Is there a Vicious circle in Muslim World? Trade competitiveness and investment strategies

Mehar, Ayub

Federation Pakistan Chambers of Commerce and Industry, Iqra University Karachi

2008

IS THERE A VICIOUS CIRCLE IN MUSLIM WORLD? TRADE COMPETITIVENESS AND INVESTMENT STRATEGIES

Dr. Ayub Mehar

JECL Classification: I23; O16; O31;
Key Words: Muslim world; Competitiveness; Globalization; Governance; Vicious circle;

ABSTRACT

The study tests the existence of a vicious circle of the lack of investable funds, weaker technological advancement and business competitiveness in Muslim countries. Its second objective is to quantify the magnitude of variations in competitiveness between the Muslim world and the rest of world. A model was established to quantify the linkages between the financial resources, technological advancement, business sophistication and competitiveness. The results are based on 111 countries, 30 out of which belong to Muslim world. The governance of the political and corporate institutions, higher education and technology readiness are classified as significant factors of the business competitiveness. It was concluded that governance, technological readiness and higher education are the important and major factors of business competitiveness, while investment was not identified as major determinant of the competitiveness. The study rejects the hypothesis of existence of the vicious cycle in Muslim world. It concludes that Muslim world can achieve the higher target of business competitiveness and ultimately the sustainable economic development by improvement in the higher education and institutional governance.

Author's affiliation:
Director General (R & D), Federation Pakistan Chambers of Commerce and Industry (FPCCI)

Contacts:
Mailing address: R-73, Decent Town, Block 7, Gulistan-e-Jauhar, Karachi (PAKISTAN).
Phone: +92-021-4630762; +92-021-7705525; +92-0321-2462446
E-mail: ayubmehar@yahoo.com

IS THERE A VICIOUS CIRCLE IN MUSLIM WORLD? TRADE COMPETITIVENESS AND INVESTMENT STRATEGIES

I: Globalization and the Business Sector in Muslim World

In the present inclination of globalization, the responsibility of economic development has largely been shifted on corporate sector from the governmental agencies. Financial markets' experiences have shown that financial problems in corporate sector cannot be segregated from the problems of unemployment, income distribution, poverty and development in a country. The problems of corporate sector are not only the problems of investors, speculators and stockbrokers; these are also the problems of a common man. The development of corporate sector is directly linked with the politico-economic, socio-cultural, and technological development. The economic and financial systems cannot be isolated from the political structure and the socio-cultural attitudes. There are some connections between the inflation, poverty, unemployment and the stock markets index. The supply of money and budget deficit are integrated with inflation, unemployment and the rate of crimes in a society. The distribution of wealth has a strong and significant relation with the political system. Due to such innumerous relations, fiscal system is connected with the cultural and political systems. This is the time to reset the standards, measures and objectives of the business sector development and investment activities. The study of business competitiveness or political and corporate governances in isolated and limited visions can mislead the decision makers. A wrong step in regulating the business sector or corporate structures may be a cause of heavy distortion in the society through volatility in the stock markets, employment opportunities, distribution of income, and demand-supply gaps in the commodity markets.

At the time of growing role of private sector in the world economies, Muslim countries depend largely on the centralized political governance - either because of their non-democratic political system or due to ineffective role of private sector in formulation of the economic policies. This situation leads the deterioration in economic development and the weak competitiveness.

Muslim countries represent 22 percent population and 23 percent surface area of the world. It is a visible indicator of the importance of Muslim world. Despite its 22 percent contribution in world population and 23 percent in world surface area, the share of Muslim world is about 5 percent in 'World Domestic Product' and less than 10 percent in global trade. Despite of the resource-based trading, - oil, cotton, textile and other primary goods from Kuwait, Saudi Arabia, Iran, Pakistan, Egypt, Turkey, Bangladesh, Indonesia, and Malaysia -Muslim economies cannot get even 10 percent share in the global trade activities. The current account deficit of Muslim economies indicates that Muslim world has to transfer its capital assets to the other world on regular basis. The poverty in Muslim countries is rapidly increasing. More than 50 percent Muslim population is living at below the poverty line. More than 42,000 companies are listed in the world stock

exchanges; less than 4000 belong to Muslim World. Majority of the listed companies in Muslim World represents the small and medium enterprises (SMEs) and family ownerships. Those small and medium entities among the gigantic Multinational Corporations (MNCs) cannot develop a path for research and development (R & D) or economic domination or accelerated growth. Those companies do not have sufficient resources to invest in the new ventures and research activities; while, the investment in knowledge-based technologies and sophisticated research is necessary for accelerated economic development. Table: I to II show some statistics of Muslim World contribution in global economic and financial activities. The ineffectual economic and financial indicators of Muslim world accentuate the need of a study to find out the causes of Muslim world's continuous underdevelopment.

II: Existence of the Vicious Circle

Table: I and II show the comparison of Muslim world with the rest of world in terms of Gross Domestic Product, international trade, size of corporate sector, global financial linkages, and portfolio investment. The weaker economic and financial positions of Muslim world are obvious. Table: III compares Muslim world with the rest of world in terms of savings-investment gaps. We have considered the aggregate savings as available financial resource for investment. It is envisaged that investment and financial resources in Muslim world are much lower than other countries. The lower magnitude of the standard deviations and coefficients of variation (CV) confirm the consistency in the lack of financial resources in Muslim countries; while higher level of average investment and savings in the other countries indicate the availability and utilization of financial resources.

It is a common intuitive that lack of fiscal resources and physical infrastructure are the major obstacles in the development of Muslim countries. Because of the lack of investable funds Muslim countries are not in a position to develop their economic institutions, physical infrastructure, and to attain the technological advancement. Lack of investable funds lead the lower business and economic activities, which ultimately create funding problems for the public and private sectors' institutions to develop their infrastructures and initiate the research activities. The deficient technological development is an obvious consequence of the lack of research and knowledge creating activities. Business competitiveness cannot be achieved without technological advancement, financial resources and proper institutional framework.

In present global scenario of free trade regime, sustainable economic activities cannot be generated without competitiveness. This situation aggravates the lack of funding issue, and the problem of weak competitiveness would be further intensified. Long and short, a vicious circle of the lack of investable funds, technological advancement and competitiveness is exists in Muslim world. To test the vicious circle existence' hypothesis is one of the major objectives of this study.

Its second objective is to quantify the magnitude of variations in competitiveness between the Muslim world and the rest of world. The study will bridge the gap between the macroeconomic planning and business strategies. We developed a model to establish and

quantify the linkages between the financial resources, technological advancement, business sophistication and competitiveness. Figure: I summarize the causal relations to explain the several underlying hypothesis, which have been established in the study.

This study is an extension in the comparative analysis of Muslim world (Mehar: 2008). The model adopted in this study is based on the postulate that Muslim world is an integral part of the present globalize world where determinants of competitiveness are common, but additional socio-cultural factors in the context of Muslim world may affect the competitiveness in different ways.

Figure: I
Determinants of Business Competitiveness in Muslim World
(Simultaneity in the Model)

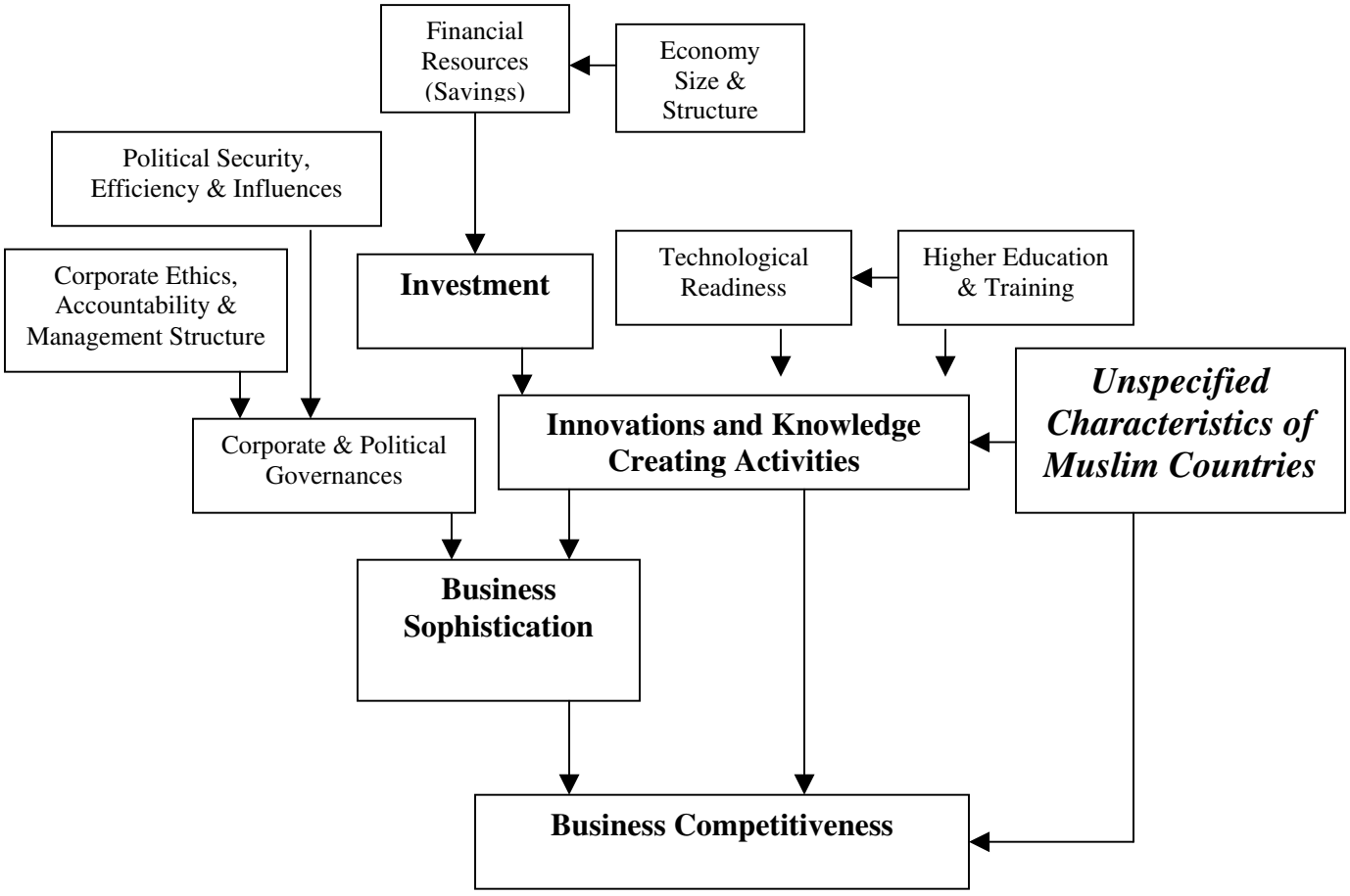

Table: I
Comparison of Economic Status: 2005-06

Group/ Zone	Surface Area (000 KMs)	Population (Millions)	GDP at Equivalent Purchasing Power (Billion $)	GDP at Nominal Prices (Billion $)	Per Capita Income ($)	Merchandise Exports ($ Billions)	Merchandise Imports ($ Billions)
Euro 11	2375	317	9984	10875	34307	3113	3018
USA	9632	299	12417	13163	44710	904	1732
Japan	378	128	4534	4368	38630	595	515
Muslim World	30251	1,435	2394	5813	4051	1003	740
World (Total)	133567	6,538	44645	48461	7412	10434	10685
Muslim countries share as % of world total	**22.6**	**21.9**	**5.3**	**12.0**	**--**	**9.6**	**6.9**

Table: II
Financial Strength and Liquidity: 2005-06

Group	External Debt (Millions US$) 2006	Domestic Credit Provided by Banking Sector (Million US $)	Foreign Direct Investment (Million US $)	(Market Capitalization (Million US $)	Value Traded (Stock Exchanges (Million US$)	Number of Listed Companies	Headquarters Of top 500 MNCs
Muslim	703656	967506	46429	1463804	1843446	4846	00
Non Muslim	2029429	58768089	927854	42178244	46418272	45100	500
World (Total)	2733085	59735595	974283	43642048	48261717	49946	500
Muslim countries share as % of world total	**26**	**1.6**	**4.7**	**3.3**	**3.8**	**9.7**	**00**

Table: III
Comparison of Savings, Investment and Competitiveness Factors
Descriptive Statistics of Countries in Sample

Group	Overall (111 Countries)	Muslim World (30 Countries)	Other World (81 Countries)
Aggregate Savings (Million $)			
Mean	92076	15923	120281
Standard Deviation	251464	23975	289411
Coefficient of Variation	686761.90	36099.08	696359.21
Minimum	0	51	0
Maximum	1711303	94845	1711303
Sum	10220452	477697	9742755
Aggregate Investment (Million $)			
Mean	94345	14661	123858
Standard Deviation	288798	24086	333478
Coefficient of Variation	884036	39571	897867
Minimum	68	128	68
Maximum	2501135	96650	2501135
Sum	10472299	439821	10032479
Governance Index			
Mean	3.980	3.733	4.071
Standard Deviation	0.878	0.621	0.943
Coefficient of Variation	0.190	0.100	0.220
Minimum	2.410	2.560	2.410
Maximum	6.160	5.180	6.160
Higher Education Index			
Mean	3.921	3.261	4.166
Standard Deviation	1.009	0.740	0.989
Coefficient of Variation	0.260	0.170	0.230
Minimum	2.000	2.000	2.160
Maximum	6.010	4.860	6.010
Technology Readiness Index			
Mean	3.365	2.747	3.594
Standard Deviation	1.020	0.446	1.078
Coefficient of Variation	0.310	0.070	0.320
Minimum	2.100	2.130	2.100
Maximum	5.870	4.280	5.870
Business Sophistication Index			
Mean	4.083	3.731	4.214

Standard Deviation	0.788	0.525	0.831
Coefficient of Variation	0.150	0.070	0.160
Minimum	2.780	2.960	2.780
Maximum	5.930	5.170	5.930
Innovation Index			
Mean	3.373	3.034	3.499
Standard Deviation	0.873	0.493	0.949
Coefficient of Variation	0.230	0.080	0.260
Minimum	2.100	2.100	2.110
Maximum	5.770	4.500	5.770
Business Competitiveness Index			
Mean	4.116	3.742	4.255
Standard Deviation	0.697	0.486	0.714
Coefficient of Variation	0.120	0.060	0.120
Minimum	2.780	2.780	2.840
Maximum	5.670	5.100	5.670

III: Determinants of Competitiveness

The forthcoming model of this study is closed on the regression to estimate the business competitiveness. Many discussions of competitiveness in the literature remain focused on the macroeconomic, political, legal, and social circumstances that underpin a successful economy [(Acemoglu and Robinson: 2002), (Acemoglu and Robinson: 2001), (Coffee: 1999), (Drneziek and Yousef: 2007), (Fairbanks and Lindsay: 1997), (Hogfeldt: 2004), (Horgadon and Douglas: 2001), (Khan, Faryod and Kamel: 2006), (Singh: 1995), (Williamson: 1988)]. Competitiveness remains a concept that is not well understood, despite the widespread acceptance of its importance. The widely used definition of competitiveness is a country's share of world markets for its products. This view of competitiveness is used to justify interventions and playing a key role in the formulation of trade and industrial policies by the governments. The subsidies, artificial restraints on local wages, and intervention to devalue the nations' currencies are the common ingredients of industrial and trade policies to attain such competitiveness. However, this view creates an unhealthy competition among the nations. This is the time to reset the standards, measures and objectives of the business sector development and investment activities.

It was concluded in the literatures that per capita income in the economies have an inversed u-shaped relation with the competitiveness index (Porter et al: 2008). It is a common consideration that competitiveness is largely depends on the availability and effective utilization of financial resources. Mehar (2008) concluded through a simulation analysis that a little improvement is possible in competitiveness status of Muslim world by 100 percent increase in the investable funds. No significant role of financial resources was observed in Mehar (2008) analysis. It was indicated that financial constraint was not a major obstacle to achieve the higher competitiveness in Muslim world. Another notable observation of the simulation model (Mehar: 2008) was the difference between Muslim

world and other countries in the magnitudes of parameters associated with the aggregate savings in determination of aggregate investment. The change in investment will be 110 percent of the change in aggregate savings in case of the 'Non-Muslim Economies', while this change in investment would be 95 percent of the change in savings for 'Muslim World'. This variation shows that growth in investment in Muslim countries has lesser association with the growth in savings because of some unspecified reasons. This situation escorts the increasing investment-saving gap, which ultimately leads the fiscal imbalances and lower growth in Muslim world economies. Variation between the two world in their institutional frameworks, lower tendency of investment, lack of confidence in the banking system and financial institution, rigidity in the utilization of savings, money holding for precautions and apprehensions, speculative activities, and transfer of the funds to the rest of worlds from Muslim countries are the possible causes of this variation.

The World Economic Forum (WEF) has been studying the competitiveness of nations for nearly three decades. According to the WEF definition, "competitiveness is a set of institutions, policies, and factors that determine the level of productivity of a country". On the basis of this definition, WEF constructs the competitiveness indexes of the nations. The WEF competitiveness index is composed of 113 variables, of which 79 come from executive survey carried out annually. The survey completed by 11000 top management business executives. The weight of each of the component depends on each country's stage of development.

The objective of this study is to establish the causal relations between the variables. Figure: II gives brief explanation of variables, while econometric model is presented in figure: III. We applied the aggregate saving (SAVG), aggregate investment (INVS) and the WEF competitiveness index data to estimate the regression parameters. We hypothesized that 'Business Competitiveness (BCOM)' depends on the business sophistication (BSUF) and innovation (INOV). While, business sophistication depends on the governance of the political and corporate institutions (INST) and the innovations (INOV) in the economy. We hypothesized that innovation activities are an effect of the quantity and quality of higher education (HEDU), volume of investment (INVS) and technological readiness (TECH), while volume of investment (INVS) depends on the aggregate savings (SAVG).

To determine the causal factors of investment is a complicated task. For simplification purpose, we introduced aggregate savings as a measure of financial resources (SAVG) to determine the volume of investment in the economy (INVS).

We supposed in the regression analysis that Muslim World is an integral part of the entire world. To capture the effect of the unspecified characteristics of Muslim world, which may affect the dependent variables, we incorporated a dummy independent variable (DUMM) in the regressions to determine the Business Competitiveness (BCOM) and Innovation (INOV) indexes.

To test the hypothesis and estimation of parameters associated with the above-mentioned regression model we used WEF competitiveness indexes (Porter at el: 2007). According to

WEF methodology, the competitiveness index are composed on the basis of 12 pillars: Institutions, Infrastructure, Macro economy, Health and primary education, Higher education and training (HEDU), Goods market efficiency, Labor market efficiency, Financial market sophistication, Technological readiness (TECH), Market size, Business sophistication, and Innovation (INOV). These variables are used in the calculation of 'competitiveness index' by the WEF. The index of each pillar is also calculated and reported by the by the WEF (Porter at el: 2008). The governance of political and corporate institutions is a complicated index covers six components: Property rights, ethics and level of corruption in the economy, undue influences, government efficiency, various kinds of security, corporate ethics, and accountability.

IV: Data and Methodology

The data for the comparison and calculation of Muslim World' share in the global economy has been extracted from the World Development Indicators (World Bank: 2008). World Development Indicators (World Bank: 2008) do not cover Brunei, Comoros, Djibouti, Maldives, and Suriname; the overall comparison would not be affected because of their negligible share in the global economy. This data covers 152 countries; 56 out of those are Muslim majority countries. Muslim world share in global economy, finance and technology indicators (Table: I to II) was calculated on the basis of these 56 countries. Fifty-four out of the fifty-six countries are the members of the Organization of Islamic Countries (OIC), while the other two are Bosnia-Herzegovina and Tanzania. Although, Bosnia-Herzegovina and Tanzania are not OIC members, they have dominated share of Muslim population – about 40 percent in Bosnia-Herzegovina and more than 35 percent in Tanzania (CIA: 2007). The statuses of Chechnya, Kashmir, and Kosovo have not been determined, so data for their economies are not available. The categorization of OIC members and Muslim countries is presented in Appendix: I.

The data for the estimation of descriptive statistics and regression parameters has been extracted from the World Development Indicators (World Bank: 2008), and the Global Competitiveness Report (Porter, Michael E., Xavier Sala-i-Martin and Klaus Schwab: 2007). Global Competitiveness Report of the World Economic Forum covers 131 countries, however, we could not cover those 20 countries where data on saving was not available in the World Development Indicators (World Bank: 2008). Seven out of these 20 countries are OIC members. The data for other 19 OIC member countries are not covered in the World Economic Forum (WEF) survey to calculate the competitiveness indexes. Afghanistan, Brunei, Comoros, Djibouti, Guinea, Guineas-Bissau, Guyana, Iran, Iraq, Lebanon, Maldives, Niger, West Bank & Gaza, Sierra Leone, Somalia, Sudan, Suriname, Turkmenistan and Yemen are included in those countries, which could not be included in the estimation of regression parameters; so, we have 30 Muslim Countries, 28 of those are the members of OIC while the other two are Bosnia-Herzegovina and Tanzania. However, exclusion of the above-mentioned countries will not affect the quality of statistical results because of the sufficient number of observations in sample to estimate the required parameters. The list of countries is presented in Appendix: II. In brief, this part of analysis covers 111 countries to estimate the descriptive statistics and parameters in the regression analysis; 30 out of those are Muslim countries.

For estimation of the descriptive statistics and regression parameters, we divided the above-mentioned countries in two groups: 30 Muslim and 81 other countries. We estimated the statistical parameters for each group separately. The results are reported in table: III and IV.

The data on the indexes of Business competitiveness (BCOM), Business Sophistication (BSUF), Innovations (INOV), Governance of the Corporate and Political Institutions (INST), Technological readiness (TECH), and Higher Education (HEDU) was extracted from the Global Competitiveness Report (Porter, Michael E., Xavier Sala-i-Martin and Klaus Schwab: 2007). These indexes are constructed on the basis of several indicators. The details of those indicators are briefly mentioned in figure: II. The higher score of an index indicates the higher achievement in the desirable characteristics of a factor.

We used the World Development Indicators (World Bank: 2008) data for saving (SAVG) and investment (INVS). We applied savings as indicator of the available financial resources for investment. The definition of variables and data are easily verifiable from the sources.

The data on aggregate investment and saving are extracted from the World Development Indicators (World Bank: 2008). The investment was defined as 'Gross capital formation' consists of outlays on additions to the economy's fixed assets plus net changes in the level of inventories. It is generally obtained from reports by industry of acquisition and distinguishes only the broad categories of capital formation. Data on capital formation may be estimated from direct surveys of enterprises and administrative records or based on the commodity flow method using data from production, trade, and construction activities. The quality of data on fixed capital formation by government depends on the quality of government accounting systems. Fixed assets include land improvements; plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." (World Bank: 2008). Aggregate savings (a proxy to measure the available financial resources in the economy) are calculated as gross national income less total consumption, plus net transfers. (World Bank: 2008).

Figure: II
Description of the Variables

Symbol	Variable	Operational Definition/ Factors Covered
BCOM	Business Competitiveness Index	The index is composed of 12 pillars: Institutions, Infrastructure, Macro economy, Health and primary education, Higher education and training, Goods market efficiency, Labor market efficiency, Financial market sophistication, Technological readiness, Market size, Business sophistication, and Innovation.
BSUF	Business Sophistication Index	It covers the corporate governance, marketing strategies, accounting standards, corporate structure and other measures of business sophistication.
DUMM	Dummy Variable	A dummy variable introduced in the model to capture the Muslim country effect. It is equal to one for Muslim majority country and zero in other case.
HEDU	Higher Education Index	This index was composed on the basis of three elements: Quality of Education, Quantity of Education and Training. Each element was further divided into sub components.
INOV	Innovation Index	The index was composed by spending on R & D, quality of research institutions, university-industry linkages, scientists and engineers in R & D, patents filed and intellectual property rights.
INST	Governance of the Corporate and Political Institutions Index	It covers the role and effectiveness of parliament, legal framework, political honesty, nepotism, fiscal policy objectives, mechanism and procedures of implementations, protection of private property and assets, accounting standards, corporate structures and the role of press & police etc.
INVS	Investment (in million US$)	'Gross capital formation' consists of outlays on additions to the economy's fixed assets plus net changes in the level of inventories.
SAVG	Savings (in million US $)	Aggregate savings (a proxy to measure the available financial resources in an economy) are calculated as gross national income less total consumption, plus net transfers.
TECH	Technology Readiness Index	Technological Readiness is defined as composition of the availability of latest technology, absorption and regulating of technology, technology induction through FDI, role of government, research institutions, business community in access and dissemination of information

Figure: III
Specification of Equations

Dependent Variable	Independent Variable	Priority Signs
Aggregate Investment (INVS)	Aggregate Saving (SAVG)	+
Innovation Index (INOV)	Higher Education Index (HEDU)	+
	Technology Readiness Index (TECH)	+
	Aggregate Investment (INVS)	+
	Muslim Country	-
Business Sophistication Index (BSUF)	Governance of the Political and Corporate Institutions' Index (INST)	+
	Innovation Index (INOV)	+
		+
Business Competitiveness Index (BCOM)	Business Sophistication Index (BSUF)	+
	Innovation Index (INOV)	+
	Muslim Country	-

V: Results and Conclusion

The results of the regression parameters are presented in table: IV. The results are based on 111 countries, 30 out of which belong to Muslim world. Almost all the parameters are statistically significant and the adjusted R-squares associated with the equations confirm the validity of the models. The signs confirm the acceptance (or rejection) of the hypothesis. Results provide some useful surprises. First, the hypothesis of negative relations between the innovation index and Muslim countries' unspecified characteristics was not accepted. A significant positive contribution of Muslim countries was observed in determination of the innovation index. It indicates that innovative works are being promoted in Muslim world despite of the weaknesses in higher education, investment activities and technology readiness. There is no obvious reason for this statistically significant result; however, Muslim world may provide a big market for experiments of the innovative products and services. It attracts the innovating institutions to launch and register their products in Muslim countries. Another study is required to investigate the rationale behind the fascination of innovative works in Muslim countries.

The role of investment was positive and significant in determination of innovation index, however its magnitude was negligible. This finding can be reconfirmed through simulation analysis, where it was observed that 100 percent increase in the investment would not improve the competitiveness index, while a negligible improvement was observed in the innovation index by 100 percent addition in aggregate investment. A zero impacts on the competitiveness index by doubling the aggregate investment in Muslim world reject the existence of the vicious circle.

The governance of the political and corporate institutions, higher education and technology readiness are the classified as significant factors of the business competitiveness. The

competitiveness index of Muslim world can reached at 4.22 – which is almost equal to the other world – as a result of joint improvement in the index of institutional governance by 0.30 points, higher education by 0.80 points and technology readiness by 0.80 points.

Another important finding in the regression analysis, was the negative sign associated with the dummy variable of Muslim countries in determination of the Business Competitiveness. This negative sign and the level of significance confirm the acceptance of hypothesis that business sophistication and innovation indexes do not play their efficient roles in Muslim countries. Their role in determination of business competitiveness is much higher in the rest of world; however, they are not efficient in case of Muslim countries. This indicates the existence of institutional problems in Muslim world. Muslim countries will have to develop their institutions for achieving the higher competitiveness and growth targets.

VI: Recommendations

This study has concluded that governance, technological readiness and higher education are the important and major determinants of competitiveness, while investment is not a major determinant of competitiveness. This was found in the study that there is no existence of the vicious cycle in Muslim world. Muslim world can achieve the higher target of business competitiveness and ultimately the sustainable economic development by improvement in the higher education and institutional governance. The lack of investable funds was not confirmed as a significant cause of the competitiveness problem. Policy makers in Muslim world think that in the absence of much financial resources, they are not in a position to revolutionize their economic development and cannot achieve the higher target of business competitiveness. Too much emphasize on the resource generating activities is a natural consequence of this paradigm. As a result, the policy makers and economic managers put all their efforts to generate financial resources. Such efforts may derail the development process.

This paper is an extension of the study of institutional governance and higher education impacts on the business competitiveness (Mehar: 2008). The decomposition of the factors of investment is required to assess the impacts of investment in different sectors. A causal research is recommended to investigate the impacts of investment in different sectors on the competitiveness, technological advancement, economic growth and socio-cultural development.

Physical infrastructure development and availability of sustainable financial resources are not the causes of economic development; they are the outcome of sustainable economic development. Unfortunately, almost entire Muslim world is relying on physical infrastructure and financial resources for economic development. It is observed that the public sector universities in Muslim world have good physical resources, but they have failed to conduct the useful and economic-oriented research. It is a dishonest judgment that financial and physical resources are main hurdles in the research activities. It has been observed in many cases that huge national funds were wasted in the name of higher education and research.

In the light of this analysis, it is highly recommendable that the policy makers in Muslim world should focus their policy measures to improve the institutional governance and the system of higher education. The improvement in technology readiness is a by-product of the knowledge creating activities in the universities. The improvement in higher education and institutional governance in the countries would ultimately be transferred into competitiveness improvement. The business competitiveness improvement is a natural catalyst to reduce current accounts deficit and fiscal imbalances. The improvement in business competitiveness will increase exports, public revenue and GDP; it will also reduce unemployment and poverty and accelerate the sustainable economic development.

In brief, the results recommend the institutional linkages between the higher education, technology development, and business sector. Higher education and technology readiness are joint products and they have significant contribution in competitiveness, which reflects the development of a knowledge-based economy.

The study emphasize on the institutional development. Technology readiness, higher education, and the corporate and political institutional governance are identified as the key elements of competitiveness. To revolutionize the higher growth through business competitiveness, the restructuring and capacity building are required in those areas. The responsibility of institutional development in those areas is concerned with the planning authorities and the national commissions of corporate governance and higher education. The national commissions on higher education, planning, and the securities and exchange are the concerned institutions to perform the task of restructuring for institutional improvement in realistic time. However, the learning from the experiences of developed countries will be helpful in rebuilding the institutions. This task can be assigned to a joint working group of the leading Muslim countries or a sub committee of the Organization of Islamic Countries (OIC) can be assigned this important task.

Table: IV
Estimated Results

Dependent Variable	Independent Variable	Coefficien	T-Statistic	Adjusted R-Square	F-Statistic
INVS	CONS	-7219.996	-0.884	0.9218	1297.14
	SAVG	1.103	36.016		
INOV	CONS	0.483	3.342	0.8684	182.50
	HEDU	0.210	2.682		
	TECH	0.579	7.456		
	INVS	5.03E-07	4.447		
	DUMM	0.270	3.652		
BSUF	CONS	1.094	9.116	0.8816	410.37
	INST	0.130	2.232		
	INOV	0.733	12.546		
BCOM	CONS	1.104	8.705	0.9114	378.04
	BSUF	0.486	6.674		
	INOV	0.316	4.853		
	DUMM	-0.132	-2.853		

Table: V
Simulation Analysis
Impacts of Investment, and Technology on Competitiveness

VAR	Simulation in Base Scenario	Increase in Investable Funds by 100%	Improvement in Governance Index by 0.30 Points	Improvement in Higher Education Index by 0.80 Points	Improvement in Technology Readiness Index by 0.80 Points	Improvement in Governance, Higher Education and Technology
Aggregate Savings (Million $)	15923	31846	15923	15923	15923	15923
Aggregate Investment (Million $)	10343	27907	10343	10343	10343	10343
Governance	3.73	3.73	4.03	3.73	3.73	4.03
Higher Education	3.26	3.26	3.26	4.06	3.26	4.06
Technology Readiness	2.75	2.75	2.75	2.75	3.55	3.55
Business Sophistication	3.80	3.81	3.84	3.93	4.14	4.30
Innovation	3.03	3.04	3.03	3.20	3.50	3.66
Business Competitiveness	3.78	3.78	3.80	3.89	4.09	4.22

Reference

- Acemoglu, D., S. Johnson, and J. Robinson, 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Distribution of Income." Quarterly Journal of Economics 117(4): 1231–94.
- Acemoglu, D., S. Johnson, and J. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." American Economic Review 91: 1369–1401.
- Aga Khan Foundation (2002); "State of the Higher Education in Muslim World"; Report Submitted to His Highness Prince Karim Aga Khan; London: 2002
- Central Intelligence Agency (2007), The World Fact Book 2007, Washington D.C. CIA.
- Coffee, Jr, J.(199). The future as History: the prospects for global convergence in corporate governance and its implications North Western University Law Review, 93,641.
- Drneziek Hanouz, M. and T. Yousef. 2007. "Assessing Competitiveness in the Arab World: Strategies for Sustaining the Growth Momentum." The Arab World Competitiveness Report 2007.Geneva: World Economic Forum. 3–20.
- Fairbanks, M. and S. Lindsay. 1997. Plowing the Sea: The Challenge of Competitiveness in the Developing World. Boston: Harvard Business School Press.
- Hogfeldt, P. 2004, The history and politics of corporate ownership in Sweden, NBER working paper 10641, National Bureau of Economics Research.
- Horgadon, A. and Y. Douglas (2001). When innovations meet institutions: Edison and the design of the Electric Light Administrative Science quarterly, 45,476-501.
- Khan, Faryod R & Kamel A. Muneer(2006); how the west was won? The Dark side of institutional Entrepreneurship, LUMS, CMFER working paper No.06-48.
- La Porta, R. Florencis Lopez-de-Silones F. and Andrei Shleifer, (1999) , Corporate ownership around the world Journal of Finance, 54,471-518.
- Mankiw, N. G. 1995. "The Growth of Nations." Brookings Papers on Economic Activity1(1): 275–310.
- Mehar Ayub (1999); "Political Economy of Muslim World"; Karachi: Business Recorder; 1999
- Mehar Ayub (2001); "Corporate Governance and Financial System" Institute of Chartered Accountants of Pakistan (Pakistan Accountant)
- Mehar Ayub, (2005), Corporate Governance and Dividend Policy, Pakistan Economic and Social Review, XLIII, No.1, 115-128
- Mehar Ayub, (2005), Impact of Equity Financing on Liquidity Position of a Firm, Journal of Applied Financial Economics, 15, 425-438
- Mehar, Ayub (2005), Is Debt a Substitute of Equity? Relevancy of Financial Policy in Current Economic Scenario, Journal of Applied financial Economics, 15, 15-337-366
- Mehar, Ayub (2005); From Knowledge Creation to Economic Development: Missing Links in Muslim World, Journal of Management and Social Sciences, Vol 1, No. 1, 24-47
- Mehar, Ayub (2008); "Business Competitiveness in Muslim World: Role of Governance and Higher Education"; Warwick: WEF Workshop on Incentives and Governance in Global Finance; Warwick University, 2008.
- Nabil Md. Dabour (2000); "The Role of Foreign Direct Investment (FDI) in Development and Growth in OIC Member Countries"; Journal if Economic Cooperation 21, 3 (2000).
- Porter, Michael E., Xavier Sala-i-Martin and Klaus Schwab (2008); "The Global Competitiveness Report 2007-2008: world Economic Forum/Palgrave Macmillan, New York.
- Shleifer, A. and R. Vishny (1986), "Large Shareholders and Corporate Control", Journal of Political Economy, June 1986, 461-488.
- Singh, Ajit (1995), "Corporate Financial Patterns in Industrializing Economies – A Comparative International Study", IFC Technical Paper (2), Washington: The IFC
- Williamson, O.E. (1988), " Corporate Finance and Corporate Governance", The Journal o Finance.
- World Bank (2008): World Development Indicators 2008: Washington, The World Bank.
- World Bank. 2005. Middle East and North Africa Economic Developments and Prospects 2005: Oil Booms and Revenue Management. Washington, DC: World Bank.

APPENDIX: I

Muslim World and OIC Membership

A) Muslim countries having membership of OIC (54):

Afghanistan, Albania, Algeria, Azerbaijan, Bahrain, Bangladesh, Benin, Brunei, Burkina Faso, Cameroon, Chad, Comoros, Côte d'Ivoire, Djibouti, Egypt, Gabon, Gambia, Guinea, Guinea-Bissau, Guyana, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Libya, Malaysia, Maldives, Mali, Mauritania, Morocco, Mozambique, Niger, Nigeria, Oman, Pakistan, Palestinian Authority, Qatar, Saudi Arabia, Senegal, Sierra Leone, Somalia, Sudan, Suriname, Syria, Tajikistan, Togo, Tunisia, Turkey, Turkmenistan, Uganda, United Arab Emirates, Uzbekistan, Yemen.

B) Muslim-dominated population countries without membership of OIC (2):

Bosnia and Herzegovina, Tanzania

C) Non-Muslim countries having membership of OIC (3):

Côte d'Ivoire, Gabon, Togo

APPENDIX: II

List of countries in regression analysis

A) Muslim countries included in regression analysis:

Albania; Algeria; Azerbaijan; Bangladesh; Benin; Bosnia and Herzegovina; Burkina Faso; Cameroon; Chad; Egypt; Gambia, The; Indonesia; Jordan; Kazakhstan; Kyrgyz Republic; Malaysia; Mali; Mauritania; Morocco; Mozambique; Nigeria; Pakistan; Senegal; Syria; Tajikistan; Tanzania; Tunisia; Turkey; Uganda; Uzbekistan

B) Non-Muslim countries included in regression analysis:

Argentina; Armenia; Australia; Austria; Belgium; Bolivia; Botswana; Brazil; Bulgaria; Burundi; Cambodia; Canada; Chile; China; Colombia; Costa Rica; Croatia; Czech Republic; Denmark; Dominican Republic; Ecuador; El Salvador; Estonia; Ethiopia; Finland; France; Georgia; Germany; Greece; Guatemala; Honduras; Hungary; India; Ireland; Italy; Jamaica; Japan; Kenya; Korea; Latvia; Lesotho; Lithuania; Macedonia, FYR; Madagascar; Mauritius; Mexico; Moldova; Mongolia; Namibia; Nepal; Netherlands; New Zealand; Nicaragua; Norway; Panama; Paraguay; Peru; Philippines; Poland; Portugal; Romania; Russia; Serbia; Slovak Republic; Slovenia; South Africa; Spain; Sri Lanka; Sweden; Switzerland; Thailand; Timor-Lester; Trinidad and Tobago; Ukraine; United Kingdom; United States; Uruguay; Venezuela; Vietnam; Zambia; Zimbabwe

C) Muslim countries not included in regression analysis:

Afghanistan, Brunei, Comoros, Djibouti, Guinea, Guineas-Bissau, Guyana, Iran, Iraq, Lebanon, Maldives, Niger, West Bank & Gaza, Sierra Leone, Somalia, Sudan, Suriname, Turkmenistan; Yemen; Oman; Kuwait; United Arab Emirates; Saudi Arabia; Bahrain; Libya; Qatar

D) Non-Muslim countries not included in regression analysis:

Singapore; Israel; Barbados; Cyprus; Guyana; Hong Kong SAR; Iceland; Luxembourg; Malta; Montenegro; Puerto Rico; Suriname; Taiwan, China

APPENDIX: III

Determinants of Business Competitiveness: Muslim Countries in the Sample

Country	Savings (M/US$)	Investment (M/US$)	Index of the Institutional Governance	Index of the Higher Education	Index of The Technology Readiness	Index of the Business Sophistication	Index of the Innovation	Index of the Business Competitiveness
Albania	1547	2275	3.14	3.15	3	3.35	2.1	3.48
Algeria	58511	34418	3.88	3.39	2.54	3.26	2.95	3.91
Azerbaijan	9926	6352	3.64	3.51	2.92	3.84	3.36	4.07
Bangladesh	21045	15474	2.87	2.47	2.25	3.41	2.56	3.55
Benin	525	955	3.57	2.84	2.46	3.51	2.97	3.49
Bosnia and Herzegovina	858	1961	3.14	3.26	2.49	3.2	2.53	3.55
Burkina Faso	370	1049	3.76	2.5	2.4	3.44	2.94	3.43
Cameroon	3115	3298	3.1	2.84	2.56	3.29	2.68	3.37
Chad	1504	1439	2.56	2	2.13	2.96	2.28	2.78
Egypt	23646	20422	4.19	3.68	2.84	4.08	3.17	3.96
Gambia, The	51	128	4.28	2.96	2.67	3.69	2.74	3.59
Indonesia	94845	91198	3.9	4	2.99	4.65	3.56	4.24
Jordan	1974	3807	4.77	4.31	3.16	4.18	3.34	4.32
Kazakhstan	25111	26731	3.67	4.11	2.98	3.76	3.1	4.14
Kyrgyz Republic	113	479	2.86	3.57	2.14	3.22	2.53	3.34
Malaysia	48215	31641	5.18	4.86	4.28	5.17	4.5	5.1
Mali	763	1349	3.85	2.6	2.45	3.35	2.98	3.37
Mauritania	772	612	3.77	2.33	2.65	3.43	2.56	3.26
Morocco	22236	20928	4.09	3.63	3.06	3.93	3.25	4.08
Mozambique	205	1298	3.21	2.33	2.29	3	2.56	3.02
Nigeria	39215	25374	3.33	3	2.64	3.98	3.22	3.69
Pakistan	30441	27904	3.66	2.72	2.77	3.85	3.15	3.77
Senegal	1653	2664	3.4	3.11	2.93	3.82	3.1	3.61
Syria	5679	5345	3.99	3.13	2.5	4	2.88	3.91
Tajikistan	337	422	3.6	3.06	2.27	3.18	2.82	3.37
Tanzania	1406	2429	3.97	2.55	2.6	3.61	3.15	3.56
Tunisia	7575	7272	5.16	4.78	3.43	4.61	4.02	4.59
Turkey	68461	96650	4.13	4.05	3.39	4.45	3.36	4.25
Uganda	1413	2166	3.21	2.84	2.69	3.54	3.1	3.33
Uzbekistan	6184	3779	4.1	4.25	2.92	4.17	3.55	4.13

APPENDIX: IV

Determinants of Business Competitiveness: Other Countries in the Sample

Country	Savings (M/US$)	Investment (M/US$)	Index of the Institutional Governance	Index of the Higher Education	Index of The Technology Readiness	Index of the Business Sophistication	Index of the Innovation	Index of the Business Competitiveness
Argentina	55703	51418	2.99	4.22	2.96	3.97	2.91	3.87
Armenia	1916	2172	3.4	3.35	2.55	3.26	2.87	3.76
Australia	163912	210743	5.66	5.46	5.2	4.81	4.41	5.17
Austria	83720	67620	5.72	5.4	5.17	5.69	4.76	5.23
Belgium	94568	86687	5.06	5.57	4.82	5.44	4.74	5.1
Bolivia	2902	1339	2.97	3.42	2.25	3.05	2.25	3.55
Botswana	5511	2755	4.46	3.49	3.06	3.41	2.85	3.96
Brazil	181470	181470	3.32	4.01	3.35	4.48	3.5	3.99
Bulgaria	5037	10075	3.22	3.99	3.11	3.57	2.96	3.93
Burundi	9	154	3.1	2.16	2.1	2.82	2.29	2.84
Cambodia	1234	1524	3.36	2.58	2.32	3.4	2.69	3.48
Canada	305182	279750	5.26	5.49	5.34	5.12	4.9	5.34
Chile	35002	29169	4.83	4.41	3.89	4.65	3.48	4.77
China	1428128	1190106	3.71	3.77	3	4.18	3.6	4.57
Colombia	30681	36817	3.67	3.88	2.98	4.1	3.11	4.04
Costa Rica	4224	6002	4.17	4.24	3.35	4.5	3.62	4.11
Croatia	10302	14165	3.86	4.31	3.46	4.11	3.43	4.2
Czech Republic	34324	38615	3.84	4.85	4.12	4.71	3.95	4.58
Denmark	68842	63334	6.14	5.96	5.64	5.6	5.11	5.55
Dominican Republic	5732	6369	3.23	3.24	3.13	3.7	2.67	3.65
Ecuador	11179	9522	2.93	2.92	2.57	3.57	2.56	3.57
El Salvador	2238	2985	3.63	3.42	2.87	3.92	2.66	4.05
Estonia	4103	6236	4.74	5.18	5.07	4.39	3.75	4.74
Ethiopia	1198	2663	3.71	2.55	2.36	3.18	2.61	3.28
Finland	56876	44237	6.16	6.01	5.36	5.46	5.67	5.49
France	427137	472099	5.09	5.38	4.88	5.47	4.69	5.18
Georgia	542	2091	3.62	3.59	2.56	3.14	2.65	3.83
Germany	666281	521438	5.83	5.33	5.05	5.93	5.46	5.51

Greece	49352	80197	4.31	4.44	3.29	4.13	3.23	4.08
Guatemala	4946	6712	3.49	3.17	2.94	4.15	3	3.86
Honduras	2863	3048	3.58	3.3	2.62	3.79	2.75	3.89
Hungary	21455	28230	4.14	4.64	3.91	4.35	3.61	4.35
India	310016	310016	4.32	4.13	3.17	4.81	3.9	4.33
Ireland	52833	59437	5.25	5.26	4.65	5.07	4.54	5.03
Italy	351683	388702	3.77	4.55	4.37	4.91	3.45	4.36
Jamaica	2606	3308	3.61	3.83	3.89	4.04	3.27	3.95
Japan	1179477	1004740	5.06	5.21	5.06	5.76	5.64	5.43
Kenya	2961	4328	3.35	3.56	2.76	4.03	3.47	3.61
Korea	266407	266407	5.05	5.65	5.46	5.47	5.36	5.4
Latvia	3420	7644	4.02	4.82	4.01	4.02	3.08	4.41
Lesotho	403	493	3.15	2.66	2.38	2.9	2.31	3.27
Lithuania	3870	8037	4.08	4.98	4.04	4.43	3.45	4.49
Macedonia, FYR	1368	1306	3.34	3.77	2.77	3.35	2.88	3.73
Madagascar	880	1375	3.44	2.56	2.47	3.41	2.99	3.36
Mauritius	1206	1587	4.44	3.94	3.39	4.19	3.01	4.16
Mexico	184620	184620	3.62	3.83	3.23	4.22	3.11	4.26
Moldova	772	1141	3.3	3.66	2.51	3.12	2.62	3.64
Mongolia	1378	1096	3.09	3.78	2.53	3.03	2.86	3.6
Namibia	2758	1904	4.17	3.05	2.77	3.39	2.66	3.85
Nepal	2503	2324	3.1	2.65	2.41	3.29	2.49	3.38
Netherlands	198689	132459	5.73	5.57	5.65	5.54	4.88	5.4
New Zealand	15678	26130	5.8	5.53	4.82	4.75	4.09	4.98
Nicaragua	689	1537	3.22	3.04	2.32	3.31	2.48	3.45
Norway	123929	73687	5.82	5.6	5.46	5.19	4.6	5.2
Panama	3077	3419	3.85	3.81	3.18	4.27	2.97	4.18
Paraguay	649	1948	2.67	2.87	2.21	3.18	2.11	3.3
Peru	21256	18483	3.28	3.63	2.94	4.11	2.78	3.87
Philippines	38795	16459	3.42	4.02	3.07	4.2	3.03	3.99
Poland	60972	67747	3.65	4.62	3.44	4.04	3.28	4.28
Portugal	23367	42840	4.87	4.62	4.28	4.37	3.71	4.48
Romania	15809	29186	3.44	4.14	3.29	3.99	3.09	3.97
Russia	296082	197388	3.1	4.33	3.03	3.7	3.31	4.19
Serbia	3199	6718	3.37	3.65	3.34	3.53	3.08	3.78

Slovak Republic	11010	15964	3.99	4.42	4.08	4.26	3.42	4.45
Slovenia	9326	10072	4.45	5.08	4.29	4.65	3.75	4.48
South Africa	35722	51031	4.55	4.12	3.57	4.61	3.71	4.42
Spain	269429	379650	4.46	4.75	4.33	4.81	3.58	4.66
Sri Lanka	6741	7820	3.85	3.77	2.84	4.26	3.58	3.99
Sweden	95950	69084	5.86	5.98	5.87	5.7	5.53	5.54
Switzerland	136948	83691	5.9	5.63	5.67	5.8	5.74	5.62
Thailand	63965	57775	4.33	4.38	3.61	4.45	3.62	4.7
Timor-Leste	886	68	2.79	2.39	2.42	2.78	2.17	3.2
Trinidad and Tobago	5804	2902	3.47	3.87	3.11	3.93	3	3.88
Ukraine	24488	25553	3.12	4.2	2.75	3.83	3.22	3.98
United Kingdom	332778	427857	5.31	5.42	5.27	5.41	4.79	5.41
United States	1711303	2501135	4.76	5.68	5.43	5.6	5.77	5.67
Uruguay	2703	3089	4.43	3.99	3.09	3.72	3.01	3.97
Venezuela	72745	45466	2.41	3.61	2.95	3.52	2.79	3.63
Vietnam	22570	21960	3.78	3.39	2.85	3.81	3.22	4.04
Zambia	2469	2576	3.76	2.56	2.52	3.21	2.58	3.29
Zimbabwe	0	581	2.99	3.15	2.26	3.3	2.67	2.88