

Determinants of Productivity: A Conceptual Review of Economic and Social Factors

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Abstract

Welfare improvement is always a key and one of the major objectives of many nations. One of the most important ways of improving societal welfare is through productivity improvements hence various studies have been conducted in relation to this topic. In addition to the current developments in this area of research, this paper attempts to provide in-depth review of previous studies on the determinants of productivity with the aim of identifying both economic and social factors that affect the level of productivity. The paper shows that previous studies on the determinants of productivity are of different folds (on a different basis). The basis of the previous studies includes – that of economic factors and social factors –that of statistical method of analysis and non-statistical method of analysis, some studies are based on tangible “goods” while some are based on intangible “services”, some factors influence productivity positively while some negatively. Even though, the positive and negative effects of some variables are recognized to be non-mutually exclusive as the same variable might have both positive and negative influence on productivity in two different studies or countries due to the existence of discrepancy of some socio-economic conditions, technological strength and factor intensity among countries, areas of studies and organizations. Also, few studies exist on the determinant of productivity in the service sector compared with those in the goods sector. This paper suggests more empirical studies to be conducted in different countries, organizations and areas of studies especially, on the service sector productivity, as generalizations without empirical studies could be inconclusive and the effects of the determinants may be understated or overstated.

Keywords: Determinants of productivity, productivity, productivity improvements, developing economies

1.0 Introduction

The striking disparity between private sector and public sector is that the former is always aimed at profit maximization while the latter is aimed at maximizing the

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welfare of the entire society. One of the possible ways of increasing societal welfare is through productivity improvements (Tsauni, 2013). Productivity improvement is synonymous with reductions in wastages of resources in the process of production and better utilization of factor inputs through getting more results by applying fewer inputs. At times, it is synonymous with total quality management because it calls for constant and perpetual improvements of the production process for better (quality) and more output. It implies constant adaptation of economic and social life to changing conditions and doing better today than yesterday and improving on what is being done today by tomorrow as well as continue doing and achieving so. Productivity improvement is also getting maximum results in terms of output with reasonable inputs.

Increase in productivity indicate higher output in most cases and higher production. This may reduce the costs of production per unit of output and could lead to reduction in the price of commodity, increase in the demand of product, higher profit and more revenue to the organization as well as higher wages to workers and even increase in the demand for labor to produce more output. Increase in productivity could positively affect economic growth through costs reduction per unit and increase in the profitability of organizations. This could lead to higher dividend to shareholders, export promotion and import substitution, save foreign exchange and improve the balance of payment as well as increase in the country's reserve. Above all, maintaining a continuous improvement in labor productivity is key for a nation to lead in global market competition (Auzina-Emsina, 2014).

Productivity improvement eliminates wastage in the process of production. Such wastage includes that of raw materials, time for labor and machinery as well as space wastages, for the purpose of attaining higher output and full utilization of inputs. In general, improvement in productivity reduces the level of country's poverty and unemployment through making organizations and countries explore more and operate with high economies of scale. Honeycutt (1986) stated that the future of any organization (or nation) is highly depended on how it could be perpetually improving its productivity, which in turn, depends on the supports organizations (or nation) receives from its employees (or civil servant in case of a nation). Consequently, it is the duty of the management of such organizations to create good environment for the purpose of developing human resources to put their maximum potentials which will improve the future of the organization (or country).

Having ascertained that improvement in productivity is of paramount importance, some studies were conducted to identify the determinants of productivity on social basis while some are conducted to identify them on an economic basis. This research intends to make a conceptual review of both the economic and non-economic determinants of productivity as identified by various studies so as to analyze and harmonize them for easy comprehension of various users. The rest of the paper is as follows: section two presents the literature review, summary of the review is presented in section three and finally, section four concludes the paper.

2.0 Literature Review

In a simple language, productivity is defined as a ratio of output to input. That is to say, it is the average output per unit of input (Armistead, Johnston & Slack, 1988; Callaghan, 1990). They further explained that productivity can be measured solely on labor, which is labor productivity or average productivity of labor, and also on capital solely, which is average productivity of capital. A number of studies were conducted to investigate the major factors influencing productivity using different basis. This section reviews various mentioned studies.

Ahmad and Kialashki (2017), using time series data for the period 1970 – 2012, investigated the factors affecting productivity in some Asia Pacific countries – Australia, China, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore and Thailand. The results indicate that GDP influences productivity positively in all the countries, an increase in GDP leads to increase in productivity in all the countries. Foreign direct investment (FDI) influences productivity positively in all the countries with the exception of Australia, New Zealand and Philippines. Just like GDP, capital has a positive influence on productivity in all the countries. On the other hand, the influence of labor (number of workforce) on labor productivity is positive in Indonesia, Singapore, Thailand, Japan, Korea and New Zealand and it is negative in Malaysia, Philippines, China, India and Australia. Human capital (skills development) negatively influences productivity in the majority of the countries with the exception of Malaysia, Thailand, China and Korea this could be attributed to the fact that the latter countries spend more on skill development compared to the former in relation to their population. The effect of technological progress was measured by the interacting variable (AC – interaction between FDI and Human Capital) and inversely influences productivity in most of the countries except Korea, India and Australia. The effect of telecommunication investments on productivity is found to be positive in Malaysia, Thailand, China, India and New Zealand and negative in the rest of the countries.

Arranz-Aperte (2014) assessed the effects of dispersion of wages on labor productivity of Finland for the period 1990 – 2012 using panel data from 1180 plants. The results show that a positive significant effect exists on labor productivity by dispersion of wages within a plant. The relationship becomes quadratic when the dispersion is calculated on workers observable character. Also, positive significant effect exists by unconditional dispersion of wages within a plant and marginal labor productivity, the more the dispersion of wages as a reward for hard work without subjectivity, the more the marginal labor productivity. Finally, conditional wage dispersion is insignificant in influencing marginal labor productivity. Chen (2013) examined the impact of banking regulations, competitions and supervisions as well as Global Financial Crisis (GFC) of 2008 – 2009 on the changes of banks productivity using semi-parametric 2-steps of Malmquist Index Estimate (MIE) and bootstrap regression to a cross-country panel data of 8,451 commercial banks of 82 countries for the period 2004–2012. The results reveal that there is a significant positive influence of banking competition, capital

regulations, and tougher banking supervision on the productivity of banks. While GFC significantly and inversely influences the productivity of banks. The also presented a consistent evidence of higher productivity of banks in a country with better national governance before, during and after the GFC.

Belay *et al.*, (2014) analyzed the effect of Total Quality Management (TQM) on labor productivity in 34 selected companies in developing countries. They utilized both primary and secondary data in the process of their analysis. The study reveals that TQM has a strong positive relationship with labor productivity but weak relationship with asset per employee. Chapman and Al-Khawaldeh (2002) studied the effect of Total Quality Management (TQM) on labor productivity of the industrial corporations in Jordan, using both primary and secondary (for the period 1993-1998) data combined. Ordinary Least Squares (OLS) was applied to three categories of companies – High, Medium and Low TQM companies. The overall result indicates that TQM influences labor productivity positively. The contributions and a higher effect of TQM on productivity are sequentially indicated and attributed to higher TQM corporations followed by mid-TQM and low TQM corporations respectively.

Islam and Shazali (2011) studied the correlation between productivity in one hand and degree of skills, favorable working environment and Research and Development (R&D) on the other hand. The results show a positive correlation between productivity and all the three variables. R&D have high and strong positive correlation with productivity ($r > 0.7$), followed by favorable working environment ($r > 0.5$). The correlation between the degree of skills and productivity is weak ($r < 0.5$). This study was conducted on labor-intensive manufacturing industries of Bangladesh. Sukurai (1986) stated that general attitude and perception of workers are the major determinants of productivity. This statement is based on Japanese attitude to work, because of the flexible sense of involvement in one's duty, enterprising forwardness in doing one's work and considerate attentiveness to fellow team members highly featured, characterized and manifested in them.

Sharma and Dalip (2014) evaluated the determinants of productivity in the Indian banking sector after reform period which consists of 15 years 1997/1998 – 2010/2011, using Hicks-Moorsteen (HM) total factor productivity index (TFP) on 59 selected Indian banks. Panel data analysis was conducted, Fixed Effect (FE) and Random Effect (RE) were estimated and a choice was made using Hausman Chi-square test and it was in favor of FE. The result of the FE estimation indicated that market share is insignificant in explaining the changes in productivity. The profitability of the banks as measured by Return on Asset (ROA) is weakly significant (15%) in explaining the rise of Indian banking sector productivity. Whereas, exposure to off-balance sheet activities (OB) highly and positively influences banking sector productivity in India and finally, the size of the banks as measured by the log of total assets also positively and significantly influences the Indian banking sector productivity.

Auzina-Emsina (2014) examined the relationship between economic growth and labor productivity in the European Union (EU) countries before the crisis, during the crisis and after the crisis period. The results show that there is no relationship between the labor productivity and economic growth before and during the crisis period. It was after the crisis period that labor productivity becomes a significant driver of the economic growth of EU countries.

Boghean and State (2015) investigated the effect of Foreign Direct Investment (FDI) on labor productivity in European Union (EU) countries. To them, there is no direct link or relationship between FDI and labor productivity. The only possible indirect link is through technology transfer coming into the recipient countries majorly as a result of the inflow of the FDIs. Honeycutt (1989) believes that the full support of employees to organizations is a major source of improving organizational productivity. To him, open channels of communication, interpersonal trust and acceptance are the major factors that can boost employee support for organizations and therefore improves productivity.

3.0 Summary of the Review

The review indicates that on the basis of the nature of the factors affecting or determining productivity, the studies can be categorized into two: Economic factors, which include GDP, capital, FDI, wages and their likes. Other social (or non-economic) factors include TQM, workers' attitude, supervision, nature of organizational competition and environment.

Also, on the basis of the techniques of analysis utilized by the studies, they can also be categorized into two: there are those studies that utilized statistical and econometric tools and method of analysis on one hand like OLS, pane FE and RE as well as correlation analysis. On the other hand, are those studies that used non-statistical method of analysis. Such studies include those of Chapman and Al-Khawaldeh (2002) on TQM and productivity, Belay *et al.*, (2014) also on TQM and labor productivity and even Honeycutt (1989) on the perception or level of employees' motivation as a source of productivity.

Furthermore, on the basis of physical tangibility of the studied commodity (productivity) the reviewed studies are categorized into two: when the commodity in question that is being studied and analyzed is tangible (goods), the unit of measure is direct and also known and such study falls into the first category of productivity on "goods" study. When the commodity in question that is being studied and analyzed is not physically tangible (services) the unit of measure is not direct and such study falls into the second category of productivity on "services" study.

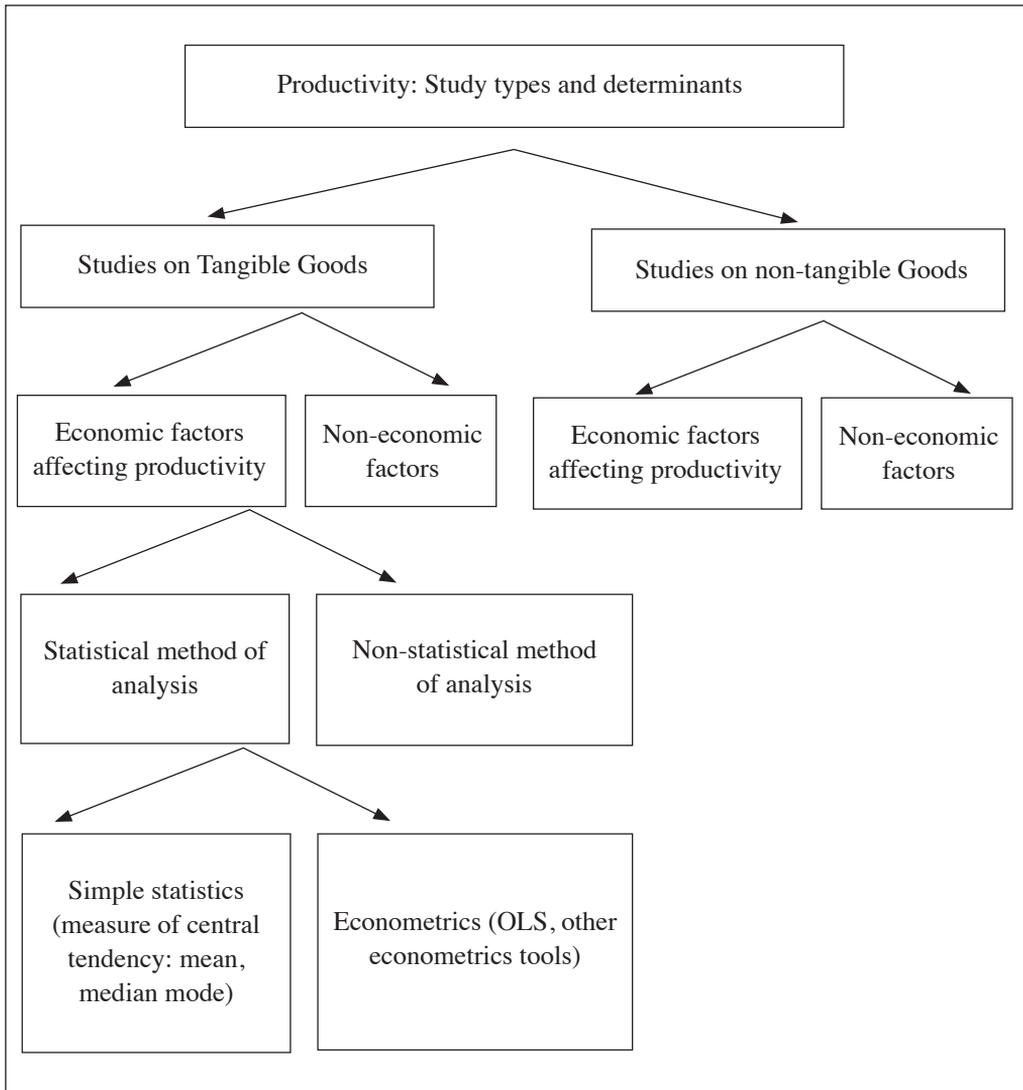


Figure 1. Summarizes the Classifications Already Explained

Nevertheless, on the nature of effects of the determinants on the determining variables, the reviewed studies are divided into two categories. The first category is those of the majority studies which concentrated and reported the positive influence of the determinants of productivity. Their major concentration is on those factors that can improve productivity so that they can be harnessed and enhanced. The second category are those of the few studies that reported among the factors that have a negative or inverse influence on productivity so that they can be avoided and minimized. The major aim of all the studies is on how to improve productivity through enhancement of the factors that can improve it and avoidance of those factors that can reduce it.

It should, however, be noted that some studies reported inconsistent findings in the sense that a factor in one study or country is reported to be positively influencing productivity whereas in the same factor having a negative or inverse influence on productivity in another study (or country). For instance, Ahmad and Kialashki (2017) reported that FDI, number of workers, Human Capital (skill development), technological progress, the effect of telecommunications having both positive and negative influences on productivity depending on the concerned country. This and other issues limits the scope and level of the applicability and generalizations of the various studies from one area to another without empirical proof.

It should, however, be noted that majority of the studies on productivity and its determinants are on tangible goods, very few studies were conducted on non-tangible commodities (services), compared with the studies on tangible goods. This could be attributed to the fact that measuring productivity in a service (money) sector is not as easy as measuring the variable in the goods (real) sector.

4.0 Conclusion

This study reviewed various studies on both economic and social factors that influence productivity. The studies reviewed fall into different categories on several bases. On the basis of the nature of the determinants or factors affecting productivity, it emerged that some determinants are economic factors while some are social (non-economic) factors. On the basis of the techniques of analysis, some studies used statistical tools or methods of analysis while some used non-statistical method of analysis. Also, on the basis of physical tangibility of the studying commodity, some studies emerged to be of “goods” category while some are of “services” category. Finally, on the nature of effects/impacts of the determinants on determining variable, positive determinants in one hand and negative determinants in the other hands were identified.

Although, on the nature of effects/impacts of the determinants on determining variable, the determinants are not totally mutually exclusive as the same variable in different study or country can appear in two sides of the coin (positive effect in one study/country and negative impact in another). This could be due to the differences in the level of scale of operation that the area or country of study attained. It could be as a result of the differences in technological advancement attainment of the area of study or even the nature of the intensity of the factor input (labor intensive or capital intensive) usage and availability in the area or country of study.

Therefore, having recognized the existence of disparity in terms of socio-economic conditions, technological strength and factor intensity, there is a need for more empirical studies to be conducted on productivity on both tangible and non-tangible goods in different organizations and different countries as well as different areas of study. More

of the studies are needed on non-tangible commodities as fewer studies exist compared with those on tangible commodities. Care should be taken as generalizations of the effect of a variable on productivity, without being empirically tested, could be doing more harm than good to the knowledge of productivity.

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