Improve Productivity for Efficient Production

DR. Shafique uz Zaman
Professor
Dept. of Economics
University of Dhaka.

Introduction

Bangladesh has grown at a steady rate of around 6% in past 10 years. Income rose and poverty declined. Now the country is trying to achieve the status of Middle Income Country. Many experts opined that Bangladesh could become Middle Income Country by maintaining an annual growth rate of 7% and above in the next decade. In order to attain that growth rate Bangladesh must make large investment prioritizing high productivity growth.

Definition of Productivity:

Economic growth is strongly linked with Productivity. Productivity is a multidimensional issue and it is difficult to bring the whole gamut of the issues into a single definition.

The most famous definition was given by Solow in (Solow R.N. 1957). He called it a "technical change", as a shorthand expression for any kind of shift in the production function. This technical change includes investment, innovation, skill and competition.

Productivity is a change in the relationship between factor input proportion used to produce a given output. In simple language, amount of output produced with a given factor input i.e labour, equipment, and capital. Productivity might be measured based on the unit of time (minute, hour, day and month) it takes to produce goods using same machine and labour. In the service sector, productivity might be measured based on the revenue generated by an employee divided by his or her salary.

But these definitions are short and too general and insufficient to make the phenomenon of productivity understandable. It would give only a partial picture. Often productivity is compared with increasing return to scale, that means, when more output is produced with same input, it is increasing return to scale or higher productivity.

But since factor inputs i.e land, labour, capital, technology and organization differ in strength, the productivity will also differ accordingly. Each factor input will give a different scale of productivity.

The volume measure of output reflects the goods and services produced by workforce. The measure of input use reflects the time use, efforts, skill and labour. In measuring output in a given input along with other factors, time is taken into account. That means, productivity can also be measured based on the unit of time it takes to produce a unit of goods. Actually it is a measure of efficiency of a person, machine and organization in converting input into useful output.

Among the productivity measures, labour productivity is widely accepted in most of the countries regardless of level of development. It is a measure of efficiency of persons, machine, organization in converting input into useful output. The calculating of productivity it is best understood in applying the "ceteris paribus" i.e all other things remaining constant, stating that at a time only the impact of one changing factor be introduced to the phenomenon being examined. For example the amount of time is required by a worker to produce a certain level of output, which means all factors remain constant except time.

Importance of Productivity Growth:

Productivity is considered as principal source of economic growth and competitiveness and, as such, is the key source of growth and development.

One of the most widely used measures of productivity is Gross Domestic Product (GDP) per labour worked (OECD-2008.).

Productivity measures are key indicators of economic performance and there is a strong interest in comparing them internationally (OECD-2008).

A continuous increase in the factor productivity means the resource management are efficient and innovation and upgrading of technologies are taking place in the production process and distribution. Only an uninterrupted growth in productivity will transfer the economy into a higher level of development.

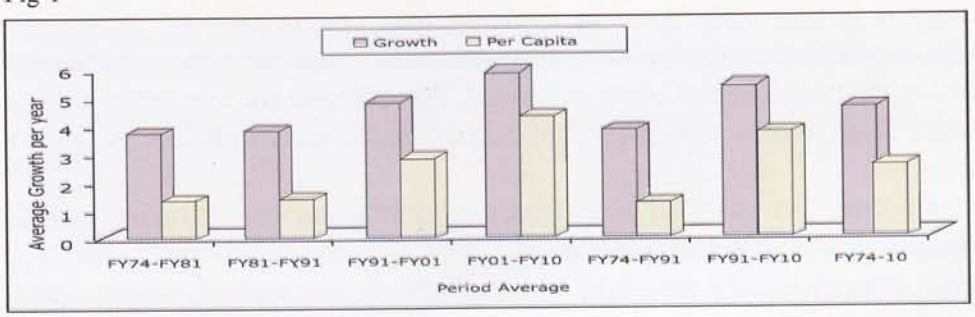
Higher productivity leads to higher national growth, because of:

1. Cost savings. Savings in costs might be passed onto consumers in lower prices, encouraging higher demand for more output, and higher output means more investment and an increase in the employment;
2. Improving competitive power and expansion of trade. Productivity growth and lower unit costs are key determinants of the competitiveness of any product in the Global market. High quality is certainly important for survival in the market. But for the poor and lower income people, price of the goods of daily consumption becomes more important than higher quality. Chinese products become more competitive and captured a large part of world market, not because of higher quality but because of low cost;
3. Higher profit. Productivity is a measure of efficiency of labour. Labour and efficiency gains are a source of larger profits for companies which might be reinvested to support a long term growth of the business. When high profits create investable funds, firms will

be less depended on borrowing from the banks with high interest rate, which in turn would again reduce the cost of production;

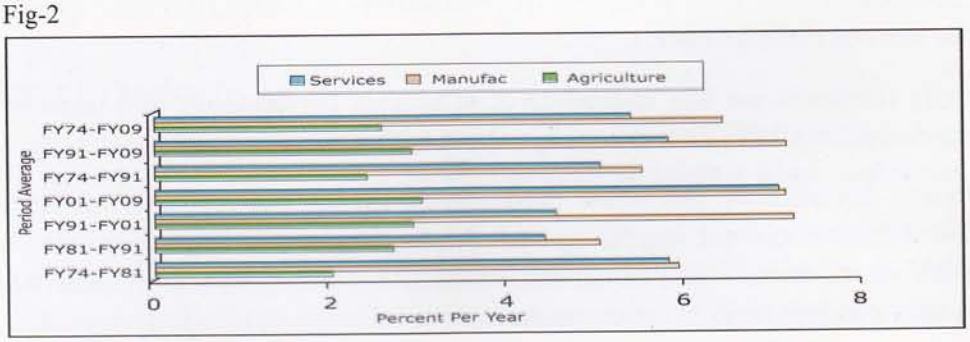
4. High wages. Entrepreneurs can afford higher wages when their workers are more efficient. When the workers are benefited by sharing a part of profit, they will be more committed to increase their productivity;
5. Economic growth: If the economy can raise the rate of growth of productivity then the growth of national output can also pick up,

Fig-1



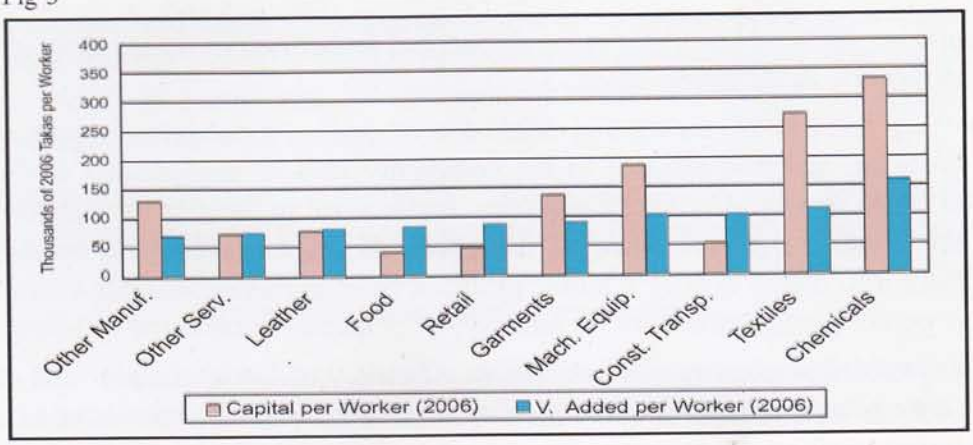
Source: Bangladesh Bureau of Statistics

Fig-2



Source: Bangladesh Bureau of Statistics and World Bank Development Reports

Fig-3



Source: World Development Report

Productivity growth and firm performance by size and location in Bangladesh:

Economic growth, its composition and absorption of labour in high productivity and adoption of technology are interlinked. Over the last 40 years Bangladesh made significant progress in productivity growth which contributed in increasing income employment and reducing poverty.

The long term trend in GDP and per capita growth rate as depicted in figure-1 show-that Bangladesh has continued its rate of growth steadily over the last 40 years after independence. During Fy 74- Fy 91 growth rate was moderate - below 4% per annum in aggregate terms, and only 1.2 % in per capita income. The growth rate however experienced a marked rise during Fy-91 showing up to 5% annually on a 10 year average and the growth rate crossed 6% marked during Fy 01 - Fy 10.

In order to identify the determinants of growth one can look out the structural composition of growth and its trend over the last decades. As has been highlighted in figure-2 the manufacturing and service sectors have achieved a higher growth rate than agriculture. Low income elasticity of staple food items, land constraints and absence of product diversification limit the ability of agriculture to grow as the same pace as manufacturing and services. Although the rice production has increased from around 10 million tons in 1972 to 35 million tons in 2011, still the average labour productivity and income in agriculture are low. But still, this agriculture sector accounts for 44% of total employment.

Non-farm enterprises in Bangladesh are highly concentrated in Dhaka and Chittagong. In 2006 Dhaka alone had 81% of all non-farm enterprises employing 10 more workers (10+) and accounted for 72% of national employment. Chittagong being the second largest city with 12% of 10 or more non-farm enterprises is accommodating 23% of 10+ employment (World Bank 2008).

Capacity utilization: Investment in the country is relatively high but the efficiency of utilization of resources is not up to the satisfactory level.

For example, in Metropolitan area 38% of small and 67% of large firms are investing in fixed assets or real establishment (World Bank 2008). With 65% of investment garments ranked highest, textile- 60% and chemical-pharmaceuticals- 64%. But the capacity utilization was low averaging 79.7% in the country with 84.5% garments, demonstrating a higher utilization. The smaller firms had significantly lower capacity utilization than the large- making 77.4% compared to 83.6%. The primary reasons for this low capacity utilization are shortage of electricity (53%) followed by shortage of capital (13%) and low demand (13.8%).

But as regard to the productivity growth the picture is rather disappointing. It is true that along with the high rate of growth the average labour productivity has increased since independence. But the average labour productivity is very low, figure-3.

There is significant variation in productivity growth with size distribution and location. The garments and chemical pharmaceuticals exhibit a higher growth than textiles, leather, construction and transport, and machinery and equipment. Labour productivity varies widely with the locational advantage. According to one study (World Bank 2008) larger firms have lower productivity and total factor productivity in Bangladesh, which is quite opposite in international evidence.

This is worth mentioning that although the large firms have easier access to finance and logistic facilities than the smaller firms, the smaller firms have maintained a higher productivity. For example, firms with more than 50 workers exhibit, on average, 30% lower value added per worker and 19% lower TFP than smaller firms.

Older firms have a lower productivity: For example, firms aged more than 20 years experienced an average 17 % lower TFP (Total Factor Productivity) than newer firms. It is quite interesting to note here that larger and older firms have economies of scale, experience, learning by doing, more access to finance than the smaller firms.

As has been hinted earlier, industries are highly concentrated in two large cities namely Dhaka and Chittagong. Both labour productivity and TFP are higher than the other divisional and regional cites. High productivity in these two cities is largely because of agglomeration (Chandra, R. 1992). Because of agglomeration, they enjoy external economies of scale- due to availability of skilled labour, large market and social and physical-infrastructural facilities.

More skilled labour is more productive: Firms employing higher share of skilled labour performs better than other firms. Skills enable firms to adopt new technologies, upgrade technologies provide better coordination and permitting better decision. A firm which increases its skilled workers' share by 24% could exhibit, other things remaining constant, 2.6% higher TFP.

Cluster firms are more productive: Firms concentrating in close proximity are more productive than firms operating in isolation. Firms growing in close proximity enjoy - both internal and external economies of scale, infrastructural facilities and connectivity to market.

What are the driving forces of productivity growth:

Although the driving forces of productivity growth may differ from country to country, some common driving forces are considers in all areas.

Innovation: Innovation is the most important drivers of productivity. Innovation means successful application of technology. Innovation increases production and quality, saves time and physical labour.

Investment in physical capital and infrastructure: Investment in physical capital is required for producing more in a cordial atmosphere. More physical capital means more savings and investments. The investment in infrastructure will increase market and competition, both of which are essential for productivity and growth.

Skill: Skill is called the human capital. This is actually more important than other drivers of productivity. Without this, other drivers will hardly make any contribution.

Organization: It is very crucial to increase productivity. Skill development, better coordination will create a positive environment for high productivity growth.

Security of Workers: Security of workers includes wage, stability, favourable condition at the working place, medical facilities and insurance. These are important for continuous productivity growth.

Competition: Competition enables the firm to produce high quality products at a lower price. This enables them to innovate new ideas and technologies and allocate factors of production more efficiently.

Why productivity is so important for Bangladesh:

Bangladesh has successfully brought down the level of poverty from nearly 70% in the early years of independence to 31.5% in 2011. Even then, poverty situation is grave, and remains the main concern of the policy makers. At present, about one third or 47.25 million people are still living below the poverty level.

The contribution of agriculture to GDP declined, while that of industry increased. But agriculture is still the principal source of food security, and macro economic stability largely depends on agriculture. Agricultural output increased from 10 million tons in 1972 to 35 million tons in 2011. Even then, productivity in this sector is half of Japan and two-thirds of India and Vietnam. Each year 22 million new mouths are added. In order to feed these new mouths, the country has to produce an additional 0.35 million tons of food grain. On the other hand, although per capita arable land is very low, the country is losing 80 thousand hectares of arable land annually. The major challenge ahead is not only to maintain the present productivity growth, but to attain a higher rate of growth to feed the people and maintain stability.

Since development is a long-term process, the burgeoning unemployment and existing poverty cannot be eliminated overnight. In recognition of this long-term development challenges, the present Government adopted the vision 2021. The vision 2021 and the associated perspective plan 2010-21 have set solid development targets for Bangladesh by the end of 2021 (Election Manifesto 2008, 6th Five year plan- Fy 2011- Fy 2015). Vision 2021 sets target to reduce poverty level to 15% by 2021; to bring down the number of jobless people from 28 million to 15 million in 2021; contribution of agriculture and service to GDP will be decreased from 22% and 50% to 15% and 45% respectively, and industry increased from 28% to 40%. During this period, the share of labour force will be increased from 16% to 25% and service from 36% to 45% while in agriculture the share will be brought down from 48% to 30%. If these targets are achieved, Bangladesh will be transformed into a middle income country.

In order to achieve these targets, Bangladesh has to make investments in areas for both growth in production and employment generation. At present, the country's productivity is lowest compared to other countries. Since productivity is the principal source of income, growth and employment, there is no other alternative than to make massive investments, prioritizing productivity growth.

Problems Hindering Productivity Growth in Bangladesh:

- Labour force in Bangladesh is cheap and has been growing fast but is of low productivity. One of the main reasons is the lack of skill. At least 18 million people or 33% of the country's labour force is suffering mainly due to lack of skill to meet the market. Another source (The Financial Express, 13/3/2011) says, 29% private sector firms are handicapped with low labour skills and 78% of the manufacturing industries provide on the job trainings to make these workers skilled. Some sectors, for example, leather and footwear sectors, need 60,000 skilled workforce and in the garments sector 25% machinery remains idle.

- Weak innovation and low investment in technology constrains productivity enhancement. Innovation develops new ones and upgrade the local technology- both are essential for productivity growth and high quality. (Ahmed, N. 1998). R&D is particularly important for both technology and skill development. At present nationally R&D amounts to only 0.03% of GDP, which is much lower than India and China (World bank 2008). At the corporate level the situation is not so encouraging. For example, Square Pharmaceuticals Ltd . spends only 0.38% on R&D and 0.18% on training of total expenditure (Square Annual Report 2011). The Beximco Ltd. spends 1% on R&D and 2% on skill development (Beximco Annual Report 2011). The Jute Research Institute and the BSTI are state-owned enterprises. Of them, Jute Research Institute spends 1.03% and 0.31% on R&D on skill development, respectively, while BSTI spends 0.83% on skill development of their total outlets(JRC and BSTI Annual Report 2011)

- Electricity persists as a major barrier to this productivity growth. Firms in metropolitan areas estimate that they lost 11.7% of sales value due to electricity outage up from 3.4% in 2002. Smaller firms are particularly vulnerable and losing 13.1% of sales value compared to 8.4% for large firms.

- Other problems that stand on the way of productivity growth are the limited access to finance, high rate of borrowing, red-tapism, corruption, lack of connectivity i.e. market linkage and transportation linkages.

Suggestions:

1. Skill developments must receive highest priority. The curriculum of the existing technical and vocational training centers are outdated and must be upgraded to meet the demand of time. Besides, in order to face the challenge of skill shortages and mismatches, steps should be taken to improve the quality of higher education;
2. Spending on R&D must be increased on a priority basis. Spending on R&D must be raised to 1% of GDP by 2014 to meet the target of vision 2021;
3. Market connectivity is essential for stimulating productivity growth. In this regard, cluster-based industrialization outside Dhaka should be encouraged;
4. The worker's wages could be linked with productivity to increase his interest and produce more;

5. Productivity is largely hampered due to shortage of power supply. Power supply needs to be increased on a priority basis. Each year the country is losing 2% of GDP due to power outage;

6. Access to finance is critical for productivity growth. This factor is crucial for SMEs. Cost of borrowing must be brought down, not only for increasing investment but to survive in competitive market.

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