Our model in this regard is:

$$Log(GDP)_{it} = \alpha_0 + \alpha_1 Log(L)_{it} + \alpha_2 Log(K)_{it} + \alpha_3 Log(H)_{it} + \alpha_4 Log(GCI)_{it}$$

We test the stationary status of variables. The result is shows in table (3).

Table (3): Unit – Root Test (Levin, Lin & Chu)

Variable	Group	Statistic(t)	Prob.
Log(GCI)	High	-9.97	0.000
	Middle	-6.28	0.000
Log(GDP)	High	-9.79	0.000
	Middle	-4.40	0.000
Log(HS)	High	-3.32	0.000
	Middle	-2.47	0.006
Log(K)	High	-7.7	0.000
	Middle	-3.79	0.000
Log(L)	High	-9.5	0.000
	Middle	-4.19	0.000

Source: Results of the Research

Table (4) indicates the results of estimations. We use Leamer test for all countries separately. According to the results, F statistics for high-income countries is f(36,302)= 513.58. This statistics is f (22,171) = 317.81 for middle-income countries. Consequently, the distance from the origin for all countries should be different. In addition,

Hausman statistics for high-income countries is $\chi^2_{(4)} = 57.79$ and for middle income, one is $\chi^2_{(4)} = 4.36$.

Table (4): estimation of Models

Variable	High income countries	Upper middle income countries
C	9.87 (0.000)*	6.04 (0.000)*
Log(L)	1.002 (0.000)*	0.99 (0.000)*
Log(K)	0.14 (0.000)*	0.05 (0.067)***
Log(H)	0.1 (0.000)*	0.48 (0.000)*
Log(GCI)	0.13 (0.093)***	0.94 (0.000)*
Redundant Fixed Effects Test	513.58 (0.000)	317.81 (0.000)
Correlated Random Effects- Hausman Test	57.79 (0.000)	4.36 (0.358)

The t statistics are reported in the parenthesis *, **, *** Significance at the level of 1, 5, 10 % respectively
Source: Results of the Research

According to table (4) we can summarize the analytical results as follows:

1. The coefficients of K and L in higher income countries are higher than middle income countries. Meanwhile all variables do have positive and significant impact on economic growth in all countries.
2. The impact of physical capital on economic growth in high-income countries is higher than that of middle income ones. As in high-income countries there are adequate physical capital, and those factors and other instruments are used efficiently,those countries benefit from higher growth as well.
3. As table shows, raising labor force by 1 percent in high-income countries will increase economic growth more than one percent. Repeating the same scenario in middle-income counties however, will increase less than one percent in economic growth.
4. The impact of human capital on economic growth in both groups of countries in significantly positive.

5. Not surprisingly, the competiveness index indicates positive and significant relationship with economic growth in both groups of countries. At the same time, the impact of competiveness index has been more in middle-income countries. This result is meaningfully justifiable. For, middle income, counties can benefit from their excess capacity for higher income growth. High-income countries (developed countries), however, do not have excess capacity. For raising their economic growth,the latter counties should seek new capacities. This analysis is compatible with the law of diminishing returns as well.

Concluding remarks

1. In a global world in continuation of 21 century, economic potentiality and political stability are much more influential in general and well developed management than military forces. On the other hand, the role of competiveness of one country relative to other countries is very crucial in indicating its economic and its political powers. Hence, this paper is analyzing the role of competiveness of Iran and two high income and middle-income countries on their economic growth.

2. According to the results of this paper, the variables capital and labor do have positive and significant role on economic growth for both high income and middle-income groups of countries. Meanwhile the role of physical capital in high-income counties is more than the same role on middle-income countries.

3. In addition, the role of competiveness on economic growth in both groups of countries is significantly positive. Nevertheless, the impact in question is much more in middle-income groups rather in higher income ones.

4. The impact of human capital on economic growth is positive and significant in both groups of countries.

5. Witness to obeying Iranian case from the above trend (the positive relationship between competiveness and economic growth), the degree of competiveness in Iran is lower than her other competitors among middle-income group countries. Due to mass difficulties in infrastructural problems in Iran, bad governance and some structural shortcomings, the above result is straightforward.

6. Relying on revenue from selling crude oil in financing public expenditure, Iran suffers from inefficient competiveness and Dutch disease as well.

7. Based on the findings of this paper we can insist on the following suggestions:Firstly, in competitive world the zero sum games is not necessarily prevalent. The majority of countries can benefit from global relations simultaneously. Secondly,the main game players in global competiveness are producing and exporting firms. Hence, it is necessary to take into the considerations the microeconomic area for improving productivity along with macro level. Thirdly, the role of an optimum and good government is crucial in supporting the private sectors and providing necessary groundwork for enhancing the efficiency of whole system. Good government can reduce transaction cost and supervising (albeitnot intervening) the market system. Fourthly, it is urgent that natural resource centered economies including Iran, should provide a strategic plan to improve their taxing system and set aside selling crude oil for financing their public expenditure. One result of this strategy would be improvingthe competiveness in economy. This in turn can bail out the economy from Dutch disses as well. Nowadays Dutch disease is an obvious and killing cause in Iranian economy.

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