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Role of Civil Society in Economic Transformation in Malaysia

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Abstract

Malaysia is facing hurdles in knowledge economy transformation. To discover the knowledge based transformation solution, a quantitative, descriptive research design was used in which twenty nine economic performance determinant variables were tested for mediation with public/civil society. Two hundred and eighty two questionnaires were distributed to collect the data. The study validated the public/civil society mediation using regression analysis. Mediation was further validated using the Sobel Test. The study confirmed that the performance determinant variables have a strong and positive role in determining economy competitiveness. The results also confirm that strong civil society mediation is necessary; which is missing in Malaysia's economy. It is therefore, concluded that for successful knowledge based transformation, role of civil society sector is vital. It is thus recommended that a strong civil society supported innovation should be the focus and tool for knowledge based economic transformation to strengthen the economic performance and competitiveness of Malaysia.

Keywords: transformation, knowledge economy, civil society, economic performance, competitiveness

1. Introduction

Since many years research collaborations have been a topic to a substantial research effort. Currently the efforts in the field of research have not only concentrated on different aspects of research collaboration, but also considered research collaboration in a multiple settings. Civil society has emerged as collaborative platforms which provide help in developing a non-hierarchical interactions and business associations between firms and individuals. This means civil society plays a role of 'cluster incubator' which helps in developing alliances and competitions over a time (Lindgren and Packendorff, 2010). Due to its non-formal structure, civil society can handle multiple relationships in a logical way, and provide support to marginalized sector of industry in non-traditional sectors and non-urban areas (Afonso et al 2012).

According to Carayannis and Campbell (2010) the 'civil society' is an essential factor of knowledge and innovation. Public/civil society is important due to the social aspect of science and technological knowledge and it highlights the significance of innovations which have been produced for the benefit of the society. Therefore, public can be consider as a bridge between scientist, science and knowledge strategy (Carayannis and Campbell, 2010).

It serves as a platform for knowledge development, for example, entrepreneurial venturing, rural entrepreneurship, solo venturing, small-scale service production etc. Therefore, the civil society plays the role of supporting the entrepreneurs and companies which have not been the part of dominating societal models (Lindberg, 2010).

According to Afonso et al (2012), civil society is the major supporter of country's economic infrastructure along with university, industry and government. He further argued that the economic growth is only possible when talented and productive people work together and develop an innovation infrastructure. This means that creative people are the true economic growth engines. Therefore, collaboration of civil society with other sectors of economy like university and industry could develop an integrated ecosystem of innovation.

This research thus consider civil society as a key partner of multi sector research collaboration (i.e. university industry, government and civil society research collaboration) in which each sector of economy play role in economic transformation. Keeping this role in mind, the researcher tries to identify how civil society play role in Malaysian economy to transform it into knowledge based economy, especially, for the development of knowledge societies as a platform for sustainable development.

The study, therefore, measures the knowledge economy transformation in terms of economic competitiveness with the help of selected transformation factors that determines the economic performance in the mediation of civil society.

2. Literature Review

Malaysia which has planned to achieve the technological competence and economic performance at par with the developed nations by 2020 (Mustapha and Abdullah, 2004) needs a conducive social, political, cultural and security environment to flourish knowledge based economy (EPU, 2001). According to Heng et al (2012), the influence of civil society in increasing the level of economic competitiveness and performance has totally been neglected in Malaysia since the civil society/public is progressively affecting the result of social order. Menyah (2011) while discussing the Malaysian society role argued that every country, especially, the developing economies should work closely with civil society for meaningful and sustainable economic transformation. According to Pollard and Court (2005) civil society organizations (CSOs) influence the policy processes through agenda settings, policy formulation, policy implementation and evaluating and monitoring the policies.

Civil society also plays the role for linking and legitimating the industry with other sectors in the innovation system. As identified by Carayannis and Campbell (2010) the 'public' is important for knowledge creation and innovation development. Public is important due to the social aspect of scientific innovation and technological knowledge as it highlights the significance of innovations which have been produced for the benefit of

the society. Therefore, public can be consider as a bridge between scientist, science and knowledge strategy (Carayannis and Campbell, 2010).

With the emergence of innovation, as a foundation of economic transformation, from the non-traditional sources and processes, a new network of lateral relationship between multiple organizations emerged which develop a new model of the relationship among the institutional spheres and their internal transformation (Leydersdoff, 2011). As identified by Asheim (2005) innovations are dependent on a coordination of institutional and cultural perspective. According to Laven (2008), the system of innovation is based on the relationship between university and industry, and gives government a very little role. On the other hand the Triple Helix along with university and industry, gives government an equally important role in developing innovation networks (Etzkowitz and Leydesdorff, 2000). According to Etzkowitz and Leydesdorff (2000), Triple Helix innovation system focused on the network in which the expectations and the communications overlay and gives a new shape to the organizational arrangements between industry, university and government (Turpin et al 1993; Etzkowitz and Mello 1994; Shinn, 1997; Leydersdoff, 1997). The Triple Helix Innovation System is helpful in growing technology based economic system with the collaborations between university-industry-government.

However, a very important player of innovation networking has been missing in the system of innovation and Triple Helix (Afonso et al 2012; Carayannis and Campbell, 2009) which has a key role in networking development (Coleman, 1988; Putnam, 1993). This fourth actor or player is the civil society. Civil society (Afonso et al 2012; Carayannis and Campbell, 2009; 2010) is organized under the banner of media based and culture based Civil Society Organizations (CSOs) having involved in a non-profit business, and hence reached away from the domain of commercial enterprises, political institutions and scientific academy (Danilda et al 2009). The participation of CSO has changed the concept of Triple Helix Model of Innovation development by incorporating the fourth helix 'the civil society' and making it Quadruple Helix research collaborations for innovation development (Carayannis and Campbell, 2009).

According to Carayannis and Campbell (2010) the 'civil society' is an essential factor in all the developments made in the field of innovation and creativity. The National Ecological System of Innovation also gives importance to this helix (Yawson, 2009). Moreover, the addition of 'civil society' has got importance because of the social aspect of knowledge in the field of science and technology, evaluation of which has now getting importance increasingly.

Coleman (1988) and Putnam (1993) identified civil society organisations as connecting agents that develop connectivity between the economic players thus increase the level of trust, exchange of information and facilitating cooperation in society. According to Arnkil, Järvensivu, Koski and Piirainen (2010) citizens are at the driving seat. The innovation process is actually owned by the citizens (i.e. a development community). "Besides making most of the development work, citizens also decide which kinds of innovations are needed. The role of firms, public authorities and universities is above all to support citizens in their innovation activities (e.g. to provide tools, information, development forums and skills needed by users in their innovation activities)" (Arnkil et al 2010; pp. 08). Yang and Holgaard, (2012) identified that corporate social responsibility could not be maintained without engaging civil society groups in innovation activities.

Afonso et al (2010; 2012) identified that the role of civil society is to create demand for innovative goods and services (Mac Gregor, Marques-Gou and Simon-Villar, 2010; Lindberg, 2007). Therefore, based on the above arguments the involvement of public in economic transformation has allowed the researchers to construct the framework in which public/civil society is identified as mediator in measuring the Knowledge economy transformation with the help of selected transformation factors that determines the knowledge economy performance.

2.1 Knowledge Economy Transformation in Malaysia

According to the 10th Malaysia Plan (2011-2015) few economies have achieved the goal by growing all the way to high income status, most of the middle-income economies lost the momentum of growth due to out-of-date strategies that may have been suitable during the earlier stage of growth. Malaysia's transformation, from a poor economy to an upper middle-income economy was a great success (Kefela, 2010). However, the past achievements could not guarantee continuation of momentum of becoming a high income economy by 2020 (Tenth Malaysian Plan, 2011-2015). Maintaining the status quo is not the option (Comman and Abraham, 2010). It will only put Malaysia at risk of being leaving behind by other countries, the way Malaysia had surpassed others in the past. Malaysia on the one hand stuck in a middle-income trap, and on the other hand is sandwiched between fast paced developing and developed nations (Vietor, 2012). In order to break the middle income trap, Malaysia needs to focus the transformation based on knowledge and innovation for increasing economic competitiveness.

Growth through technology absorption and/or formation along with R&D capability, technological advancement, infocom infrastructure, market accessibility, competitiveness, availability of well trained, educated and skilled population, highly organized financial sector and, most importantly, excellent institutions and macro-economic stability could be the important drivers for knowledge based transformation that play key role in transforming economies from production based to knowledge based (Veugelers, 2010).

Usually the countries which are in the early developmental phase lack the ability to create state of the art technologies; resultantly the progress on the technology front is mainly advances through adopted and adapted technologies (Veugelers, 2010). Verspagen (1991) divide the transformation through technology development into three phases. First phase is identified as 'pre-catch-up' phase in which progress in the technological front does not add anything to growth. Countries passing through this phase are preparing the ground for knowledge-based growth, like a proper system of education. In the second phase which is "actual catch-up phase', the ability to absorb the technology increases steadily and in the final phase or 'post-catch-up phase' countries develop their own research and development (R&D) base.

Malaysia which currently is transforming from Verspagen's 'actual catch up phase' to post-catch-up phase' of technology development, is facing challenges for its labor-intensive and less value added products from the low-wage and high in resource economic giants like China and India and for its knowledge based high tech industry it has not yet achieved the competency to match the advanced economies like Japan, Taiwan and South Korea (Kefela, 2010). Therefore, Malaysia has to follow the

prerequisites as identified by Veugelers (2010) for achieving competitiveness and for knowledge-based transformation.

2.2 Prerequisites for Knowledge-Based Transformation

There are two main factors for knowledge based transformation. The first factor is using foreign technology. The main channels such as foreign direct investment (FDI), trade flows, and similar global cooperation activities determine the country's success in tapping the foreign technologies (Blomstrom and Kokko, 1998). The efficiency of above mentioned channels for valuable technology acceptance is dependent on the 'absorption capacity' of the country which is the second factor. In order to increase the growth and developmental capacity, externally available foreign knowledge requires to be pooled up with an adequately developed 'absorptive capacity' (Cohen and Levinthal, 1990) or 'social capability' (Abramovitz, 1986).

The 'absorption capacity' includes the degree to which a country: possess skilled and knowledgeable workforce and skillful leaders; an investment friendly environment; ease of creating and developing high tech businesses; sufficient capital access; and has a strong sectoral linkages to stimulate the technological acceptance (World Bank, 2008). According to (Hoekman et al 2005), in the earlier transformation stage R&D supports the usage of available technology being a part of absorptive capacity. Imported technologies require modifications in order to make them compatible with domestic environment. Technology acquisition usually increased when industry on the one hand started developing its own R&D programs and on the other hand collaborate closely with public and university laboratories (Majumdar, 2009). However, at the high growth level, foreign adopted technology can be replaced with indigenous R&D technologies developed by comparatively strong sectors (Veugelers, 2010). When the country reached at this phase, it needs technology awareness, generally in the form of research and development resources, available at the public and private level and also need to incentivize the innovation (Furman, Porter and Stern, 2002).

Malaysia, which is currently passing through the phases of transformation i.e. from production based to knowledge based, is influencing with certain transition factors (Jarjis, 2006) similar to the countries which during their transition period influenced by these factors to achieve overall economic competitiveness. It has been noted that the factors attached with successful transition includes "macro-economic stability, international integration, the quality of institutions and structural reforms, including political reforms, price/trade liberalization, restructuring of the production system, competition policy and sectorial reforms (Lall 2002; Blanchard, 1996; Aghion and Blanchard, 1994).

From the above discussion it has been identified that growth through technology absorption and/or formation could be the important drivers for knowledge based transformation in Malaysia, however, as identified by Veugelers (2010) in addition to these drivers, R&D capability, technological advancement, infocom infrastructure, market accessibility, competitiveness, availability of well trained, educated and skilled population, highly organized financial sector and, most importantly, excellent institutions and macro-economic stability are the additional factor that play key role in transforming economies from production to knowledge based. It is significant to observe that due to interlinking nature these factors should not be studied independently, rather considered as part of a 'system of key prerequisites' for knowledge-based development. The World

Bank (2007) suggested that the economy is competitive when it focuses on long term investment in the area of education, innovation development, info-structure and favorable economic environment (Chen and Dahlman 2005). Researchers have identified different outcome factor which play vital role in determining the competitiveness in the knowledge based economy. These outcome factors such as; IT and its applications (Atkinson, 2007), research and development, SME development, decision making, social structure (Gardner, 2004), high skilled and trained manpower (Pisano and Shih, 2009; Gardner, 2004), innovation (Schwab, 2009; Gardner, 2004; Tan, 2004), business sophistication (Schwab, 2009) and implementation of basic and applied research (Pisano and Shih, 2009); political accountability, monitoring, governance and policy reforms (Pasha, 2004) are the key determinants of competitiveness in the knowledge based societies.

The overall characteristic of the knowledge based society is that it will create, develop and use the knowledge for the betterment and welfare of the people and provide them the opportunity to flourish (World Bank Report, 2007). In order to analyze the economic developmental capability in the event when creativity and knowledge usage is become a decisive factor, the knowledge economy based performance system is found to be the only effective tool used for this purpose (UNDP, 2008). The country's knowledge based economic performance is basically depends on its capability to capitalize the knowledge and skills together and use these knowledge and skills collectively to find out the solutions of their differentiated and complex requirements.

2.3 Economic Performance

In 'knowledge-driven and information-rich economies,' creativity, innovation and entrepreneurial acquaintance have an imperative importance in achieving the excellence in economic performance (Simmie, 2002; Morgan and Nauwelaers, 1999; Keeble and Wilkinson, 2000). Sustainable economic development depends on aiming the strategies that effectively encompass the continues use and development of knowledge as a foundation for economic development (World Bank, 2005). "At lower levels of development, which typically implies lower levels of science and technology capability, knowledge strategies typically involve the tapping of existing global knowledge and adoption of such foreign technologies to local conditions in order to enhance domestic productivity. At higher levels of development, which typically implies higher levels of science and technology capability, knowledge strategies also hinges critically on domestic innovative effort and underlie the move to produce products and services that higher value-added in order to be consistent with the high wages that are characteristic of these economies" (Chen and Dahlman 2005; pp. 03). In attaining the higher level of economic performance, the forces of globalization, liberalization and information and communication technologies (ICT) have fundamentally changed the rules and nature of trade and competition at international and at domestic level (Wee, 2003). The level of productivity, according to Schwab (2009) determined the sustainability and prosperity that in turn help in developing a strong economy. In other words, more-competitive economies tend to be able to produce higher levels of income for their citizens (GCR, 2010).

Hence it can be concluded that the "economic performance" which is actually representing the overall economic health of the country can be measured using productivity, knowledge creation, dissemination, innovation, and technology factors.

2.4 Identified Indicators for Economic Performance

In order to provide a solid framework to support the economic growth in Malaysia, this study identified the indicators of economic performance in knowledge economy as given in Table 1. The selected variables, to study the impact of performance determinant variables on economic competitiveness for knowledge based transformation, have been drawn from the work done by number of independent researchers and organizations. However, emphasis has been put to select those variables which are particularly used by the researchers to measure the economic performance of Malaysia. Therefore, all selected twenty nine variables have been drawn (Table 1) from the studies conducted by Economic Analytical Unit Australia (2005); Global Competitiveness Report (2010); Global Innovation Index (2012) and EPU Malaysia (2013). In order to further authenticate the variable selection criterion, seven different international reports and individual studies have been consulted and it is observed that almost all selected variables are commonly used by other studies and researchers as determinants of economic performance, hence validated the selection of variables criteria for this study.

Table 1 Selected Variable for the Study

Studies	IT Professionals	Scitsts & Eng	Int. property	Applied R&D	Basic R&D	Pro & Man. dev.	W-force Edu & Tr.	HiTech Emn.	Ent. Activity	ManufV-Added	Job Churning	IPOs	Industrial Patents	FGF	Pro. & Man. Jobs	Exports.	GDP growth	Inward FDI	Pop. using net	Digital Gov.	Use of IT in Health	Tf & N-tf Barriers	Green Economy	Govt. Financing	Povty Erad.	Gender dev.	Public Fin. Asst.	Political stability	Good governance
European Commission (1999)	✓	✓		✓	✓	✓	✓	✓		✓			✓			✓	✓										✓		
KBE/S Framework and Indicators (2004)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓		✓		✓			✓			✓	✓	✓
Knowledge Assessment Methodology (2004)	✓	✓	✓	✓	✓	✓							✓				✓		✓		✓	✓				✓		✓	✓
Chen and Dahlman (2005)			✓		✓	✓	✓						✓						✓		✓	✓						✓	✓
Economic Analytical Unit Australia (2005)	✓	✓	✓	✓	✓	✓	✓		✓	✓			✓		✓		✓		✓		✓		✓	✓	✓		✓	✓	✓
Pisano and Shih (2009)			✓	✓				✓		✓			✓								✓								
Global Competitiveness Report (2010)			✓	✓	✓		✓			✓	✓		✓		✓		✓				✓	✓	✓	✓		✓	✓		
Atkinson and Andes (2010)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓						
The Global Innovation Index (2012)	✓	✓	✓	✓	✓		✓	✓			✓		✓		✓		✓	✓	✓	✓	✓	✓		✓			✓	✓	✓
Mahroum and Alsaleh (2012)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓			✓						✓	✓
EPU Malaysia (2013)										✓		✓		✓		✓	✓	✓					✓	✓					

Variables

These identified twenty nine (29) indicators have therefore, been used as independent variables and are used to determine the economic performance of the country. Description of each identified variable is provided in Table 2.

Table 2: Description of Variables

No	Variable	Description
1	IT Professionals	The IT is the basic tool used for economic transformation. Industries are using IT heavily to enhance production level and to develop new models for business. The number of IT workers in non-technology industry is a good indicator of knowledge economy performance (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; Howard, 2005; OECD, 2001).
2	Scientists and Engineers	Scientists and engineering work force is the key for growth in high tech R&D organizations. The increased number of scientists and engineers strengthen the economy technologically. Scientists and engineers develop publications and patents. They enhance the ability of the economy through knowledge and creativity (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; Howard, 2005; OECD, 2001).
3	Intellectual Property	One indicator to rate the innovation is the intellectual property. The intellectual property like patents, publications etc. play important role in economic development. The success of universities is judged by the extent to which they are able to create new knowledge and pass it on (transfer it) to others. Traditionally, transfer has been through dissemination of research findings and methods in scholarly and peer-reviewed publications and through teaching and learning. Country with high share of R&D have a high performing competitive economy (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; Howard, 2005; OECD, 2001; Hemlin, Allwood and Martin, 2004).
4	Applied R&D	Research and development generates innovations, adds to the knowledge base of industry, and is a key economic growth driver (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; Howard, 2005; OECD, 2001).
5	Basic R&D	Basic R&D helps in developing the future private-sector research. It provide base for applied R&D (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; Howard, 2005; OECD, 2001).
6	Professional and Managerial Dev.	The role of professionals, managers, and technicians in the knowledge based economy is very important. Their importance is increased due to high level of automation in the knowledge based systems which eliminate the routine jobs (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; Howard, 2005; OECD, 2001).
7	Workforce Education/ training	In knowledge based economy, workforce education and training is critical and essential to enhance the level of innovation and production of creative products and services (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010;

		Howard, 2005; OECD, 2001).
8	**High-Tech Employment**	The high-technology industry plays a major role as a driver of innovation and a basis for high-paid jobs. High-technology jobs are considered as the hot cakes for knowledgeable and skilled workers(Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; Howard, 2005; OECD, 2001).
9	**Entrepreneurial Activity**	In the knowledge economy, success depends mainly on the development of innovative activities and development of new models for businesses. Entrepreneurial ventures are important for the economic development of the countries. Although the rate of success is not very high, however, the new firms create jobs and develop innovation based products, processes and services (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; Howard, 2005; OECD, 2001).
10	**Value Added Manufacturing**	It is the difference in value of inputs and the value of finally produced goods or services. In the manufacturing sector, high-value-added are capital-intensive and creating high tech and complex goods and services. The workers at high valued manufacturing are highly productive and knowledgeable and generate more value for working hour (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; OECD, 2001).
11	**Industrial Patents**	Inventors are the established icon. Today, many owners of individual patents—not assigned to any organization—are not mere tinkerers. Industries are also spending huge amount of money on R&D. Because the New Economy places a premium on innovation, this wellspring of innovative activity has become an important foundation for many entrepreneurial ventures (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; Howard, 2005; OECD, 2001)
12	**Job Churning**	Stable growth in employment masks the constant churning of job creation and destruction, as less innovative and un-efficient companies downsize or go out of business, and more-innovative and competent companies develop and replace incompetent firms. New firms account for only 3 percent of total employments, all of these jobs are new jobs, and therefore help grow the economy (Atkinson et al 2010; Zehner, 2009)
13	**Initial Public Offerings (IPOs)**	The number of IPOs is used as a knowledge economy indicator in the knowledge economy. They show the financial strength and stability of the economy (Dahlman and Chen, 2005; Atkinson et al 2010; OECD, 2001)

14	**Professional and Managerial Jobs**	The role of professionals, managers, and technicians in the knowledge based economy is very important. Their importance is increased due to high level of automation in the knowledge based systems which eliminate the routine jobs (Dahlman and Chen, 2005; Atkinson et al 2010; OECD, 2001)
15	**Fastest-Growing Firms**	The fastest-growing firms had shown expansion in the revenue around 200% during the period of four-year in US economy. It has been observed that the high growing firms usually, have less than 100 employees; they are the indicators of the successful entrepreneurial struggles in the economy and are the determinants of growth. High performing economies are famous for their entrepreneurial sectors (Dahlman and Chen, 2005; Atkinson et al 2010).
16	**Exports, (Manufacturing and Services)**	Trade is the essential part of the economic development. The developed economies are identified through their high-valued and high-tech manufacturing sectors. Exports in service sector are increasing at faster pace than exports of products. Moreover, service exports have been impacted less by the economic recession than by goods exports. Research finds that the more stable service-sector exports are, the less unemployment rises during an economic downturn. Export industries are considered as the source of economic prosperity (Hollanders and Arundel, 2006, Dahlman and Chen, 2005, Atkinson et al 2010, Howard, 2005, OECD, 2001).
17	**Inward FDI**	Incoming foreign direct investment (FDI) denotes the investments made by non-local firms in new areas that create employment in economic-base activities Dahlman and Chen (2005), Atkinson et al (2010), Howard (2005), OECD (2001)
18	**GDP Growth**	An innovation system is composed of individuals and organizations that directly and indirectly invest time, energy and resources in the production of scientific and technical knowledge. National wealth (GDP per capita) and R&D intensity (% GDP spent on R&D) are used as the performance indicators to rank countries and economies (Malhotra, 2003; World Bank Report, 2007; Chen and Dahlman, 2005; Atkinson et al 2010; Howard, 2005; and Godin, 2008).
19	**Population Using Internet**	The population of individuals online is probably the most basic indicator of a state's progress toward a digital economy (Dahlman and Chen, 2005; Atkinson and Andes, 2010; and OECD, 2001)
20	**Digital Government**	Governments using high technology information systems are producing not only the high quality services but are also reducing their services costs. Such governments are also encouraging the greater use of IT among residents and businesses (Hollanders and Arundel, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; OECD, 2001).

21	**Use of IT in Health**	Significant improvements in health care in the future will come from increased use of IT. Robust adoption of health IT could reduce annual health bill (Atkinson et al 2010; Dahlman and Chen, 2005; OECD, 2001)
22	**Tariff, Non-Tariff Barriers**	Tariff and Non-Tariff Barriers are the policy barriers that disturb and affect the trade and production activities in the economy (Beghin, 2006; Dahlman and Chen, 2005; Atkinson et al 2010; OECD, 2001)
23	**Green Economy**	Irrespective of the fact that the green economy is good for the planet, reduced consumption of carbon-intensive energy sources, it is an emerging component of economic vitality. Due to increasing cost of oil use of green technology for energy efficiency lowers the business costs, governments and public expenditure on energy and make country an attractive places to live and investment (Atkinson et al 2010; Dahlman and Chen, 2005; OECD, 2001)
24	**Government Financing**	Government financing is vital for new technology based entrepreneurial firms. Government identifies the innovations and provides support in terms of finances to bring the innovation to the marketplace. In knowledge economy government's role as a financial supporter is important (Dahlman and Chen, 2005; Atkinson et al 2010; OECD, 2001)
25	**Poverty Eradication**	Civil society is being involved in the efforts to develop and implement strategies and policies to eradicate poverty. Public's involvement is due to its important globally accepted role like the establishment of Global Fund to fight AIDS, Tuberculosis and Malaria. In the knowledge economy poverty has been identified to rank the knowledge economy success (Dahlman and Chen, 2005; Pasha, 2005)
26	**Gender Development**	Gender development is an important factor in economic development especially gender difference effects economic development directly because gender differences measure the quality of human asset. It further measures the impact on investment and population growth (Klasen, 1999; Dahlman and Chen, 2005)
27	**Public Financial Assistance**	Public Financial Assistance is considered as an important tool to support newly established entrepreneurial firms. Public funds promote innovation activity through commercialization and by providing help to bring these innovations to market. In knowledge economy Public's plays an important role as a financer (Rothenbusch, 2005; Barkley et al 2001; Dahlman and Chen, 2005; OECD, 2001)
28	**Political Stability**	Political stability plays a dominant role in determination of economic growth and sources of capital accumulation. Younis et al (2008) argued that the role of political stability in accelerating economic growth is more vital than economic (Younis et al 2008;

		Mitchell, Seliyson and Smith, 1998; Lim and Lloyd, 1986; Smith, 2002; Acemoglu and Robinson, 2003; Dahlman and Chen, 2005).
29	**Good Governance**	The relationship of good governance with economic propensity is evident by the work done by Rousseau (1762) over two hundred years ago. He observed a strong association between governance and economic performance. The study conducted by Moers (2002) verified the observation of Rousseau while conducting the research on Central and East European countries. He identified that "once a certain degree of macroeconomic stabilization has been accomplished, the institutional environment becomes the more important determinant of growth". Moers findings are also valid in term of economic development of the economies. Bradshaw and Blakely (1999), Cooke (1998) and Rondinelli (2003) developed a strong and clear link among the competitiveness and economic development, governance and capacity.

Simple measurement of performance determinant variable is not the indication of a system's successful knowledge based transformation. That measurement must explain how it is making economy competitive. So, based on the above variables identified through literature review, the study tried to establish whether these variables enhance economic competitiveness in the mediation of civil society. The main objective of this study is to develop and test a transformational framework that measures economic competitiveness and its relationships to innovation and knowledge economy performance. The framework is based on additive equation of GNP (Xue and Yang, 2004). According to the GNP equation;

- **GNP = f (Consumption, Government expenditure, Investment, Exports, and Imports) ……. (1)**

In the econometric studies this equation is given as an additive function which gives the following equation

- **GNP = f {Consumption + Government Expenditures + Investment + (Exports – Imports)} …… (2)**

For the framework purpose based on the econometric concept of GNP by Xue and Yang (2004), this study defines economic competitiveness (EC) as "the function of knowledge based performance determinant variables that can be used to create wealth and foster economic competitiveness." Therefore, from equation (1) the new equation derived would be

- **EC = f (knowledge based performance determinant variables) ……(3)**

By adopting factor analysis technique, 29 performance determinant variables have been divided into six component factors, therefore, the equation would be

- **EC = f (Industrial Growth, Professional Development, Research and Development, Domestic Growth, Social Development, Employment Growth) ……. (4)**

After replacing the variables in the equation (2), the additive model of proposed transformation model based on equation (2) would be;

- **EC= f (Industrial Growth + Professional Development + Research and Development +Domestic Growth + Social Development + Employment Growth) …… (5)**

Thus based on the additive model as given in equation (5), the knowledge economy transformation framework has been proposed a flexible coefficient model in which the regression coefficients of economic competitiveness of knowledge based transformation are additive functions of performance determinant variables.

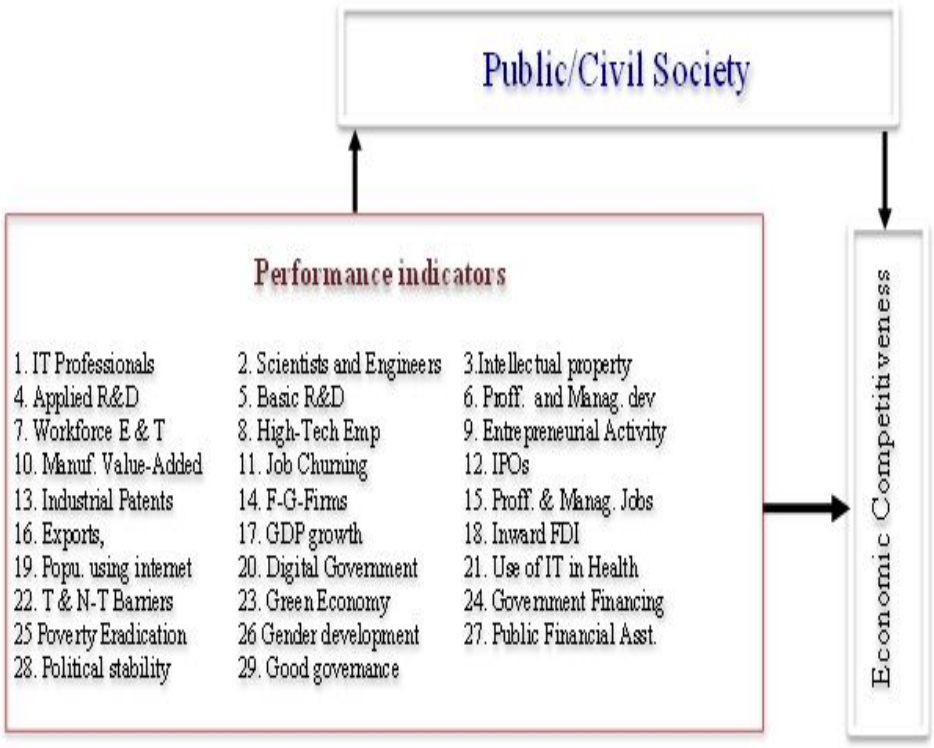

Figure 1: Civil Society and Economic Competitiveness

3. Research Methodology and Analysis

NGOs working in Malaysia for the economic wellbeing and development are used as the population for this study. As the complete list of experts of civil society organization was not available therefore, convenience sampling method was employed. According to De Vas (1998:191) "convenience sampling is the rational choice in cases where it is impossible to identify all the members of a population".

According to Hair et al (2006) the size of the sample should depends on the number of items developed for some specific characteristic. It was suggested that each item should be represented using 5 samples. Since, this study intends to use 29 indicators; therefore, the sample size would be 145. A questionnaire is prepared by using the variables uncovered in the study conducted by Penksa, (2010), Arnkil et al (2010) and the Global Competitiveness Report (2010-2011). The questionnaire was uploaded using online

survey tool. Respondents were also contacted through mail questionnaire technique. In order to validate the factors used in the study, an exploratory factor analysis test was conducted on the collected data to find out the preferred explanatory factors. A principals-component analysis was used as method for extracting the variables whereas; Varimax along with Kaiser Normalization technique was used before rotating the factor.

The exploratory factor analysis grouped the factors as per their attributes into following variables: (1) Industrial Growth (2) Professional Development (3) Research & Development (4) Domestic Growth (5) Social Development (6) Employment Growth. These variables are identified in the loading patterns of the single item on the attributes. Furthermore, the resulting identical factor of the 29 items used in the questionnaire with five-point scale can be used in subsequent analysis. In order to measure the 29 identified variables 145 samples are used, which are considered as appropriate for proceeding to factor analysis with Varimax Rotation and Kaiser Normalization along with Principal Component Analysis. Cross-loadings are also observed in the loading patterns. Generally, the patterns of loading relates with the pre-determined group of items. The factors with more than one eigenvalues are extracted. The extracted factors have described around 71.46% of the variance, which shows that the factors extracted are representing the satisfactory solution. The overall Cronbach Alpha value is calculated to be 0.924 and component wise values are 0.859, 0.804, 0.790, 0.728, 0.871, and 0.788 respectively which is over and above the acceptable range of 0.7 as proposed by Nunnally (1978), which indicates high reliability value for the items used in the questionnaire to measure the economic competitiveness.

3.1 Correlation Analysis

To start the analysis, it is required to make sure that the following three conditions are fulfilled as proposed by Baron and Kenny (1986) in order to find out whether mediation has occurred:

- Independent variable predicts dependent variable
- Independent variable predicts mediating variable
- Mediating variable predicts dependent variable

Therefore, Pearson's correlation coefficient test was applied to obtain correlation coefficient values required to check the strength of each relationship. The correlation values that fulfill the first and second condition are given in Table 3

Table 3: Correlation (IV-DV and IV-MV)

	Industrial Growth	**Professional Dev.**	**Research & Dev.**	**Domestic Growth**	**Social Dev.**	**Employment Growth**
Economic Competitiveness	.471	.521	.476	.463	.592	.486
Civil Society Mediator	.395	.468	.736	.417	.624	.570

In order to confirm the third conditionality, a correlation analysis was performed between public/civil society (the mediator) and economic competitiveness (the dependent variable) and the correlation value obtained was 0.631. The aforementioned results

confirmed the fulfillment of all three conditions of mediation, therefore, the analysis further continued to check the mediating effect of public/civil society using regression test. Baron and Kenny (1986) proposed that mediation test is completed in four steps. In the first step, the dependent variable (DV) should significantly be predicted by the independent variable (IV). In the second step, mediating variable should significantly be predicted by the IV and in the third step the prediction of DV should be significant using mediator. In the fourth and final step, the DV should also be predicted significantly by both IV and mediator collectively. If this four step criteria is met, then the independent variable's direct effect definitely be reduced. If the IV becomes insignificant, it shows that perfect mediation is occurred. This will be further validated by Sobel test where if the effect of reduction of IV reached to zero, complete mediation has been confirmed. In this situation the significance of the mediation model will be tested using a Sobel test (MacKinnon and Dwyer, 1993; Soper, 2011).

Following the guidelines provided by Baron and Kenny (1986), the analysis is further carry on to find out if public/civil society is the mediator. The researcher, therefore, followed the four step procedure in the analyses below.

3.2 Stepwise Mediation Test

In order to proceed systematically the impact of civil society as a mediator is tested separately with each identified component of IVs i.e. (1) Industrial Growth, (2) Professional Development, (3) Research & Development, (4) Domestic Growth, (5) Social Development and (6) Employment Growth.

3.2.1 First Step of Mediation Test

First step of mediation test is performed to measure the relationship between independent variables and dependent variables. The beta coefficient value of (1) Industrial Growth, (2) Professional Development, (3) Research & Development, (4) Domestic Growth, (5) Social Development and (6) Employment Growth for IV-DV relationship is observed to be 0.471; 0.521; 0.476; 0.463; 0.592; 0.486 respectively which indicated the strength of association between the independent variable and the dependent variable. It is equal to the correlation coefficient between the two variables. Based on the beta coefficient values, it can be concluded that all six independent variables are playing a positive role in economic competitiveness as the variables contributed positively in the economic competitiveness of the country which in turn determine the economic performance of the country. The correlation value is above 0.4 which shows that the strength of the relationship is also satisfactory.

The values of R square in all six models are equals to 0.222; 0.272; 0.227; 0.214; 0.350; 0.236 respectively. The value of R square explains the proportion of variance in the dependent variable described by the regression model. The above mentioned R-square values reflected that the models explained a satisfactory level of variations in the dependent variable. This is confirmed further by Analysis of Variance (ANOVA) which explains that the independent variables performed a good job in explaining the variations in the dependent variable

3.2.2 Second Step of Mediation Test

In the second step, the relationship between independent variables (IV) and mediators (MV) is measured. The beta coefficient value of (1) Industrial Growth, (2) Professional

Development, (3) Research & Development, (4) Domestic Growth, (5) Social Development and (6) Employment Growth for IV-MV relationship is observed to be 0.395; 0.468; 0.736; 0.417; 0.624 and 0.570 respectively. The correlation values indicated that the role of Public/Civil Society is stronger in the economic development and competitiveness of Malaysia. The results indicated that the 'Industrial Growth' variables shows a weaker association, which indicated that the participation of civil society in Industrial Growth is still weaker. Whereas, the satisfactory association between civil society and Professional Development and Domestic Growth variables confirms that the role of civil society in Malaysia is increasing towards professional development and similarly to support the domestic economy, civil society's contributions are satisfactory. The role of civil society is observed to be strong for Research & Development, Social Development and Employment Growth. Therefore, it can be concluded that the civil society which was once thought to be the protector of human rights, is now playing an important role in the economic development and enhancement of economic competitiveness of the country. The values of R-square and ANOVA indicated that the independent variable significantly explains the variation in the dependent variable.

3.2.3 Third Step of Mediation Test

Third step of mediation test for Public/Civil Society confirms that the relationship between public (treated as IV) and economic competitiveness (DV) is strong and positive. The beta coefficient value is observed to be 0.631. Therefore, it is observed that the public/civil society has a strong role in increasing the economic competitiveness of Malaysia. The value of R-square with 0.390 is indicating that the model is good fit and has explained 39% of the variation in the dependent variable. The significance value of F indicates that the independent variables did a good job in explaining the variation in the dependent variable.

3.2.4 Fourth Step of Mediation Test

The combined effect of independent variable (IV) and mediator (MV) on economic competitiveness (the DV) is measured in fourth and final step. The beta coefficient value for all six variables is reduced significantly in the combined effect which confirms that due to the insertion of mediating variable, independent variable's direct effect has been reduced. The value of beta for Research & Development is observed to be 0.027 and insignificant. Therefore, as per Barron and Kenney (1986) if the value of independent variable becomes insignificant in the combined test, it is the indication that the insertion of variable is moving towards perfect mediation; however, this would be confirmed using Sobel Test. As the conditions to test the role of mediator at bivariate level is met, therefore, the analysis could be proceeded to test the significance of the mediation model using online Sobel Test

Supporting the mediating role of public-control in the proposed relationship, the Sobel test for mediation (signifying whether the predictor indirectly effect by the mediator as per the criterion and is significantly different from zero) showed that the indirect effect of independent variables on economic competitiveness is significantly reduced due to the insertion of public as a mediator in the model. In other words, the Sobel test has validated the occurrence of mediation while establishing the relationship between Industrial Growth; Professional Development; Research & Development; Domestic Growth; Social Development; Employment Growth (IVs) and Economic Competitiveness (DV). In

analyzing the mediating role of public in the relationship between Research and Development and Economic competitiveness, it is observed that in the combined effect of IV and MV on DV, the effect of IV become insignificant, which leads towards the perfect mediation role of public-control. However, the perfect mediation impact has not been validated using Sobel Test which although showed that the mediation occurred but no perfect mediation has been confirmed.

Table 4: Stepwise Mediation Test

Steps	Model Name	Un-Stand.		Stand.	R^2	Sig.	Sobel's	
		B	S. E	Beta			T-Statistics	P-Value
Model 1. Industrial Growth (IV)-Public (MV)-Economic Competitiveness (DV)								
Step 1	IV-DV	0.381	0.060	0.471	.222	0.000		
Step 2	(Constant) IV-MV	2.365 0.404	.314 .079	.395	.156	0.000		
Step 3	MV-DV	0.498	.052	.631	.398	0.000		
Step 4	IV-DV MV-DV	.212 .416	.055 .054	.263 .527		0.000 0.000		
Sobel Test							5.676	0.000
Model 2. Professional Development (IV)- Public (MV)-Economic Competitiveness (DV)								
Step 1	IV-DV	.358	.049	.521	.272	0.000		
Step 2	Constant IV-MV	2.313 0.407	.303 .065	.468	.219	0.000		
Step 3	MV-DV	Same as Model 1 (Step 3) of this Table						
Step 4	IV-DV MV-DV	.199 .391	.048 .055	.289 .495		0.000 0.000		
Sobel Test							5.316	0.000
Model 3. Research & Development (IV)- Public (MV)-Economic Competitiveness (DV)								
Step 1	IV-DV	.328	.051	.476	.227	0.000		
Step 2	Constant IV-MV	1.498 .642	.185 .050	.736	.541	0.000		
Step 3	MV-DV	Same as Model 1(Step 3) of this Table						
Step 4	IV-DV MV-DV	.018 .483	.067 .076	.027 .611		0.782 0.000		
Sobel Test							4.777	0.000
Model 4. Domestic Growth (IV)- Public (MV)-Economic Competitiveness (DV)								
Step 1	IV-DV	.420	.068	.463	.214	0.000		
Step 2	Constant IV-MV	1.957 0.479	.349 .088	.417	.174	0.000		
Step 3	MV-DV	Same as Model 1(Step 3) of this Table						
Step 4	IV-DV MV-DV	.219 .419	.063 .055	.241 .530		0.001 0.000		
Sobel Test							4.373	0.000
Model 5. Social Development (IV)- Public (MV)-Economic Competitiveness (DV)								
Step 1	IV-DV	.489	.056	.592	.050	0.000		
Step 2	Constant IV-MV	1.293 0.653	.272 .069	.624	.389	0.000		

Step 3	MV-DV	Same as Model 1(Step 3) of this Table						
Step 4	IV-DV MV-DV	.268 .339	.066 .063	.324 .429		0.000 0.000		
Sobel Test							3.653	0.000
Model 6. Employment Growth (IV)- Public (MV)-Economic Competitiveness (DV)								
Step 1	IV-DV	.378	.057	.486	.236	0.000		
Step 2	Constant IV-MV	1.685 .562	.265 .068	.570	.325	0.000		
Step 3	MV-DV	Same as Model 1(Step 3) of this Table						
Step 4	IV-DV MV-DV	.145 .414	.061 .062	.187 .524		0.018 0.000		
Sobel Test							4.616	0.000

4. Findings

The public/civil society sector in Malaysia is contributing weakly for the industrial development. It was observed that the correlation coefficient value between industrial growth and civil society mediator is 0.395 which is although positive but weak. This has revealed the fact that the civil society of Malaysia is not strong enough to ensure its participation in the industrial growth and development. Therefore, in order to keep the economic and industrial growth on the right track, it is necessary to strengthen the civil society role not only in industrial development but also in other factors like research and development, domestic growth, professional development, social development and employment growth in Malaysia.

It was observed that the impact of professional development and domestic growth on Economic Competitiveness is also not very strong (0.468, 0.417), therefore, as mentioned above the participation of civil society as contributor in economic development as a monitoring body, facilitating body, and as a financer in order to control the negative and unethical innovations and behaviors is very important. Moreover the role of civil society is also important for the fair distribution of wealth in order to protect the citizen's rights and eradicate poverty. Monitoring the governance level in every sector is also an important task controlled by the civil society. Involvement of civil society in the business as a venture capitalist also highlights the importance of civil society as a private business financer.

The results obtained from the step wise mediation tests using regression analysis reveals that due to the insertion of public/civil society as a mediator, the impact of research and development variable on economic competitiveness has been reduced comprehensively and made the relationship insignificant, thus highlighted the importance of public involvement in research and development activities. The results further established that Research and Development cannot play significant part in economic competitiveness without inclusion of public.

Table 5:Public/Civil Society's Mediating Effect

Step	Model	B	S.E	Beta	Sig
Step 4	IV-DV	.018	.067	.027	0.782
	MV-DV	.483	.076	.611	0.000

The relationship between Independent Variables (IVs) and Economic Competitiveness Variable (DV) is significantly reduced due to the insertion of public/civil society as a mediator in the model. In other words mediation has occurred while establishing the relationship. This has also confirmed that the indirect impact of all identified independent variable through mediator is stronger on economic competitiveness variable as compared to the direct impact.

5. Conclusion

The results confirmed that the civil society is mediating the economic performance variables which confirm that the competitiveness enhancement is not a direct phenomenon; rather the competitiveness of the economy is more effectively enhanced if efforts are made to improve the civil society sector. The findings are consistent with the findings of Mustapha and Abdullah (2004), Kafela (2010) and Ling et al (2010) who are of the opinion that the institutional participation is the only solution for economic progress in Malaysia.

The purpose of this research is to explore the role of civil society for developing a mechanism for improvements in the policy structure and increase in the sectorial capacity. During this research, it is observed that Malaysia's economic competitiveness is based on socio-economic and public attributes of the country. The basic issue that has been identified in the previous studies conducted by Jacob (1997); Lerner (1999); Polt et al (2001); Cook (2002); Lundvall (2002); Benneworth and Charles (2003); Aslan (2006); Brouwers, Duivenboden and Thaens (2009); Penksa (2010); Carayannis and Campbell (2010) and Sanford and Balasundram (2011) was that they generalize various types of factors to measure the overall economic performance and competitiveness without involving sector's role in economic development and competitiveness, whereas, this research focuses the role of civil society sector in economic development.

Based on the research findings, it is also confirm that the civil society is a key player which provide support for the identification of business areas through interactive platforms like conferences, workshops and seminars; initiate standard-setting activities and describe future aspects and growth potentials for all stakeholders. The finding got support from Heng et al (2012) in which they are of the opinion that public is the most important source of sustainable research collaborations. Hence civil society will provide platform for constant dialogue, interaction and negotiations to other stakeholders of the economy.

The important role identified in the 10th Malaysian Plan in transforming the economy is the development of man power for the industry. Same was recognized by Ling et al (2010). In the same line this research identifies professional development and employment growth as an important dimension of economic transformation. For this purpose, special need based curricula and continuing education programs should be devised in collaboration with civil society to enhance the innovative capability of the human resource in Malaysia and to create a skilled workforce to overcome the problem of low skilled workers (Jarjis, 2007; Juma, 2005). Another important transformation and collaboration activity in which civil society is observed to be involved is the industrial growth through technology up-gradation by providing technical solutions to the problems and by providing consultation services. Public forums could be used to help all the stake holders of the economy to discuss the future requirements and global best practices and

social development requirements thus validate the notion of "supportive ecosystem for innovation" as given in Tenth Malaysian Plan.

6. Discussion and Recommendations

The role assigned to civil society as a source of relief and an advocate of civil rights, made it a compulsory participant of economic, public and societal infrastructure development which is essential for a quality living as identified by Salamon and Anheier, (1997); Fukuyama, (1995); and OECD, (1996). The civil society sector conceptually considered as a difficult social area that exist mainly outbound from the industry and the government. However, the results of this research confirm the fact that the civil society is an indispensable sector of the economy. Strong society can have a constructive effect on the government, educational institutions and the industry. Therefore, it is considered as an important mediator for promoting good governance such as transparency, efficiency, equality, awareness, accountability and eradicating poverty.

As confirmed by the results this research make it evident that the role of civil society is necessary in stimulating the economic development, eradicating poverty, promoting policy modification, supporting good governance and providing support for the attainment of economic competitiveness.

The institutional collaboration along with civil society can make all the actors stronger through mutual reinforcement at national level. Overall, it is can be concluded that civil society is a major contributor towards the accomplishment of the economic competitiveness agenda, directly as facilitator and indirectly as supporters and promoters as was done by Singapore (Cahyadi et al 2004). Malaysia also requires turning its people into asset and using them as a launching pad for the economic transformation. Thus, civil society organizations should explore ways of offering various types of services in addition to the lobbying and advocacy role. Some of the activities they should undertake include:

- Interacting with governments on improving of the business environment.
- Continue representing the interests of the private sector to governments.
- Provide business services in the fields of information and training.
- Assist enterprises in increasing competitiveness.
- Promote linkages at national, regional and international levels.
- Undertake business and export promotion through organizing national, regional and international trade fairs.

7. Limitations

The scope of the study is limited. This study is bound by regional proximity to Malaysia, and may not be a true representation of all Asia Pacific economies. A major limitation to this study was the cooperation of participants and honesty in replying the answers to the survey questions. Furthermore, relatively less information is available which influence the accuracy in selection methodology.

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