



RELATIONSHIP BETWEEN SKILL DEVELOPMENT AND PRODUCTIVITY IN CONSTRUCTION SECTOR: A LITERATURE REVIEW

Saurav Dixit

RICS School of Built Environment, Amity University, Noida, India

Satya N Mandal

RICS School of Built Environment, Amity University, Noida, India

Anil Sawhney

Liverpool John Moores, University of Alberta Liverpool, Merseyside, United Kingdom

Subhav Singh

Department of Civil Engineering, K R Manglam University, Gurgaon, India

ABSTRACT

Purpose – Construction industry development council (CIDC) and national productivity Council (NPC) has emphasized the role of skill development and training as a means of improving productivity and profitability in Indian construction sector. The purpose of this paper is to assess the appropriateness of this policy within the context of the construction industry, through the recent published national and international literature review.

Design/methodology/approach – A trend analysis of construction productivity (measured by Gross Value Added/worker) and skills indicators (qualification attainment and training) was conducted over the period 1999-2010.

Findings – There is significant relationship between skill development and construction productivity and consistency in the industry's productivity performance and an overall increase in qualification attainment levels and participation rates in training over the same period.

Paper type- General review

Key words: Skills, Construction Productivity, Construction industry, National productivity Council and Construction Industry Development Council.

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1. INTRODUCTION

The Construction Industry having the average yearly turnover 3.85 lakh crore. But every year we face a huge loss of revenue due to a number of problems accounted by the industry and losses due to poor productivity is one of the major problems (Rami Huges, 2014). In fact, the amount of loss in productivity is even more than 30% in India which creates a serious area of concern for construction practitioners. Basically, the successful & timely completion of any construction project is dependent upon the productivity of the labour, machinery and processes it involve. Several standards have been made by authorised bodies like CPWD, Bureau of Indian Standards etc in order to set the productivity norms for various construction related activities. But in order to optimize both cost & time and to minimize the wastage of other resources as well (which is also the key philosophy of Lean Construction), it is extremely crucial that the productivity of the resources involved in any project is closely monitored and suitable actions are taken for their improvement (CIDC “Construction industry construction council” (CIDC, cidcdatabase, 2015).

Improving construction productivity is one of the primary drivers of Indian economic performance and long term sustainable growth in the Indian construction industry. The Indian government has a body National Productivity Council (NPC) which provides training, improving competition, promoting skills development and supporting science and development. NPC works under planning commission of India. Government reports give the impression for that skills and Competency holds the key to productivity control and improvement. For example, CIDC (Construction Industry Development Council) stated clearly that increasing participation levels in training (which is one of the common competency indicator adopted by the government).

Enhancing productivity performance is an essential driver of the UK monetary performance and long haul sustainable intensity (HM Treasury, 2006). As needs are, the UK government has built up a system for enhancing productivity, which concentrates on five key drivers: improving competition, promoting enterprise, supporting science and innovation, raising UK skills, and encouraging investment (Budget Report, 2005). Government reports give the feeling that skills hold the way to productivity change, a view, which is upheld by its organizations. For instance, the Sector Skills Development Agency (SSDA) Strategic Plan 2005/08 (SSDA, 2005, p. 9) expressed obviously that expanding support levels in preparing (which is one of the basic skills markers received by the administration) by 5 % points could build productivity by 4 % – boosting GDP by £40 billion.

The UK government published the Leitch Review of Skills (2006). The audit was charged with a specific end goal to evaluate the UK skills needs by 2020 so as to stay aggressive in a quickly changing worldwide economy. It must be noticed this was a reasonable sign of the significance given to skills improvement and preparing for strategy talk as methods for enhancing productivity over all areas of the economy. There were no comparative audits did as for the other four drivers, specified above, in connection with their potential effect on enhancing productivity performance crosswise over various parts of the economy. With respect to skills, the Leitch Review (2006, p. 3) guaranteed that "UK skills base stays weak by

global guidelines, keeping down productivity, development and social equity. There is an immediate connection between's skills, productivity and work."

This paper starts with a literature review, which examines the connection between skills advancement and productivity performance. Next, the exploration strategy will be depicted alongside a portrayal of the datasets utilized. Discoveries of the investigation will be accounted for and after that talked about in light of comparable discoveries in the writing.

2. LITERATURE REVIEW

Productivity in Indian construction industry is a burning issue since last few decades and a number researcher worked on the topic. Construction productivity compromises the productivity of all type of resources involved in the completion of a process i.e. Labour, Money, Infrastructure, Space, Machinery, plant, Office and other resources. A number of studies were carried how to improve and suggest measures to the construction productivity, but only a few studies were taken out to find out the factors affecting the construction productivity and most of them in the developed countries. A study on Labour productivity and formwork operations is carried out by (moselhi & khan, 2010) "Analysis of labour productivity of formwork operations in building construction", in this paper the researcher's identified 9 parameter that affects the productivity of formwork operation workers and the Temperature is having the most significant affect on the productivity. In 2014 (Mahmood, Ahmed, panthi, & Kureshi, 2014) has "Determining the cost of poor quality and its impact on productivity and profitability" in this paper they find a relationship between the poor quality and productivity of the project and the results shows that after a study of 60 days and implementing techniques to improve the quality of the construction the cost of poor quality is decreased by 24% while Labour Productivity and profitability is increased by 17% and 11% respectively. In 1993 (Dozzi, Eng., & Abourizk, 1993) come with a book "Productivity in Construction" published by national research council Canada and they have summarized in their finding that the construction productivity is the only weapon that you can use to stay ahead from your competitions in the market and always have the niche in the construction market. They have identified some factors that affect the construction productivity and also provide some techniques to measure and improve the construction productivity i.e. factors that affect productivity are: climate fluctuation, material deficiency, absence of experienced outline and venture proficient group, plan changes, insufficient correspondence, deficient arranging and booking, absence of supervisory preparing, endorsements and issue of licenses, project management and many others. A technique to measure and improve productivity are Field rating, work sampling, five-minute rating, field survey, The method productivity delay model, crew balancing charts, simulation modelling & Analysis and other techniques. In 2013 (Mahamid, 2013) come up with a paper "Contractor's prospective towards factors affecting labour productivity ion building construction" Mahamid identified 31 factors affecting labour productivity from the literature review and personal interviews with experts in the field and a questionnaire is shared with 59 project managers. The findings of the study were top 5 factors negatively affect the productivity of labour productivity are: Rework, lack of corporation and communication between the construction parties, financial status of the owner, lack of labour experience and lack of material availability.

3. FACTORS AFFECTING CONSTRUCTION PRODUCTIVITY

A number of previous researches have attempted to define, identify and account for the factors affecting construction productivity worldwide. For example, horner (1982) found 10 main factors affecting construction productivity are: quality, labour force management, the

motivation of labour force, the degree of mechanization, continuity of work, the complexity of work, skilled workforce, quality of managerial staff, a method of construction and weather conditions olomolaiya et al (1998).Despite the wide spectrum of factors affecting construction productivity, it is observed that Competency of labour and training is most commonly cited factor in many productivity studies over time.

There is a surfeit of research confirm, which has recommended that skills are an essential figure influencing productivity performance the development business. For instance, Rojas and Aramvareekul (2003) found that administration skills and labour issues are the two zones with the best potential for influencing productivity performance. Clarke and Wall (1996) thought about the procedure of house working in the UK in connection to Germany and The Netherlands, where they found that the procedure in the UK relies upon a lower level of ability than in Germany, which could clarify the variety in productivity performance. Additionally, Arditi and Mochtar (2000) contended that low quality on ventures brings about revise which causes a drop in productivity levels. They clarified that low quality exuded from the shortage of a legitimately prepared workforce, which was caused by deficient levels of preparing, notwithstanding the low quality of preparing arrangement that brought about such skills deficiencies.

The instance of workforce skills advancement and preparing as a huge factor for enhancing development productivity performance is all around practised in the writing. Despite the fact that the current writing does not go past exhibiting that skills advancement and preparing are for the most part essential for the business, it is uncertain regardless of whether this view is reflected and additionally caught by authoritatively distributed insights. This makes it risky for arrangement creators to perceive how the development business' general productivity performance is changing after some time in connection to its skills profile. The absence of a comprehensive perspective of the business and how it has changed after some time originates from the under usage of authority measurements in investigating. Neely (2004) contended that the utilization of the information gathered by the Office for National Statistics (ONS) has not been completely abused in inquire about. He added that it is suitable to put the time in misusing this information as opposed to soliciting individuals from the business to give yet more information.

The same context it was found in a paper “Improving construction productivity: A sub-contractors prospective (Loosemore, 2014) in the findings the author indicate the main determinants of productivity are some factors that have significant affects over productivity are: relationship with principal contractor, early improvement in design, design management, supervisory management, scheduling and coordination and other factors.

In 2014 (Rami Huges, 2014) found the factors affecting the construction productivity “A study of enabling factors affecting construction productivity in an Australian environment” the author identified 47 factors from the literature review and based on personal interviews with experts in the industry. The factors shared with the 79 randomly selected persons a questionnaire asked for a score, utilising a 0-4 Likert scale, from every about them with admiration to the vitality about 47 factors identifier starting with the written works that might have been recognised likely to influence construction gainfulness. The most significant factors affect the construction productivity are: rework, poor supervisor competency and incomplete drawings. In this paper, the methodology adopted by the researcher is factors identified through literature review and share with 79 respondents on random. The analysis tools used were relative importance index, reliability analysis to check the reliability of the data received and factor analysis to group the same factors. Contractors have often been heard

to say, "As long as we are as aggressive and efficient as our usual competitors, we will always get our share of work." But in today's marketplace, being as efficient as one's does not suffice. Competition is no longer limited to contractors working in well-defined geographical areas. The available work is being sought by firms from other parts of the country or even of the globe (Dozzi, Eng., & Abourizk, 1993).

Economics have been saying it, something like that has constructors, sorted out work everyone should remain competitive, we must generate a greater amount to each dollar used ahead construction. And "we" may be everyone each specialist at an occupation during that site could help moving forward profit. Profit issue might make isolated under macro also micro levels. At those macro level, one bargain for contracting methods, work legislation, and Labor Association. During micro level bargains for that administration and operations of a project, mostly during the employment web page. On move forward benefit we must have the capacity with measure it, Furthermore we must have the ability will measure those impact of transforms embraced for methods, endeavours Furthermore frameworks. The measured profit could then a chance to be compared possibly should the individuals used to gather those evaluate or should exactly creation guidelines.

India is one of the most youthful countries on the planet with over 54% of the aggregate populace beneath 25 years old. India's workforce is the second biggest on the planet after China's. While China's statistic profit is relied upon to begin decreasing by 2015, India will keep on enjoying it till 2040. In any case, India's formally gifted workforce is around 2% - which is drearily low contrasted with China (47%), Japan (80%) or South Korea (96%). To use our statistic profit all the more considerably and seriously, the Government propelled the "Ability India" battle alongside "Make in India". In this concise, we take a gander at the Skill Development biological system in India - the requirement for Skill Development, activities are taken by the Government and plans presented for aptitude government by the present government. The Construction Industry Development Council (CIDC), has been set up together by the Planning Commission, Government of India and the Indian development industry. We are an umbrella association for the development business in India and have a national nearness with branches the nation over. We attempt an extensive variety of exercises to profit the development business. This incorporates leading preparing at different levels, arranging workshops and gatherings, distributing diaries and bulletins, welfare programs for development labourers, evaluating, situation et cetera. The commitment of CIDC to the nation's development has been perceived by different pioneers and we are the beneficiaries of the renowned Golden Peacock National Training Award 2008. We are working towards making the Indian development industry more expert and aggressive. We additionally have a sense of duty regarding the bigger interests of society and the country.

4. NATIONAL PRODUCTIVITY COUNCIL

National productivity gathering (NPC) is a national level association to advance productivity culture in India, set up as an enlisted society in 1958, it is self-sufficient, multipartite, charitable association with the rise to portrayal from the business' and labourer's association and government, aside from specialized and proficient organizations and different interests. NPC is a constituent of the Tokyo-based Asian Productivity Organization (APO), a between government group of which the administration of India is an establishing part. (NPC)reference. NPC is the nodal office in charge of sorting out Indian cooperation in the preparation projects, workshops and classes offered by APO in part nations on various subjects identified with productivity. NPC likewise has APO programs in India consistently for cooperations of part nations. Furthermore, NPC likewise sources ability into India from

global offices like World bank, Asian productivity organisation, International work association (ILO), German worldwide enterprise (GIZ), Food and farming association (FAO), United countries environment programs (UNDP), Swedish universal improvement corporation agency (SIDA), Japan worldwide company office (JICA), United countries mechanical advancement association (UNIDO) and so forth.

Financial Survey 2014-15 has featured on the need to start expertise improvement projects to accomplish the administration's goal of 'Make in India' crusade. As a prelude, the Survey expresses that, to realize extension and auxiliary change, India ought to use its predominant asset of untalented work. Financial Survey has made a refinement between enlisted fabricating (formal segment) from the general assembling which covers casual part also. The review has perceived that enlisted fabricating as having "the potential for basic change" as enrolled producing displays high productivity contrasted with different segments of the economy. In any case, the Economic Survey has watched that assembling productivity in India lingers behind different countries, and every single Indian state shows declining offer of assembling in the state GDP. What's more, the Survey recognized that enlisted assembling couldn't connect local aberrations in India. Moreover, enlisted fabricating now in India has been recognized as aptitude serious which is not in accordance with India's near preference in incompetent work. The Economic Survey has recognized four variables for non-advancement of assembling as a motor of monetary development bends in labour advertise, capital market and land market, and socialisation not in accordance with India's similar favourable position in incompetent work.

Certain subsectors of administrations money related administrations and business administrations display higher productivity levels than enrolled fabricating. Nonetheless, these segments being very aptitude escalated (barring development) are out of line with the expertise profile of the Indian work drive. They are probably not going to produce generally shared and comprehensive development. In any case, the study watches that the administration division has the potential for local development union crosswise over districts. The Economic Survey recommended that Indian development should adjust the country's near leverage in accessibility of low gifted work with ability improvement required by future eras to exploit lost open doors. The enlisted producing must be extended to take use of India's copious untalented work. "While 'Make in India' possesses unmistakable quality as a vital objective, the future direction of Indian advancement relies upon both 'Make in India' and 'Skilling India'," said the Economic Survey. Expertise improvement is an imperative driver to address destitution lessening by enhancing employability, productivity furthermore, helping sustainable venture improvement and comprehensive development. It encourages a cycle of high productivity, expanded business openings, salary development also, advancement. In any case, this is only one factor among many influencing the productivity whose estimation varies for people, endeavour and economy. The increment in productivity could be because of accessibility of gifted and solid labour; innovative up degree, what's more, imaginative practices; and sound macroeconomic systems. The signs of enhanced productivity can be as a change in genuine gross local item (economy), expanded benefit (endeavours) what's more, higher wages (specialists). In this segment, we are investigating the connection between expertise improvement, what's more, productivity with concentrate on India. Notwithstanding, to start with it is important to comprehend what constitutes productivity and Productivity which clarifies an info yield relationship is an urgent factor whose advantages can be disseminated in various diverse routes, for example, better wages what's more, working conditions to workforce; expanded benefits what's more, profit to investors; ecological security what's more, increment in income to Governments.

5. LINKAGES BETWEEN APTITUDE IMPROVEMENTS, PRODUCTIVITY

What's more, work potential Aptitude improvement is the concentration region of the administration approach. It is vital to getting to work in the formal part and improving productivity in the casual economy for decreasing destitution and danger of underemployment. The National Policy on Skill Development intends to prepare around 104.62 million individuals once more and extra 460 million are to be re-skilled, up-gifted and talented by 2022. Considering that larger part of these work compel would act naturally or easygoing utilized, the test is the most effective method to enhance the ability levels of this workforce. These classes cut crosswise over different target gatherings or helpless segments of the general public. The gatherings are most certainly not totally unrelated and there are covers in light of the fact that the specialists in the independently employed classification are a heterogeneous part while the easygoing utilized might be irregularly utilized and in various untalented works.

The absence of access to great instruction and preparing keeps the defenceless and the underestimated areas into the endless loop of low skills; low profitable work furthermore, destitution. The minimized gathering which incorporates provincial poor, youth, people with incapacities, transient labourers and ladies constitute the most noteworthy number of poor. In India 70 for every penny of the work constrain live in country territories and rely upon low beneficial agrarian movement where there is enormous underemployment prompting low level of productivity.

6. NEED FOR SKILL DEVELOPMENT

Livelihood opportunities are affected by supply and demand side issues. On the supply side, India is failing to create enough job opportunities; and on the demand side, professionals entering the job market are lacking in skill sets. This is resulting in a scenario of rising unemployment rates along with low employability. Job Creation: Between 1999-2000 and 2004-05, the number of jobs increased by 59.9 million persons (assessment by usual status) against an increase in the labour force of 62 million. Though the increase in employment kept pace with the increase in the labour force for the next 5 years, the total increase in jobs was only 1.1 million. Employment generation picked up from 2009-10, with 13.9 million people finding jobs in 3 years. However, 14.9 million people entered the job market during this period. Currently, about 26 million people enter the working age group every year with about 65% of them looking for jobs.

Youth Skilling: While keeping pace with employment generation is one issue, employability and productivity of those entering the labour market is another issue. As per the India Skills report 2015, only 37.22% of surveyed people were found employable - 34.26% among male and 37.88% among female. NSSO (2010) showed that only 10.1% of the labour force had received vocational training, with only 25.6% of them receiving a formal vocational training. India ranked last among 60 countries on labour productivity (World Competitiveness Yearbook, 2012). Demand for Skilled Workforce: CII (2009) had projected Incremental Human Resource Requirement till 2022 at 201 Million, making the total requirement of the skilled work force by 2022 at 300 million. A major share of these jobs was to be added in the manufacturing sector, with the National Manufacturing Policy (2011) targeting 100million new jobs in manufacturing by 2022. The National Skill Development Policy (2009) had set a target of skilling 500 million people by 2022. More recently, study reports commissioned and

released by Ministry of Skill Development assessed an incremental human resource requirement across 24 sectors as 109.73 million by 2022.

Productivity of construction Industry is a vital issue over time and from time to time a number of studies were takes place to suggest improve the Productivity of the industry and there were some main factors contributing to the productivity and some of them were discussed by (Dixit, Pandey, Mandal, & Bansal, 2017)(A Study of Enabling Factors Affecting Construction Productivity: Indian Scenario) are:

- Poor site conditions
- Lak of Competency
- Fragmented supply chain
- Lack of Commitment
- Improper planning
- Lack of Commercial Management
- Inefficient Site Management

In simple words, productivity can be defined as the output over input that indicates the efficiency of a productive system. It ensures optimal use of the resources involved in the system, as well as the smooth and uninterrupted flow of the process. Productivity = Output/Input "Efficiency or productivity of any resource has been characterised by the (OECD) "a proportion of a volume measure of yield to a volume measure of input utilise for the specific activity of a process in the production of goods, services or any other product and construction" (OECD, 2001). It is a relative idea with correlations either being set aside a few minutes or between various generation units, which can be considered as far as capital, speculation, work, or other appropriate information sources and yields. Efficiency can be characterised, accordingly, by the accompanying condition" (Tran and Tookey, 2011). Construction productivity includes the productivity of Man, Machine, Supply Chain, Logistics support, Technology, Capital, Energy and other resources that we used during the course of Construction of a project at a specific timeline using the resources and produces output.

Productivity = Output obtained/input expended or Resources used

Bureau of Indian Standards etc. in order to set the productivity norms for various construction related activities. But in order to optimise both cost & time and to minimise the wastage of other resources as well (which is also the key philosophy of Lean Construction), it is extremely crucial that the productivity of the resources involved in any project is closely monitored and suitable actions are taken for their improvement

7. RESEARCH METHODOLOGY

The approach adopted in this paper is based on an analysis of the most up-to-date published construction industry statistics. A trend analysis was conducted to study the change in the industry productivity performance; employment levels and skills base over the period 2006-2016. Productivity was measured by Gross Value Added (GVA)/worker. This measure was chosen because it shows the net value (output) added from construction activities to the economy. Participation rates in training and qualification attainment levels were used as measures of the industry's skills profile which are commonly used in government policy research in relation to skills and productivity

7.1. An Overview of Construction

Construction industry creates a flow of physical assets into a number of sectors in Indian economy. Indian construction industry having approx. 31,000 enterprises involved and providing employment to approx. 41 million persons. The number rises from 14.5 million in 1951 to 41 million in 2011, it is around 300 % growth in the span of 60 years. The most number of entities related to construction is of small scale having less than 200 employees i.e. 29,600 firms employ less than 200 persons. Productivity in the construction industry is one of the major challenges that the construction sector face and a number of steps to improve the construction productivity have been taken in last 3-4 decades. Researcher in past identified a number of reasons for construction project failures and construction productivity are one of the main issues and the factors or attributes responsible for the loss of productivity needed to be identified to understand the main cause and its remedial (Iyer & Jha, 2005). There are a number of papers and research work on the factors affecting construction industry and many are from developed countries and very less is explored in developing countries. Furthermore, the critical factors or attributes identified by the researchers that are responsible for the loss of productivity in construction projects or having a positive or negative impact on the construction productivity they advised that these should be handled with caution and if required and possible to be further explored to achieve success in completion of construction projects.

Construction Sector-Macro Aggregates

Macro-variable	2006-07	2007-08	2008-09	2009-10	2010-11
GDP from Construction (lakh crore)	2.85	3.15	3.33	3.56	3.85
Share of GDP (%)	8.0	8.1	8.0	7.9	7.9
Growth rate for GDP in Construction (%)	10.3	10.7	5.4	7.0	8.1

Source: Handbook of Statistics, RBI 2010-11.

In spite of the accomplishments amid the past plans, development industry faces numerous limitations. Despite the fact that 41 million individuals are utilized in this area, under 6 for each penny has the advantage of organized preparing and expertise building. Aptitude upgradation plans propelled by the state and Central Governments are not satisfactory and just a modest bunch of vast firms sort out preparing programs. Development Industry Development Council (CIDC) an industry affiliation shaped with the activity of the Planning Commission is effectively associated with giving preparing and ability up-degree of the labourers in the business. It has made strides in a relationship with a couple of states, for example, Madhya Pradesh, Rajasthan, Bihar and Haryana for preparing and confirmation of development labourers. These states have made accessible the physical framework of the ITIs arranged in their States, where preparing in self-financing mode is being directed by CIDC and expertise accreditation is given by CIDC. This plan should be reached out to different states subsequent to examining the plan and expelling any inadequacies. Service of Labor and DG (ET), NCVT (National Council of Vocational Training), have taken measures to dispatch aptitude confirmation activities through CIDC and furthermore under MES/SDI plans. Assets from the SDI (Skill Development Initiative) Scheme can be utilized for preparing the labourers in the development industry. A few firms in the development business, for example, L&T have attempted their hostage preparing programs. More firms ought to be urged to do as such. These endeavours should be up-scaled and quickened. One wellspring of assets for doing this can originate from The Building and other Construction Workers Welfare Cess Act, 1996 which expects to collect assets, through a cess yet does not set down particular standards for use of the aggregates, in this way gathered. It is suggested that a segment of this

reserve could be used to meet the financing necessities of labourers preparing through a designated and approved nodal office. A devoted reserve for human asset advancement in the development business could be set up for taking these thoughts forward. This store known as Construction Skill Development Fund (CSDF) could be set up with `200 crores every year from above source and a coordinating sum from the business to encourage preparing of no less than 2,00,000 labourers for each year.

8. RESEARCH FINDINGS

The productivity of the business has demonstrated a positive pattern because of better preparing and higher automation. Notwithstanding, contrasted with different nations, for instance, China, US, Europe, on a normal, it is 35–45 for each penny bring down in the wake of figuring in buy control equality. With fast advances in innovation and much better preparing particularly at the lower and centre levels, productivity is required to rise considerably.

Table 1 Incremental skill gap across various industries in India in 2022

Sr. No.	Industry	Incremental requirement (in millions)
1	Building and Construction	33
2	Infrastructure	103.02
3	Real estate services	14
4	Gems and Jewelry	4.6
5	Leather goods	4.6
6	Organized retail	17.3
7	Textile and clothing	26.2

The current employment is 44 million and the expected skill gap is expected 136 million comprising. Infrastructure and Construction industry

Table 2 Employment by Sector

Employment by Sector					
Sectors	1999-2000	2004-05	% growth	2009-10	% growth
Agriculture	237.67	258.93	9%	244.85	-5%
Manufacturing	44.05	55.77	27%	50.74	-9%
Mining	2.17	2.64	22%	2.95	12%
Electricity and water supply	1.13	1.3	15%	1.25	-4%
Construction	17.54	26.02	48%	44.04	69%
Services	94.2	112.81	20%	116.34	3%

The trend in employment over the period 1999-2010. in 1999, the employment generation by construction sector is 17.54 million, employment increased by 26.02% for the year 2004-05 (compared to 1999-2000) when and further having a growth of 69% for the year of 2009-10 (compared to 2004-05). It shall be inferred that the construction sector consistently enjoyed the positive trend of employment over the period of 1999 to 2010.

While considering productivity performance after 1999, a blended picture wound up plainly clear. Amid 1999-2004, productivity reliably declined, while there was a managed

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development in business maybe an expansion in work was to coordinate the maintained yield development amid that period. By differentiating, amid 2004-2010, there was an extensive change in the business' productivity performance when there was the huge development rate in work.

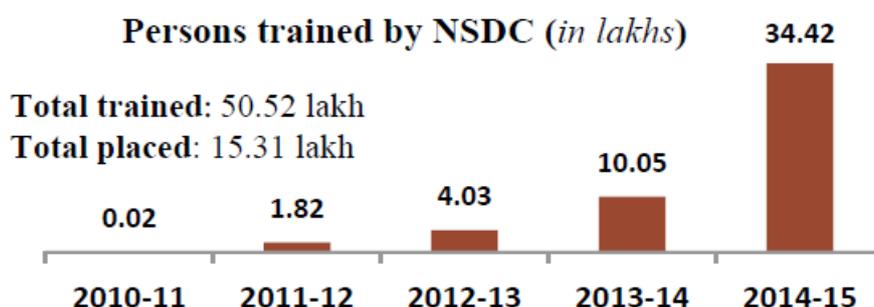
Considering the fundamental meaning of productivity as a proportion amongst yield and information, where work is a key contribution to the development procedure (which is to a great extent viewed as work serious), an expansion in business levels did not really fit enhanced productivity performance. Truth be told, Horner and Duff (2001) found that an expansion in group measure (number of specialists), positively affected productivity performance in development ventures – up to a specific point, i.e. the ideal number of specialists, at that point a further increment brought about a drop in productivity. Given that productivity change is not only an element of expanding the extent of the development workforce for a particular employment area or a venture level, it winds up noticeably critical to asses the nature of the development workforce over that timeframe – which could be uncovered by considering the business' skills profile over a similar period. Cooperation rate in preparing and productivity Amid 2011-2015, there was a general increment in cooperation rates in preparing by 30 for each penny on a normal. The support rate in preparing was ascertained by partitioning the quantity of specialists who partook in any type of preparing movement (counting both at work and of-the-work preparing) by the span of the development workforce for every particular year – utilizing the LFS. This was related with a general increment in productivity of 4 %, while considering the year-on-year change of investment rates in training.

Schemes Implemented by various Ministries			
Year	Target (in Lakhs)	Persons skilled (in Lakhs)	Achievement
2011-12	46.53	45.58	98%
2012-13	72.51	51.88	72%
2013-14	73.42	76.37	104%
2014-15	105.07	51.50*	49%

*Source: Lok Sabha Questions, *up to February, 2015*

8.1. Training to Job Creation

A total of 50.52 lakh workers trained by national development skill council (NSDC) from 2010 to 2014 and the total number of workers placed was 15.31 lakh i.e. 30.5% approx.



8.2. Unemployment Rate

The unemployment rate for the year 2009-2010 is 6.6 % which is significantly less than of 2004-2005 is 8.28%. And skill development and training are considered a significant factor for the downfall in the unemployment rate.



Source: NSS Rounds.

FIGURE 22.1: Trend in Unemployment Rate

Table 3 Share of labour force according to the qualification attainment

Share of labour force according to the qualification attainment	
Not literate	29.14
Literate without formal schooling	0.49
Below primary + Primary	23.74
Middle	17.64
Secondary	12.15
Higher secondary	6.77
Diploma	1.4
Graduate	6.49
PG and Above	2.18

9. DISCUSSION

The construction productivity literature demonstrated that there is a general accord on skills improvement and preparing as being critical components to enhancing productivity performance, in spite of the fact that a similar picture was not reflected in the development insights. To be sure it delineated the logical inconsistency between the cases established on industry's sentiment and the general business' skills profile and productivity performance – as caught by formally distributed insights. Expanded capability levels don't really render itself to enhanced productivity performance inside the development business. This turns out to be especially essential with the proof basic the connection between capability levels and performance, as referred to by government explore, depends to a great extent on utilizing roundabout (intermediary) productivity measure – in particular, income (see Tamkin et al., 2004). It must be noticed that utilizing income as a measure of productivity could be deceiving because of varieties in wage structure that could be credited to word related or sex distinction (Elliott and White, 1993). All in all, if men gain more than ladies at that point

would this mean they are more beneficial? Unmistakably, this is a wrong derivation which demonstrates the impediments with utilizing this measure for productivity. This undermines the thought that change in capability levels will enhance productivity utilizing income as a measure especially in the event that it is not upheld by coordinate productivity measures (net esteem included/laborer) inside the development business. This likewise demonstrates the disarray in government arrangement of the part of skills (measured by capability levels) similar to a social decent, helping individuals to wind up plainly more employable and to accomplish higher winning levels, instead of being a business decent went for enhancing productivity performance (see Keep et al., 2006). Additionally, when concentrating on skills as a driver for enhancing productivity it ought to be seen with regards to the working environment as far as how skills are being used (ACAS, 2007).

Moreover, the development business is contained different sub-areas, as per the Department of Trade and Industry (DTI) (2006) arrangement, which incorporates: lodging; framework; modern; business and repair and support. Each sub-segment is liable to various development rate as for the changing monetary conditions inside UK areas. This may affect the business' workforce skills necessities as characterized by occupations which thus influences the levels of preparing and capability fulfillments to meet the business' anticipated development inside every area.

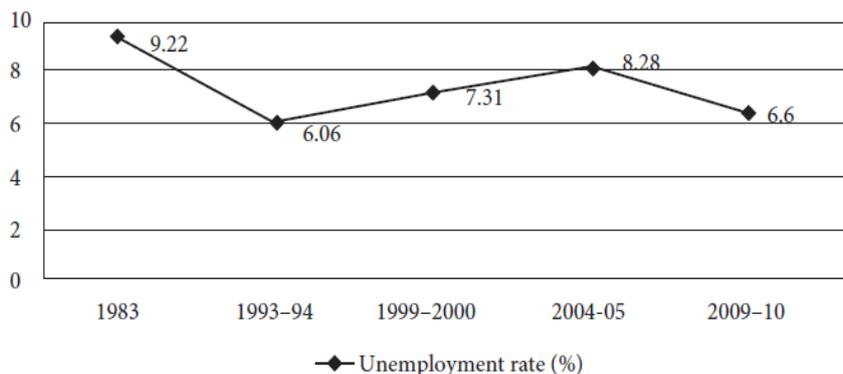
10. CONCLUSIONS

Regardless of the advancement of the development business' skills base as far as expanded capability accomplishments and interest levels in preparing, this has converted into simultaneous changes in productivity performance over the period (2000-2008). The arrangement on skills overemphasized the impact of skills improvement as the way to enhancing productivity performance with carelessness to different components. The usual way of doing things of the development segment combined with its divided business structure influences support rates in preparing rather than the need or drive to enhance productivity performance. In addition, the industry's productivity performance did not appear to be predictable over the previous decade with the occurrence of poor productivity performance superseding great productivity performance.

Skill development is basic for accomplishing quicker, sustainable and comprehensive development on the one hand and for giving not too bad business openings to the developing youthful populace on the other. The statistic window of chance accessible to India would make India the skill capital of the world. India would be in a position to meet the prerequisite of in fact prepared labour not just for its developing economy yet in addition to the maturing propelled economies of the world. Hon'ble Prime Minister has properly shown that youthful populace is a benefit just on the off chance that it is instructed, skilled and finds a profitable business. In the event that this happens then, our fantasy of understanding India's capability to develop at 10 for each penny or more per annum for a significant timeframe can turn into a reality. Boston Consultancy Group's investigation in 2007 had plainly shown that by 2020 while India will have an excess of 56 million working individuals, whatever is left of the world will experience a deficiency of 47 million working individuals. Be that as it may, skilling this substantial what's more, developing youthful populace from an exceedingly little base would be a major test for India. The skill procedure for the Twelfth Plan would need to as needs are demonstrate for these skill challenges as far as effort, quality, foundational/institutional setups, the current status of skill development endeavours and different monetary approaches proposed in the Twelfth Plan. Skill development is the concentration range of the administration strategy. It is vital to getting to work in the formal

area and improving productivity in the casual economy for diminishing neediness and danger of underemployment. The National Policy on Skill Development means to prepare around 104.62 million individuals over again and extra 460 million are to be reskilled, up-skilled and skilled by 2022. Considering that dominant part of these work drive would act naturally or easygoing utilized, the test is to step by step instructions to enhance the skill levels of this workforce. These classifications cut crosswise over different target gatherings or powerless areas of the general public. The gatherings are definitely not totally unrelated and there are covers in light of the fact that the specialists in the independently employed classification are a heterogeneous part while the easygoing utilized might be irregularly utilized and in various unskilled works. The absence of access to great instruction and preparing keeps the defenceless and the minimized areas into the endless loop of low skills; low profitable work furthermore, neediness. The minimized gathering which incorporates provincial poor, youth, and people with incapacities, transient specialists and ladies constitute the most noteworthy number of poor. In India 70 for every penny of the work constrain live in provincial territories and rely upon low profitable horticultural movement where there is tremendous underemployment prompting low level of productivity. The high extent living in neediness among ladies in India is because of their focus in low productivity work.

Hence, there is an earnest need to consider skills improvement and preparing inside the setting of development organizations in connection to different factors keeping in mind the end goal to unload how skills can achieve change in productivity performance. This is major if businesses are to purchase in the administration skills motivation. How government organizations should proactively connect with businesses without having the correct confirmation that straightforwardly identifies with them.



Source: NSS Rounds.

FIGURE 22.1: Trend in Unemployment Rate

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TABLE 22.16
Sectoral Employment (in million): Business-as-usual Scenario

Year	Agriculture	Mining and Quarrying	Manufacturing	Utilities	Construction	Trade, Transport, Hotels, and so on	Finance, Banking, Real Estate, and so on	Community, Personal and Social Services	Total
2009–10	241.7	2.7	50.0	1.4	43.6	68.6	9.5	37.2	454.7
2011–12	242.3	2.8	50.6	1.4	51.1	71.2	10.9	37.7	468.0
2016–17 (pure demand side)	243.9	3.1	52.2	1.4	75.8	78.2	15.4	39.0	508.9
2016–17 (adjusted for labour force participation rates)	237.4	3.1	52.2	1.4	75.8	78.2	15.4	39.0	502.4
Projected Share of Employment in per cent									
2011–12	51.77	0.60	10.81	0.29	10.91	15.22	2.34	8.06	100.0
2016–17	47.25	0.61	10.38	0.28	15.09	15.57	3.06	7.77	100.0

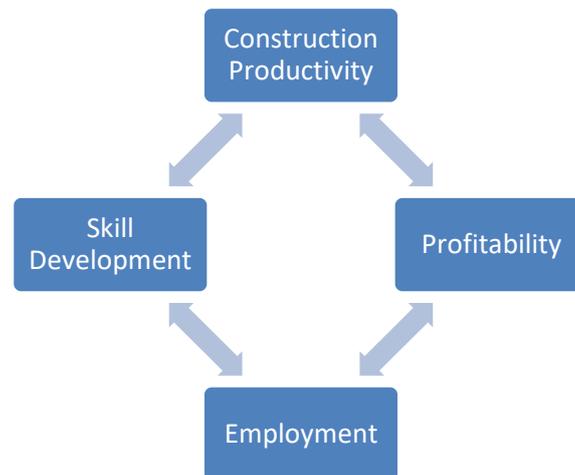
Table 4 Growth Rate of Labour Productivity, 1980 to 2008 (% per annum)

Industry No.	Industry Description	1980 to 1999	2000 to 2008	1980 to 2008
1	Agriculture, Hunting, Forestry & Fishing	1.72	2.59	1.94
2	Mining & Quarrying	3.88	2.54	3.54
3	Food Products, Beverages & Tobacco	2.99	8.86	4.47
4	Textiles & Leather products	7.01	2.25	5.81
5	Wood & Products of wood	-0.89	-4.25	-1.74
6	Pulp, Paper & Paper products, printing & publishing	2.92	1.11	2.47
7	Coke, Refined Petroleum products & Nuclear fuel	-3.36	15.41	1.35
8	Chemicals & Chemical products	4.57	8.13	5.47
9	Rubber & Plastic products	2.11	10.24	4.15
10	Other Non-Metallic Mineral Products	6.56	3.56	5.80
11	Basic Metals & Fabricated Metal products	3.51	9.96	5.13
12	Machinery, NEC.	-1.48	3.59	-0.21
13	Electrical & Optical equipment	6.12	14.16	8.14
14	Transport equipment	7.60	-2.97	4.95
15	Manufacturing, nec	7.33	4.56	6.63
16	Electricity, Gas & Water Supply	6.17	5.42	5.98
17	Construction	-0.31	3.77	0.72
18	Trade	1.34	5.86	2.47
19	Hotels & Restaurants	3.38	6.33	4.12
20	Transport & Storage	2.44	4.98	3.08

21	Post & Telecommunications	3.88	21.41	8.29
22	Financial services	5.06	5.70	5.22
23	Public Administration & Defence	4.38	6.75	4.98
24	Education	3.16	2.44	2.98
25	Health & Social work	1.24	1.88	1.40
26	Other services	2.24	3.88	2.65

Note: Labour productivity is here defined as real gross output per person employed.
Source: Authors' calculations.RBI

Linkages between skill development, Construction productivity and employment and profitability



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