**Technology Development and International Competitiveness: A Case Study of Pakistan’s Economy in the Global Trade Market**

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**Abstract:**

The idea of competitiveness has been broadly accepted and has turns into a part of debate in international forums. Today world-wide economy cannot be enlightened by using the same approach without innovative technology as it was a few decades before. When progresses of the firms and states are observed, public generally regard international competitiveness as critical part of the debate. The study in this paper attempts to evaluate position of Pakistan’s economy with the perspective of International Competitiveness in terms of its technological development and exports progress. It’s concluded that export markets can be strengthening by the countries with the passage of time. There is crucial requirement to improve their technological progress and governance. Pakistan is passing through the stage where there is need to employ the standards of international competitiveness. The study is sum up by explaining a suggestion to government of Pakistan with the key highlights that higher technological exports will comes true only by intensification of research and development via investment in the human capital of the economy. This entail mutual efforts from three major players; individuals, business entrepreneurs and government.

**Keywords**: Technology, Competitiveness, R&D.

**Introduction:**

Progressive competitiveness of economies is a key requirement of the day and capability to contend in the global marketplace is of significant concern. Problem begins from the belief that the primary goal of a country is not the current account’s growth, rather the growth in the real incomes of its natives for which the progress of the domestic productivity is the essential theme. Alternatively, we should remember that nations do not contend with each other the way firms compete with one another. The correspondence between the countries’ competitiveness and firms’ competitiveness is not real (Krugman [1994a], [1994b]; Krugman [1996]). . If firms faces decline of shares in global market, it is due to the lack of international competitiveness. When an economy’s current account balance reflects a deficit, poor international competitiveness of the nation is place ahead [(Nurbel, A. (2011)].

Primarily the majority of the economists explained the notion of international trade on the basis of comparative advantage, and then turns into a new attribute of Trade theory. The study in this paper attempts to evaluate position of Pakistan’s economy with the perspective of International Competitiveness. The major focus of the study is to understand the importance of the concept of competitiveness, to investigate Pakistan’s position in International market and to identify what lessons Pakistan should consider important to learn from newly emerged economies.

**Theoretical Background:**

Most disrupting and strongly debated conception of competitiveness was firstly introduced by Porter. He offered an idea that how a country might play a game strategically and could be successful in extracting great levels of revenues from trade, by implementing new trade theories. The comparative advantage theory of Ricardian gained a new aspect as Porter emphasized on development of comparative advantage or innovativeness by improving to sustain greater shares of market. Therefore, the idea of productivity that can be work to attain greater levels of international competitiveness materialized [Porter M.E. (1990)].

Indices based on productivity are extensively used in the measurement of competitiveness. As per Porter point of view productivity is the most valuable thought in international competitiveness. The absolute productivity index that imitates this benefit is the Total Factor Productivity (TFP). A country is called competitive when its industries maintain an average level of Total Factor Productivity TFP higher than the level its trading competitors have. TFP is a determinant of development, growth and efficiency as a whole.

Competitiveness can also be measured by indices that demonstrate exchange rate management and trade performance. Furthermore, the real effective exchange rate (REF) or the Purchasing Power Parity (PPP) of a country’s currency is the necessary tools for the assessment of competitiveness analyzed by financial analysts and economists. Structure (goods and their desired destination) of exports and commodity development and dynamics, as well as intra-trade, attentiveness, concentration, awareness, complementarily, discovered comparative advantage, etc are includes in these indices.

As a survey paper, the concepts, explanation and measurement of competitiveness are the major concerns to evaluate further in order to measure Thailand’s position in the region.

**An Overview for Understanding Competitiveness;**

The belief of competitiveness has been disrupting and is connected with two extremes microeconomic issues or macroeconomic issues. Krugman (1994) explains that firms compete for exports, not the nations. Lall, S.(2001) put emphasis on that nationwide competitiveness is an actual issue that can be explained and measured. Start moving from low technology to higher technology is not an easy process that concerning with many policy interventions.

Krugman thinks that the idea of competitiveness is not considerable and appropriates it as dangerous obsession. It is unsafe when implemented to national economies. His remarks and contributions in progress of the strategic trade theory often linked with competitiveness were broadly noticed. He believes that emphasis of competitiveness is on trade balances which detract from the factors of growth in national productivity. A due consideration has been given to international trade in competitiveness debate. Along with investment in international trade, human resources and technology were also given significant importance which is core essentials of productivity. Kaufman’s criticism consist of several points: countries are not like companies and any correspondence among them is ambiguous, competitiveness does not clarify productivity and competitiveness does not present reasonable base for public policy [Burton, Jr. (1994)].

World Economic Forum (WEF) defined it as *Competitiveness* is associated to the set of organizations, factors, and policies that determines the productivity level of a country. The main insightful definition of competitiveness is *a* *share of a country in international markets for its goods. This creates competitiveness* *a zero sum game, due to gain of one country raises at the cost of others* [World Economic Forum (2014-15)].

Real competitiveness is explained by productivity. Productivity is a variable that permits a nation to maintain high wages, a strong money, and handsome return to investment and with all of them a high level standard of living. Global economy is not a zero-sum game and various countries can expand their richness if they can start improving productivity [World Economic Forum (2005)].

Productivity is a main driver of the rates of return on investment, which in turn reflects the level of aggregate growth rate of the economy. So, a more competitive economy is the one that is expected to grow more rapidly over the way to long term.

**Measuring Competitiveness from Recent Indices**

Competitiveness is a many-sided phenomenon and not easy to sum up in a particular index. The yearly report of World Economic Forum and IMD (International Management Development) employ a vast combination of variables (qualitative and quantitative) for the sake of measuring competitiveness. Data is being structured in indicators, factors and sub factors that allow summing up competitiveness in a single index. Report of World Economic Forum “The Global Competitiveness” is publish and issued yearly from 1979. At the beginning it consists of only 16 countries and in its newest version published in 2016-2017, the analysis has been extended to 138 countries. The Global Competitiveness Report highlights the progresses and achievements of member countries. It provides a depiction of selected countries overtime accomplishment of normalized per capita GDP and as well as demonstrates the differences in per capita GDP among various countries. In the network of Global Competitiveness, major intuitions concentrate on various factors that decide productivity level of a country. These factors matters in a different way among different countries subject to their phase of development, the relative significance of these factors vary over time.

The recently developed four competitiveness indices are used in our paper to identify our position in international market which are reported in Global Competitiveness Report “World Economic Forum 2016”, World Industrial Development Report UNIDO 2016, World Competitiveness annual book 2016 published by IMD (International Institute for Management Development) and The Global Manufacturing Competitiveness Index 2016. As per Global Competitiveness Index, following Table 1 presents an indication of counties ranked from Top 1 to 10. Whereas Table 2 show a ranking of some selected countries.

**Table 1: Global Competitiveness Index (Top 10 Countries)**

|  |  |  |
| --- | --- | --- |
| **Country** | **2016 Ranks** | **2015 Ranks** |
| Switzerland  Singapore  United States  Netherlands  Germany  Sweden  United Kingdom  Japan  Hong Kong SAR  Finland | 1  2  3  4  5  6  7  8  9  10 | 1  2  3  5  4  9  10  6  7  8 |

Source: World Economic Forum (2016)*.*

**Table 2: Some Selected Economies**

|  |  |  |
| --- | --- | --- |
| **Country** | **2016 Ranking** | **2015 Ranking** |
| Norway  Taiwan  Ireland  China  Thailand  India  Turkey  Lao PDR  Bhutan  Pakistan | 11  14  23  28  34  39  55  93  97  122 | 11  15  24  28  32  55  51  83  105  126 |

Source:World Economic Forum (2016).

The Global Competitive Index is calculated for 138 countries in 2016 and world competitiveness positions are provided. Switzerland is ranked at top as it is most competitive nation of the world, whereas Singapore is at second and the United States is ranked third. Switzerland’s top position reveals its capacity of innovation and existence of sophisticated business [World Economic Forum (2016)].

Among some Asian countries like Singapore is ranked as second, Japan as eighths, Hong Kong as ninth and Taiwan as fourteenth. These countries have higher quality of infrastructure, healthy/skillful workforce and efficient markets [World Economic Forum (2016)].

Thailand and India are ranked as thirty-four and thirty-nine respectively has exposed high scores if compare to various other Asian countries due to their potential for innovation and sophistication of firms operations. Use of technology by firms and transfer rates of technology are seemed to be high, but the penetration rates of using latest technologies are still very low by international standards [World Economic Forum (2006)]. Pakistan is ranked as one hundred and twenty two in Global Competitiveness index 2016-17 and comes along with poorer performers due to the deficiency of good quality governance. The country has revealed reasonably low ranks in all nine pillars of competitive index particularly in health and primary school education, Macro-economy, training and Higher education, and Technological eagerness. The Global Competitiveness Index 2016-17 demonstrate countries at lower end are Chad, Mauritania and Yemen [World Economic Forum (2016)].

**Technological Progress and World Market Trends**

Technological progresses in recent years have observed in International markets. A general assessment of technological progress is noticed as research and Development expenditures as proportion of total GNP. Technological concentrated activities are growing more quickly than some other activities since they offer higher productivity, prospective for continuous learning, and extent of FDI that present immense potential for exports. Nations can reinforce their export market through changing on from simple to superior technological enlargement. However resource based products using low technology is initial point for building competitiveness for developing countries but trends of world market recommends that it is also needed to encourage structural change. The countries that preserve higher rates of export development have improved their technological composition of production and exports [Zia, U. (2007)]. Technological groups normally classified with respect to products are as following,

* Resource Based/Primary
* Lower/Light Technology [LT]
* Medium/Average Technology [MT]
* Latest/Higher Technology [HT]

Report of ADB describes exports using category of technology by giving explanation about the share of world market of regions. There is a prominent increase of East Asian economies in high technology (HT) than in medium technology (MT) goods. Singapore, Malaysia, Korea, Philippines and Thailand have revealed a growth in high technology (HT) and medium technology (MT) exports [ADB Institute (2004)].

Various developing economies such as Korea and China have formed their domestic capabilities in adopting high technology. This extend of capabilities was determined in the early phases through the introduction of active industrial policy, with the limitations on inward FDI, security of fresh industries, provision of credit, strong back-up of domestic research & development and professional skills [Lall, S. (2001)].

Economies with no well-built domestic capabilities have turn into main high technology exporters. They give concentration to integrated production systems, primarily via performing comparatively simple assembly. Lot of countries has controlled to promote their role by means of moving into better national content, design planning and development, marketing at regional level and so on. Country like Singapore is significantly revealing for more sophisticated electronics, in the company of remarkable design competencies and rising local connections. On the other hand, some nations such as the Philippines or like Mexico are still concerning the circumstances to the value succession [ADB Institute (2004)].

There are few Latin American economies like Brazil, Mexico and Argentina are the sound examples of compound Medium Technology exports directed by Auto industries [ADB Institute (2004)].

East Asia is leading in high technological products. South Asia is gaining its market shares in all segments, specifically in lower technology and resource based products. Although in both by global standards, it ruins a diminutive player [Lall and Albaladejo (2003)].

**Analyzing Technology and Competitiveness Position of Pakistan:**

Position of Pakistan in competitiveness is assessed by evaluating various findings of some current studies. Share of Pakistan in entire world exports has decreased from 1990 to 2002. The share in world manufacturing exports has stayed stagnant at point 0.19 percent. Several developing economies such as China, Malaysia, India and Thailand have shown a prompt growth in exports in this phase [Sakib, S. (2004)]. Heavy investment from Pakistan has made to set up for post-MFA system and demonstrate remarkable performance in first 8 months of 2006. In reference of its cotton manufactures exports, export share in US market has improved by 13% but the share in the market of EU has dropped by about 15% [Amjad (2005)]. Regardless of having technological, economic and structural development, economy of Pakistan stays dependent in the production and processing of cotton. Greater than 70% of Pakistan’s export is depends on cotton related goods. The contribution from cotton products is about 11 to 16% of all domestic products [Amjad (2005)]. In export sophistication Pakistan’s scores are quite low. These low scores reflect its supremacy in low technological products. The capacity of Pakistan has limited in latest technological areas such as in scientific and R&D in relevant areas. Having small share in its technology intensive products and failing to elevate it, exports of Pakistan stayed concentrated in lower technological areas. In accordance with one estimate studied in 2002, 75% Country’s export was associated with low technology. Sri Lanka has a fruitful technology profile of its exports as compared to Pakistan’s exports [Sakib, S. (2004)]. Pakistan is facing disregard in human/social capital and skill development, Harbison-Myers Index of Skills showed a major decline in R&D specially spending on education. It is also surprising to notice that Pakistan is below compare to Nepal and Bangladesh. As a comparison of productivity measures with some related economies demonstrates that Pakistan’s projected per capita MVA (manufacturing value-added) is lower than China, Philippines, Thailand, India and Sri Lanka. Manufacturing at large scale, the progress in private investment is very slow that is one of the main limitations in the growth process of Pakistan’s economic. Unit wage costs of Pakistan are greater than most other regional countries. Basis for less business encouraging environment includes higher business costs, insufficient provision of infrastructure, political instability, undesired and poor regulations from government.

**Conclusion**:

A depiction of competitiveness of Pakistan’s economy connected with its export performance in presence of level of technology used has been explained in this study. As a conceptual study, the notion, description and evaluation of competitiveness has been analyzed and passed on further to observe the trends of global market. Competitiveness is associated with the technological development and exports progress of different countries. Export performance in terms of technology intensive position of Pakistan is examined as key concern of international competitiveness in world market. It’s concluded that export markets can be strengthening by the countries with the passage of time. There is crucial requirement to improve their technological progress and governance. Primarily developing economies can initiate from low technology as besides in case of Pakistan, however with the passage of time it becomes essential to transfer from primary to more sophisticated technologies. Competitiveness of a country can be elevated with the help of technology intensive activities. Pakistan is passing through the stage where there is need to employ the standards of international competitiveness. The study is sum up by explaining a suggestion to government of Pakistan with the key highlights that higher technological exports will comes true only by intensification of research and development via investment in the human capital of the economy. This entail mutual efforts from three major players; individuals, business entrepreneurs and government.

**References:**

[1] Amjad, R., ul Haque, N., & Colclough, C. (2005). Skills and Competitiveness: Can Pakistan Break Out of the Low-level Skills Trap?[with Comments]. *The Pakistan Development Review*, 387-409.

1. ADB Institute (2004) Industrial Competitiveness: The Challenge for Pakistan
2. Burton Jr, D. F. (1994). Competitiveness: Here to stay. *Washington Quarterly*, *17*(4), 99-109.
3. Global Competitiveness Report (2015-2016).
4. Krugman, P. (1994). Competitiveness: a dangerous obsession. *Foreign affairs*, 28-44.
5. Krugman, P. R. (1996). Making sense of the competitiveness debate. *Oxford review of economic policy*, *12*(3), 17-25.
6. Lall, S., & Weiss, J. (2004). Industrial Competitiveness: the challenge for Pakistan. *Asian Development Bank Institute-Pakistan Resident Mission Research Paper, Islamabad*.
7. Lall, S. (2001). Competitiveness indices and developing countries: an economic evaluation of the global competitiveness report. *World development*, *29*(9), 1501-1525.
8. Lall, S., & Albaladejo, M. (2003). China’s export surge: the competitive implications for Southeast Asia’.
9. Nurbel, A. (2011). The global competitiveness of the nation: A conceptual discussion. *Journal of Business & Economics Research (JBER)*, *5*(10).
10. Porter, M. E. (1990). The competitive advantage of notions. *Harvard business review*, *68*(2), 73-93.
11. Sakib, S. (2004). Pakistan’s International Competitiveness: Issues. *ADB sponsored report for Ministry of Commerce, Government of Pakistan*.
12. Ul Haque, I., Bell, M., Dahlman, C., Lall, S., & Pavitt, K. (1995). *Trade, technology, and international competitiveness*. World bank.
13. World Economic Forum (2015-2016) The Global Competitiveness Report,

Palgrave Macmillan.

1. World Economic Forum (2014-2015) The Global Competitiveness Report,

Palgrave Macmillan.

1. World Bank (2006) Pakistan Growth and Export Competitiveness, Poverty
2. Zia, U. (2007). *International Competitiveness—Where Pakistan Stands?* (No. 2007: 28). Pakistan Institute of Development Economics.