

Dynamics of Construction Sector in India: An Analysis

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Abstract

The construction sector in India has been experienced very high growth rate during the recent years. The relative importance of construction sector to total output increased during post-reform period, especially during 2004-05 to 2009-10. The growth of employment in the construction sector has also expanded. The expansion of employment in the construction sector has relatively higher as compared with other sectors. The study found that inspite the growth dynamics of the construction sector there was the tendency of informalisation and casualisation of the workers.

Keywords: Construction sector, growth dynamics, employment expansion, informalisation, capsulation.

JEL Classification:L74,

1. Introduction

The construction sector in India have experienced very high growth rate during the recent years. The compound annual growth rate increased from 6.36 percent during 1993-2000 to 9.17 percent during 2000-2005 and it was further increased to 10.31 percent during 2005-2010. The key drivers of this growth are government investment in infrastructure creation and estate demand in the residential and industrial sector. Construction activity is an integral part of a country's infrastructure and industrial development. Construction becomes the basic input for socio-economic development. Besides, the construction industry generates substantial employment and provides a growth inputs to other sector through backward and forward linkages. It is, essential therefore, that, this fundamental activity is nurtured for the healthy growth economy. With the present emphasis on creating physical infrastructure, massive investment is planned during the recent plans. The construction industry would play a crucial role in this regard and has to gear itself to meet the challenges. In order to meet the intended investment targets in time, the current capacity of the domestic construction industry would need considerable strengthening. The construction sector has major linkages with the building materials industry which include cement, steel, bricks/tiles, sand/aggregates, fixtures/fillings, paints & chemicals, construction equipment, petro-products, timber, mineral products, aluminum, glass& plastics. Besides, the construction sector is one of the leading employers in the country. In 1999-2000, it employed 17.50 million workers, a rise of 9 million over 1993-94, it was also increased to 26.00 million during 2004-05. It was further increased to 44.10 million during 2009-10. The sector also recorded the highest growth rate in generation of jobs in the last two decades, doubling its share in total employment.

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Recent literature highlights a number of significant features regarding construction sector. The existing literature on construction sector is reviewed here. Park (1989) has confirmed that the construction industry generates one of the highest multiplier effects through its extensive backward and forward linkages with other sectors of the economy. It is stated that the importance of the construction industry stems from its strong linkages with other sectors of the economy (World Bank, 1984). However, interdependence between the construction sector and other economic sectors is not static (Bon, 1988; Bon, 1992). Strout (1958) provided a comparative inter-sectoral analysis of employment effects with an emphasis on the construction. Ball (1981) addressed the employment effects of the construction sector as a whole. Many studies (Fox, 1976; Bon and Pietroforte, 1993; Pietroforte and Bon, 1995) use the strong direct and total linkage indicator to explain the leading role of the construction sector in the national economy.

National Commission on Labour (2002) noted that construction labour comprises three segments, namely, the Naka/Mandi segment, the Institutional segment and the intermediaries segment. The former two segments are relatively small in size. The Naka/Mandi segment refers to the market that caters to the mass of individual householders and petty contractors who need casual labour for odd jobs.

Ravi Kanbur & Renana Jhabvala (2002) noticed that SEWA has 13,000 members in the construction sector, most of them in Ahmedabad City. These women are mainly 'unskilled' construction workers, working as casual labor. A study conducted by SEWA Academy in 1999, found the following: Women were engaged in mainly unskilled work. 92% carrying loads of cement, bricks, concrete etc. The rest in semiskilled work like plastering or concrete mixing. In comparison, 36.8% of men were engaged load carrying, the rest being in semi-skilled or skilled work, like masonry, tile laying, centering etc.

Khan (2006) noticed that the Construction sector and construction activities are considered to be one of the major sources of economic growth, development and economic activities. It can be regarded as a mechanism of generating the employment and offering job opportunities to millions of unskilled, semi-skilled and skilled work force. It also plays key role in generating income in both formal and informal sector. It supplements the foreign exchange earnings derived from trade in construction material and engineering services. Unfortunately construction sector is one of the most neglected sectors in Pakistan. Although the construction sector has only a 2.3 percent share in GDP, its share of the employed labor force was disproportionately large at 6.1 percent in 2007. The construction sector is estimated to have grown by 17.2 percent in 2006-07 as against 5.7 percent of last year. The higher demand for construction workers is also reflected in a continued double-digit rise in their wages since FY05. Their wages increased by 11.1 percent in 2007.

Mallick & Mahalik (2008) empirically examining the importance of construction sector in propelling economic growth rate in India, the study has found that in the presence of the dominant influence of capital stock, the impact of the construction sector gets blurred or neutralized. Once capital stock is dropped from the model, the construction sector emerges as a significant determinant of economic growth, while other financial variables such as interest rate and non-food bank credit including the financial liberalization dummy do not play significant roles in economic growth. However, from an investigation of the impact of the construction sector on economic growth through the channel of employment, it is seen that the construction sector might be impacting the growth rate through increasing employment and thereby increasing the aggregate output in the economy.

In this background the questions that arise are: What is the trend of construction industry in India during post-reform period as compared with pre-reform period? What is the nature of growth of employment in this sector? Is the growth of output and employment of the construction sector

distinct as compared with other sectors of the economy in India? Is the change of employment in the construction sector occurred towards casualisation and informalisation?

The rest of the work is divided in four Sections. Section 2 provides the database and methodology used in the study. The trend of the construction sector is analysed in section 3. Section 4 makes a comparative analysis of the trend of output and employment of construction sector with other sectors. Section 5 analyzes the dynamics of employment, i.e., change of rural and urban, male and female, casual and regular, organized and unorganized employment in India. Section 6 summarizes the main findings and makes concluding remarks.

2 Database and Methodology

Database

The relevant information has been collected from secondary sources. The secondary data for this study has been collected from various Govt. sources:

1. Govt. of India, National Account Statistics, CSO, 1950-51 to 2009-2010
2. Database for Indian Economy, RBI, Government of India, www.rbi.org.in.
3. Census of India 1981, series I, India, part-II B (i), General Economic Tables.
4. Census of India 1991, series I, India, part-II B (i), General Economic Tables.
5. Census of India 2001, series I, India, part-II B (i), General Economic Tables.
6. NSSO, Employment and Unemployment Situation in India: NSS 38th Round, 1983; NSS 50th Round, 1993-94; NSS 55th Round, 1999-2000; NSS 61th Round, 2004-05; NSS 66th Round, 2009-10

Methodology

Growth Estimation: For estimating the growth of construction output, growth of GDP and growth of construction workers compound growth rate is used. Census data and NSS data are available in fixed time interval. Annual compound growth rate is calculated by using the following formula.

$$\text{Compound Annual Growth Rate (CAGR)} = \left[\exp \left\{ \frac{\ln \left(\frac{A}{P} \right)}{t} \right\} - 1 \right] * 100$$

where A= current value, P= base value., t = no of years.

By using the data of construction output, total GDP and GDP excluding construction output over the year we estimate the *trend growth rate (Exponential growth rate)* by using following regression equations

$$\log cp = \alpha + \beta t + u_t, \quad \text{where, } cp = \text{construction output, } t = \text{no. of year}$$

$$\log GDP = \gamma + \delta t + u_t, \quad \text{where, } GDP = \text{gross domestic product, } t = \text{no. of year}$$

$$\log GDP_{EXC} = \varphi + \mu t + u_t, \quad \text{where, } GDP_{EXC} = \text{gross domestic product excluding construction sector, } t = \text{no. of year}$$

Chow Test: Data on the construction output frequently cover the pre-reforms as well as the post-reform period. If we concede the possibility that growth rate of construction output of the post-reform period may be different from that of pre-reform period and accordingly the parameters of the post reforms construction output growth equation may be different from that of the pre-reform construction output growth equation. For this purpose we would test the null-hypothesis that the parameters of the construction output function have not changed.

In particular, we may write,

$$\log cp = \alpha + \beta t + u_i, \quad \text{Where } i = 1, \dots, n \text{ for pre-reform and}$$

$$\log cp = \gamma + \delta t + u_j, \quad \text{where } j=n+1, \dots, n+m \text{ for post-reform}$$

Null-hypothesis: $\alpha = \gamma$ and $\beta = \delta$

This to be tested against the null-hypothesis is not true. Assuming that the variances of the disturbances in the two equations are the same.

The restriction imposed by null-hypothesis is

$$\log cp = \alpha + \beta t + u_i \quad \text{Where } i= 1, 2, \dots, n, n+1, \dots, n+m.$$

Let the sum of squares of least squares residuals from this equation be called RSS as usual. When the restrictions imposed by null-hypothesis are ignored, the least square methods is applied to each group of observation separately, thus allowing for different co-efficient estimate. The resulting unrestricted error sum of square they will be

$$RSS_U = RSS_1 + RSS_2$$

Where, RSS_1 is the first n observations and RSS_2 is the next m observations. The number of restrictions imposed by H_0 is equal to the number of restricted co-efficient that is K , while the number of degrees of freedom for the unrestricted estimation is $n+m-2K$. The appropriate test statistic then becomes.

$$\frac{(RSS - RSS_1 - RSS_2)/K}{(RSS_1 + RSS_2)/(n+m-2K)} \sim F_{K, n+m-2K}$$

If the calculated value is greater than the table value then we reject the null-hypothesis. That is the growth rates are significantly differ between two periods.

Employment Elasticity of Output: To find out the nature of growth relating with employment here we estimate the employment elasticity of output (E_L).

$$E_L = \text{percentage change of employment} / \text{percentage change of output}$$

$$\text{i.e., } E_L = \frac{(E_t - E_{t-1})/E_{t-1}}{(Y_t - Y_{t-1})/Y_{t-1}}$$

If $E_L < 0$, job loss growth; $0 < E_L < 1$, job less growth; $E_L > 1$, job create growth.

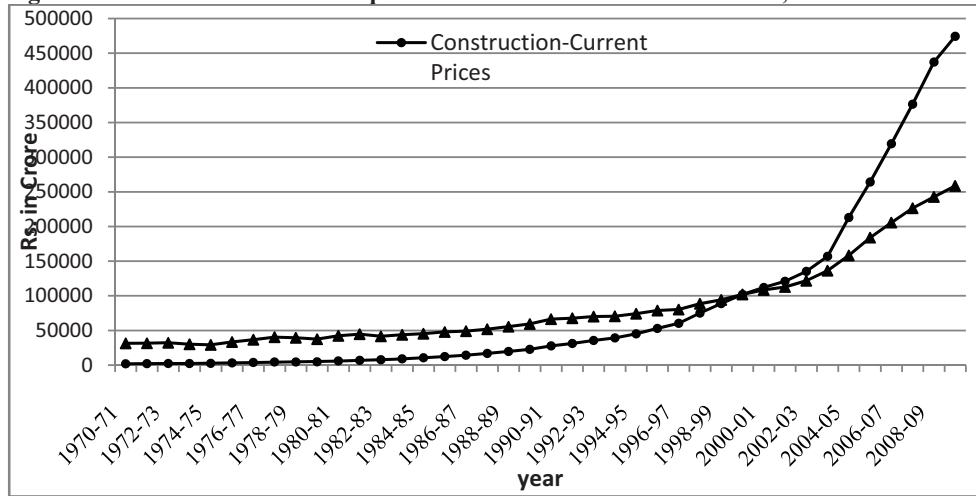
3 Trend of Construction Industry in India

The out put of the construction sector at current price as well as constant price (1999-200 = 100) for a very long period starting from 1970 to 2010 is depicted in Figure 1. It is observed that there was a sustained increase of construction sector output during the entire period. We observed that in 1970-71 the construction output (at current price) was Rs 1943 million which gradually increased to Rs. 6059 million in 1980-81 and Rs. 111999 million in 2000-01. Finally, in the latest year 2009-10 it became Rs. 474234 million. Construction output in constant price was also increased over the year. The rate of increase of construction out put was slow up to the end of the 80's and the increase was moderate up to 2004-05 and after that it increased at a very high rate.

Analysis of Trend of the Output

The present section analyses the trend of the construction sector by estimating the trend growth (i.e., exponential growth) rate and also examine whether the growth of the output is significantly increased during post-reform period or not. All the analyses have been made by considering the output at constant price.

Figure 1 Trend Construction Output at Constant Price & Current Price, 1970 to 2010



Sources: Govt. of India, National Account Statistics, CSO.

The estimated trend lines by considering semi-log model for the periods 1970-71 to 1989-90, 1990-91 to 2009-10 and 1970-71 to 2009-10 are estimated separately and presented in equation (1), (2), and (3) respectively. The slope of the trend line for the period 1990-91 to 2009-10 is higher than that of 1970-71 to 1989-90.

Equation1: Estimated Regression Equation of construction output (at constant price) at the period 1970-71 to 2009-10 in semi-log form.

$$\text{Logcp} = 4.36^{***} + 0.023t^{***} \dots(1) \quad F=683.85^{***}, \text{Adj.R}^2=0.95, \text{RSS} = 0.155$$

(211.92) (26.15)

Growth rate of construction output is 2.3%.

Equation2: Estimated Regression equation of construction output (at constant price) at the period 1970-71 to 1989-90 in semi-log form.

$$\text{Logcp} = 4.45^{***} + 0.015t^{***} \dots(2) \quad F=221.299^{***} \quad \text{Adj.R}^2=0.921, \text{RSS1}=0.011$$

(380.47) (14.88)

Growth rate of construction output is 1.5%.

Equation3: Estimated Regression Equation of construction output (at constant price) at the period 1990-91 to 2009-10 in semi-log form.

$$\text{Logcp} = 4.71^{***} + 0.033t^{***} \dots(3) \quad F=403.59^{***} \quad \text{Adj.R}^2=0.955 \quad \text{RSS2}=0.032$$

(241.14) (20.09)

Growth rate of construction output is 3.3%.

Where, Logcp= Logarithm of construction output at constant price.

*** means significant at 1% level.

From the above result it is noticed that the construction sector has been grown at the rate of 2.3 per cent during 1970-71 to 2009-10. The construction sector registered relatively higher growth rate

during the post-reform period (i.e., 1990-91 to 2009-10) as compared with the pre-reform period (i.e., 1970-71 to 1989-90). Now we test whether this growth rate is significantly increased or not. For this purpose we used the 'Chow Test'.

$$F = \frac{(RSS - RSS1 - RSS2)/K}{(RSS1 + RSS2)/(n + m - 2K)} = 46.88$$

Where, $RSS=0.155$, $RSS1=0.011$, $RSS2=0.032$, $n=20$, $m=20$ $K=2$.

The calculated value of F is significantly higher than the Table value of F. Therefore, the null hypothesis is rejected. That is growth rate of construction output was significantly increased during post-reform period as compared to pre-reform period.

Contribution of the Growth of Construction sector in over all GDP growth

Now we analyze the contribution of construction sector growth in the overall growth of the economy, i.e., in the growth of GDP. For this purpose we made a comparison between the growth of overall GDP and the growth of GDP excluding construction output. Here equation (4), (5), and (6) represent the growth rate of GDP for the periods 1970-71 to 1989-90, 1990-91 to 2009-10 and 1970-71 to 2009-10. Whereas, equation (4a), (5a), and (6a) represent the growth rate of GDP excluding construction output for the same period.

Equation 4: Growth estimation of GDP for the period 1970-71 to 2009-10.

$$\text{LogGDP} = 5.73^{***} + 0.021t^{***} \dots(4) \quad F=2.544E3^{***}, \text{Adj.R}^2=0.985,$$

(594.23) (50.44)

The estimated growth rate of GDP is 2.2 %.

Equation 5: Growth estimation of GDP for the period 1970-71 to 1989-90.

$$\text{LogGDP} = 5.77^{***} + 0.016t^{***} \dots(5) \quad F=683.34^{***} \quad \text{Adj.R}^2=0.973$$

(777.85) (26.14)

The estimated growth rate of GDP is 1.6 %.

Equation 6: Growth estimation of GDP for the period 1990-91 to 2009-10.

$$\text{LogGDP} = 6.09^{***} + 0.027t^{***} \dots(6) \quad F=2.187E3^{***} \quad \text{Adj.R}^2=0.991$$

(950.37) (46.76)

The estimated growth rate of GDP is 2.7 %.

Equation 4a: Growth estimation of GDP excluding construction output (i.e., GDP_{exc}) for the period 1970-71 to 2009-10.

$$\text{LogGDP}_{exc} = 5.71^{***} + 0.02t^{***} \dots(4a) \quad F=2.78E3^{***}, \text{Adj.R}^2=0.986,$$

(624.19) (52.69)

The estimated growth rate of GDP_{exc} is 2.0 %.

Equation 5a: Growth estimation of GDP excluding construction output (i.e., GDP_{exc}) for the the period 1970-71 to 1989-90.

$$\text{LogGDP} = 5.75^{***} + 0.016t^{***} \dots(5a) \quad F=613.86^{***} \quad \text{Adj.R}^2=0.970 \quad RSS1=0.005$$

(737.09) (24.776)

The estimated growth rate of GDP_{exc} is 1.6 %.

Equation 6a: Growth estimation of GDP excluding construction output (i.e., GDP_{exc}) for the the period 1989-90 to 2009-10.

$$\text{Log}gcp = 6.08^{***} + 0.024t^{***} \dots(6a) \quad F=2.641E3^{***} \quad \text{Adj.R}^2=0.993 \quad \text{RSS2}=0.003$$

(1.068E3) (51.392)

The estimated growth rate of GDP_{exc} is 2.4%.

From the above analysis we observed that during the pre-reform period (i.e., during 1970-71 to 1989-90) growth rate of GDP and the growth rate of GDP excluding construction (GDP_{exc}) was 1.6 per cent That is, during this period there was no contribution of the construction sector in over all GDP growth. The insignificant share of construction output in respect to GDP is the main cause. But, if we turn to post-reform period (i.e., 1990-91 to 2009-10) it is noticed that the growth rate of GDP was 2.7 per cent and that of GDP_{exc} was 2.4 per cent. That is construction sector contributes 0.3 per cent additional growth to the growth of GDP.

4 Trend of Construction Sector in Comparison with other Sectors

The present section deals with the trend of output and employment of construction sector in comparison with other sectors of the economy. Here we also try to inter-relate the trend of output with the trend of employment. Output data is available for all the years but employment is not. The latter is available only in some specific years. Therefore, here we consider some common time points e.g., 1983, 1993-94, 1999-2000, 2004-05 and 2009-10. For the time constraints the period 1983 to 1993-94 is treated as pre-reform period and the periods 1993-94 to 2004-05 and 2004-05 to 2009-10 are two sub-periods of post-reform period.

Trend of Output of Construction sector vis-à-vis other sector

The distribution of GDP among different sectors is presented in Table 1. The percentage share of construction output to total GDP gradually increased from 5.8 per cent in 1983 to 6.6 per cent in 2004-5. In 2009-10 it was significantly increased to 7.9 per cent. The relative importance of construction sector to total output increased during post-reform period, especially during 2004-05 to 2009-10.

Table 1 Percentage share of GDP at factor cost (Constant prices)

Sector	1983-84	1987-88	1993-94	1999-00	2004-05	2009-10
Agriculture & allied activities	37.1	32.3	30.0	25.0	20.2	14.6
Mining & Quarrying	2.2	2.4	2.5	2.3	2.2	2.4
Manufacturing	14.5	14.9	14.5	14.8	15.1	16.1
Electricity, Gas & Water Supply	1.7	2.1	2.4	2.5	2.3	2.0
Construction	5.8	5.9	5.8	5.7	6.6	7.9
Trade, Hotel, Transport and Communications	17.5	18.9	18.8	21.7	25.8	26.5
Finance, Real Estate & Business Services	8.3	9.9	12.2	13.1	13.5	17.2
Community, Social & Personal Services	12.8	14.2	13.9	14.9	14.2	13.1
Total	100.0	100.6	100.0	100.0	100.0	100.0

Sources: As in Figure 1.

The compound annual growth rate (CAGR) of output by sector is shown in Table 2. The CAGR of construction sector output was 6.10 per cent during pre-reform period which became nearly twice (12.46 per cent) during the post-reform period. During the later sub-period (2004-05 to 2009-10) construction sector registered double digits growth rate (16.02 per cent). The increase of the growth rate of construction sector was highest among all other sectors. Other sectors like, trade-hotel-transport-communications, manufacturing, finance, insurance, real-estate & business services also register higher growth rate during the post-reform period.

Table 2. Growth of GDP at factor Cost (constant prices)

Sector	1983-93	1993-05	2005-10
Agriculture & allied activities	3.13	3.15	1.70
Mining & Quarrying	8.15	7.14	13.37
Manufacturing	6.19	10.40	12.05
Electricity, Gas & Water Supply	13.03	8.43	5.60
Construction	6.10	12.46	16.02
Trade, Hotel, Transport and Communications	7.47	16.76	10.93
Finance, Insurance, Real Estate & Business Services	13.83	11.69	18.28
Community, Social & Personal Services	7.68	10.06	7.72
Total	6.26	9.52	10.04

Sources: As in Figure 1.

Trend of Employment in the Construction Sector vis-à-vis other sector

Sector-wise percentage share of employment for the years 1983, 1993-94, 1999-00, 2004-05, 2009-10 is presented in Table 3. The labour absorption in construction sector increased gradually. The share of employment in construction sector to total employment expanded from 2.54 per cent (in 1983) to 2.88 per cent (in 1993-94), and further to 5.68 per cent (in 2004-05). In the latest year, i.e., in 2009-10 it became to 9.61 per cent. Other sectors like manufacturing, trade-commerce, transport-storage-communication and service sectors have also experienced the increase of employment share. But the expansion of the construction sector has relatively higher as compared with other sectors. During last four decades starting from 1983 the relative share of construction sector has expanded at the extent of 7 percentage points.

Whereas the growth rate of employment decreased in most of the sectors during the post-reform period as compared with pre-reform period. The compound annual growth rate (CAGR) of construction employment increased from 5.79 per cent during pre-reform period (1983 to 1993-94) to 9.55 per cent in during 1993-94 to 2004-05 and sharply increased to 13.92 per cent during 2004-05 to 2009-10 (Table 4). During the post-reform period the growth of the construction sector was highest among all other sectors. In respect of the trends of employment in relative term (percentage share) as well as in absolute term (growth) there has been no doubt that that construction sector is the dynamic sector in India. Now let us turn to the employment dynamics within the construction sector.

Table 3 Sector-wise percentage Share of Employment

Sector	1983	1993-94	1999-2000	2004-05	2009-10
<i>Primary (Farm)</i>	68.17	64.02	60.29	56.50	51.78
1.Mining& Quarrying	0.66	0.71	0.57	0.56	0.64
2.Manufacturing	10.92	10.63	11.03	12.21	11.37
3.Electricity-Gas-Water	0.28	0.40	0.26	0.26	0.27
4.Construction	2.54	3.23	4.41	5.68	9.61
<i>Secondary (1-4)</i>	14.43	14.97	16.27	18.70	21.89
5.Trade-Commerce	6.40	7.57	10.25	10.83	11.25
6.Transport-Storage Communication	2.54	2.88	3.68	4.06	4.45
7.Other Services	8.97	10.38	9.61	9.91	10.63
<i>Tertiary (5-7)</i>	17.40	21.04	23.59	24.80	26.33
Total workers	100	100	100	100	100

Sources: NSSO, Employment and Unemployment Situation in India: NSS 38th Round, 1983; NSS 50th Round, 1993-94; NSS 55th Round, 1999-2000; NSS 61th Round, 2004-05; NSS 66th Round, 2009-10

Table 4 Sector-wise Growth of Employment

Sector	1983 to 1993-94	1993-94 to 2004-05	2004-05 to 2009-10
Agriculture & allied activities	1.56	0.67	-1.63
Mining & Quarrying	3.49	-0.40	3.04
Manufacturing	2.02	3.37	-1.32
Electricity, Gas & Water Supply	7.67	-1.59	0.72
Construction	5.79	9.55	13.92
Trade, Hotel, Transport and Communications	4.66	6.22	0.83
Community, Social & Personal Services	4.07	6.02	1.97
Other services	4.34	1.38	1.51
Tertiary	4.98	3.67	1.29
Total	2.33	1.86	0.05

Sources: Author's Calculation based on Table 2 and 3.

5 Employment Dynamics in Construction Sector

Percentage share of employment in construction sector by sex and by location in India has been shown in Table 5. The percentage share of employment in construction sector for male was higher than that of female in rural as well as urban India. Both male and female share have been increased over the years. Besides, the share of urban employment was also higher as compared with rural for both male and female. But increase of rural employment was relatively higher as compared with urban.

Table 5 Percentage Share of Employment in Construction Sector by Sex in India

Workers	1983	1993-94	1999-2000	2004-5	2009-10
Rural Male	2.6	3.2	4.5	6.8	11.3
Rural Female	0.9	0.9	1.1	1.5	5.2
Urban Male	5.3	6.9	8.7	9.2	11.4
Urban Female	3.1	4.1	4.8	3.8	4.7

Sources: As in Table 3

In the year 1983 male's participation in construction sector was 2.3 per cent in rural India and it was 5.1 per cent in urban India (Table 5). In this year 0.9 per cent female was involved in rural India and 3.7 per cent in urban area. It has been seen that male participation rate in rural (urban) India rapidly increased to 11.3 (11.4) per cent and female participation rate also increased to 5.2 (4.7) per cent in the year 2009-10. Over the years we can notice that male participation rate is highly increased compared to female participation rate in construction sector. That is the construction sector has been dominated by male.

Table 6 presents the percentage distribution of construction workers among male and female with rural and urban location. The percentage distribution of incremental construction workers helps us to analyze temporal change in relative importance of different segment of workers. The share of incremental rural male (female) construction workers to total incremental workers gradually increased during post-reform periods as compared with pre-reform period. But the shares of urban male and female have showed the downward trend.

Table 6 Distribution of Incremental Construction Workers

	1983 to 1993-94	1993-94 to 1999-2000	1999-2000 to 2004-05	2004-05 to 2009-10
Rural Male	44.5	53.1	71.3	62.6
Rural Female	3.5	4.1	8.2	19.8
Urban Male	44.7	39.3	20.1	16.9
Urban Female	7.4	3.5	0.4	0.8
Total	100.0	100.0	100.0	100.0

Sources: As in Table 3.

Unorganized workers have been dominated in the construction sector and their share gradually increased from 70.3 per cent in 1999-2000 to 87.0 per cent (Table 7). If we consider the status of

employment of the unorganized construction workers than it is evident that majority of the workers are casual in nature. The percentage share of casual employment in unorganized construction workers increased from 65.0 per cent in 2004-05 to 68.7 per cent in 2009-10. On the other hand the share of self-employment as well as regular employment has been declined (Table 8).

Table 7 Distributions of Construction Workers by Nature of Employment, 2004-05 to 2009-10

Year	Number (in million)			Percentage		
	Organised	Unorganised	Total	Organised	Unorganised	Total
1999-00	5.30	12.40	17.70	29.7	70.3	100
2004-05	6.34	19.66	26.00	24.4	75.6	100
2009-10	5.73	38.36	44.09	13.0	87.0	100

Source: Unit Level Data, NSS 55th Round (1999-2000), NSS 61st Round (2004-05) and NSS 66th Round, 2009-10, Employment and Unemployment survey.

Table 8 Distribution of Unorganised Construction Worker by Status of Employment

year	Number (in Million)				Percentage Share			
	self-employed	regular	causal	total	self	regular	causal	total
2004-05	2.94	3.93	12.78	19.66	15.0	20.0	65.0	100
2009-10	4.98	7.01	26.37	38.36	13.0	18.3	68.7	100

Source: As in Table 3.

6. Summary and Conclusion

The construction sector in India has been experienced very high growth rate during the recent years. The trend growth rate was 2.3 per cent during 1970-71 to 2009-10. This growth significantly improved during the post-reform period as compared with the pre-reform period. The percentage share of construction output to total GDP has also gradually increased from 5.8 per cent in 1983 to 6.6 per cent in 2004-5. In 2009-10 it was significantly increased to 7.9 per cent. The relative importance of construction sector to total output increased during post-reform period, especially during 2004-05 to 2009-10.

It was observed that during 1970-71 to 1989-90 growth rate of GDP and the growth rate of GDP excluding construction (GDP_{exc}) was 1.6 per cent. That is, during this period there was no contribution of the construction sector in over all GDP growth. The insignificant share of construction output in respect to GDP was the main cause. But during 1990-91 to 2009-10 the growth rate of GDP was 2.7 per cent and that of GDP_{exc} was 2.4 per cent. That is construction sector contributes 0.3 per cent additional growth to the growth of GDP.

The growth of employment in the construction sector has also expanded from 5.79 per cent during 1983 and 1993-94 to 9.55 per cent during 1993-94 and 2004-05 and sharply increased to 13.92 per cent during 2004-05 and 2009-10. During the post-reform period the growth of employment in the construction sector was highest among all other sectors. The share of employment in construction sector to total employment expanded from as low as 2.54 per cent in 1983 to 5.68 per cent in 2004-05. In the latest year, i.e., in 2009-10 it became to 9.61 per cent. The

expansion of the construction sector has relatively higher as compared with other sectors. That is in respect of the trends of employment in relative term as well as in absolute term there has been no doubt that that construction sector has the dynamic sector in India.

Both male and female share have been increased over the years. But increase of rural employment was relatively higher as compared with urban. The share of incremental rural male (female) construction workers to total incremental workers gradually increased during post-reform periods as compared with pre-reform period. But the shares of urban male and female have shown the downward trend.

Unorganized workers have been dominated in the construction sector and their share gradually increased from 70.3 per cent in 1999-2000 to 87.0 per cent. The majority of workers in the construction sector were casual in nature. The percentage share of casual employment in unorganized construction workers increased from 65.0 per cent in 2004-05 to 68.7 per cent in 2009-10. On the other hand the share of self-employment as well as regular employment has been declined. That is, inspite the growth dynamics of the construction sector there was the tendency of informalisation and casualisation of the workers.

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