

An Economic Analysis of Construction Workers in Srivaikuntam Taluk, Thoothukudi District

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Abstract

Construction work is physically hard and must be carried out in conditions which are difficult and hazardous. There are serious hazards of accidental injury and even death due to objects or persons falling from height, collapse of scaffolding caving in of earth work, handling of explosives and soon. Construction is one of the four industries that is of common importance in all countries. The government of Tamil Nadu prescribed a few safety measures and group insurance scheme, but they find little use in practice. Hence, the present study is an attempt to study thoroughly the income pattern and the determinants of per capita income of construction workers in Srivaikuntam taluk of Thoothukudi district, which will be useful to bring to light several problems faced by them and to suggest suitable remedial measures. The study reveals that the status of construction workers is not fully satisfactory in Thoothukudi district. Therefore they are not able to improve their economic conditions. Implementation of minimum wages will better the status of construction workers. If they are united and organized there is likelihood that their status in the society will be improved.

Key Words: Construction Workers, Income pattern and Per capita Income

Introduction

Construction sector is an important in gross capital formation activity in the country's economy. It is a productive activity as it results in creation of assets. These assets will be further used for productive purposes. Therefore, construction should be regarded as "the mother of Productive Activities" and it is inter-linked with most of the other sectors in an economy. Practically, all the sectors have construction components in them of varying degrees such as 40 per cent in transport and communications, 75 per cent in power, 80 per cent in irrigation and flood control to 100 per cent in housing.

Construction work is physically hard and must be carried out in conditions which are difficult and hazardous. There are serious hazards of accidental injury and even death due to objects or persons falling from height, collapse of scaffolding caving in of earth work, handling of explosives and soon. Construction is one of the four industries that is of common importance in all countries. Its role cuts across differences in resource endowments, social policies and existing levels of development. Some of the ancient civilizations had human settlements with well planned layouts and service facilities which we associate today with urban development. The Middle East, India and China have traditions of city buildings that go back to 3000 years.

Statement of Problem

Construction workers are essentially wage earners. Apart from the skilled categories, these workers are commonly classified by the nature contract of their services as contractual labour or casual labour or hired workers. The labour contract can be broadly classified as (i) contract for a period and (ii) contract for a specific piece of work.

As wage income is the main source of living of the construction workers, loss of working days and wages compel to work so as to borrow for consumption purposes leads to a heavy burden of indebtedness. In addition to the common discrimination found in wages paid to male and female workers, the latter are exploited physically also. Technically speaking, the market for construction workers is imperfect and discrimination, differences are exploitative in character.

The government of Tamil Nadu prescribed a few safety measures and group insurance scheme, but they find little use in practice. Hence, the present study is an attempt to study thoroughly the income pattern and the determinants of per capita income of construction workers which will be useful to bring to light several problems faced by them and to suggest suitable remedial measures, so that such studies may suggest specific steps for organising construction workers for collective bargaining and self help. It must be made possible to identify the areas where government policies may help those socially and economically backward sections of the society training organization, minimum wages, safety regulations and security of job.

Review of Literature

Bipasha Baruah (2010) in her article identifies the opportunities and constraints faced by female construction workers in urban India, citing empirical research conducted in the city of Ahmedabad. The Self-Employed Women's Association (SEWA) conducted three surveys in

1998, 2003 and 2007 to learn more about the needs and priorities of construction workers in the context of economic globalization. While enthusiastically endorsing the role that training and certification can play in providing skilled women with opportunities for quality employment, the author emphasizes the need for wider policy intervention at the state and national levels to ensure that such programmes have replicable, sustainable, and gender equitable results.

Morena et al., (2013) in their paper reveals that it is important to critically analyze the concept and to highlight the distinctive elements of youth mentoring, in the construction industry. The aim of this paper is to look at the experiences, challenges and problems contributing to mentoring of young graduate's construction employees within construction companies. It will indicate whether or not young graduates' construction workers are they being mentored or not, are they involved in any form of mentoring, within their construction companies. This study will examine mentoring of young graduates within organizations, whether they are being mentored or not in the construction industry, as compared to their non-mentored employees; within their companies, it will look at the important characteristics of mentors, potential negative outcomes or problems in mentoring of young graduates and the implications of cultural divide in relation to gender and race, are they being mentored the same or not, this will report more job and career satisfaction, and express lower turnover than their non-mentored counterparts, furthermore it will examine the ways in which mentoring contributes to producing motivated young construction workers within the industry.

Objectives of the Study

1. To study the income pattern of the construction workers in Srivaikuntam taluk of Thoothukudi district.
2. To analysis the determination of the per capita income of the construction workers in the study srea,
3. To offer suitable suggestions on the betterment of the construction workers..

Methodology

The present study involves, primarily, income pattern, per capita income and determination of per capita income etc., of the workers in the construction industry of Srivaikuntam taluk of Thoothukudi district. Field work for this study was carried out by the researcher himself. It was conducted during the period from April 2020 to June

2020. Considering both the time available for the study and the need to have a sufficiently large sample to allow statistical analysis 120 construction workers households were selected randomly for the study. Conventional tools of analysis like, percentages, averages, Gini Ratio and Multiple regression analysis are employed in this study.

Result and Discussion

Income of the Construction Workers

Income is one of the important factors which influence the standard of living of a person or members in the family. In general, the term income can be defined as the money which a person has to earn in a given period of time and this amount of money is to be spent by him during that period. In the present study, the income includes not only the income earned by the respondents but also receipts from other family members and their activities. Data relating to the gross income from each construction workers household are added upto arrive at a total income from all sources such as wages, salaries, rent, interest, agriculture and other family members income. From this, the annual average per capita income has been calculated for further analysis.

Average Annual Gross Income by Source

Collecting information regarding the income earned from all sources is an essential pre-requisite to analyse the pattern of income distribution among the sample construction workers. Table 1 present the source-wise gross income of the sample construction workers in the study area.

Table: 1 – Average Annual Gross Income by Source

(in `)

Source	Construction Workers					Overall
	Masons	Mazdoors	Carpenters	Painters	Electrical Workers	
Wages & Salaries	94,750 (62.32)	67,000 (55.51)	86,500 (57.92)	92,500 (61.46)	93,600 (62.57)	91,300 (60.46)
Earning from other Family Members	46,650 (30.68)	46,500 (38.53)	53,900 (36.09)	51,900 (34.49)	44,900 (30.01)	49,750 (32.95)
Rent, Interest and the like	6,800 (4.47)	7,200 (5.97)	5,300 (3.55)	6,100 (4.05)	5,900 (3.94)	6,750 (4.47)
Agriculture & Allied Activities	3,850 (2.53)	0 (0.00)	3,650 (2.44)	0 (0.00)	5,200 (3.48)	3,200 (2.12)
Total	152,050 (100.00)	120,700 (100.00)	149,350 (100.00)	150,500 (100.00)	149,600 (100.00)	151,000 (100.00)

Source: Field Survey

Note : Figures in parentheses indicate the percentage to total

It is observed from Table1 that, earnings by wages and salaries constitute a major source of income for all the categories of construction workers. Next to this, earning from other family members, income from rent, interest and the like and income from agriculture and allied activities give a considerable amount of average annual income to the households. Among the construction workers, the masons earned higher average annual income which accounted for `1,52,050 and it was followed by earnings by painters, electrical workers, carpenters and mazdoors groups which amounted to `1,50,500, `1,49,600, `1,49,350 and `1,20,700 respectively. Thus it is inferred from the analysis that earnings by wages and salaries constitute a major source of income followed by self earning.

Distribution of Respondents by Annual Income

Income is one of the important factors that determine the financial condition of a construction workers family. Under normal circumstances a sustained flow of a reasonable income ensures the family a decent standard of living. On the other hand, when the income of the family is not sufficient to get the bare necessities of life, the family is said to be below poverty line. The annual income earned by the respondents before and after joining the construction work is presented in Table 2.

Table: 2– Distribution of Respondents by Annual Income

Annual Income (in `)	Before Joining Construction Work			After Joining Construction Work		
	No. of Respon- dents	Mean Income	%	No. of Respon- dents	Mean Income	%
Below 20,000	23	12,078.09	18.79	6	15,736.41	4.87
20,000 – 40,000	28	23,736.54	24.50	20	29,736.53	16.44
40,000 – 60,000	22	48,358.27	17.95	30	51,236.45	25.00
60,000 – 80,000	29	69,271.26	23.83	35	72,743.24	29.19
80,000 – 1,00,000	11	96,312.50	9.40	16	101,732.15	13.26
Above 1,00,000	7	114,426.18	5.54	13	119,532.14	11.24
Total	120	57,026.12	100.00	120	59,313.33	100.00

Source: Field Survey

Before joining the construction work, the mean annual income of the income groups are less than `20,000, `20,000-40,000, `40,000-60,000, `60,000-80,000, `80,000-1,00,000 and above

`1,00,000 per family is about `12,078.09, `23,736.54, `48,358.27, `69,271.26, `96,312.50, `1,14,426.18 respectively. The first three categories are less than the average annual income. The average annual income of the construction workers before commencing the business is about `57,026.12.

After joining the construction works, the mean annual income of the income groups are less than `20,000, `20,000-40,000, `40,000-60,000, `60,000-80,000, `80,000-1,00,000 and above `1,00,000 per family is about `15,736.41, `29,736.53, `51,236.45, `72,743.24, `1,01,732.150 and `1,19,532.14 respectively. The first three categories are less than the average annual income of `59,313.33.

Before joining the construction works, the annual average income of the respondents was `57,026.12 but after joining the construction works, the annual average income is increased to `59,313.33. This is due to the differences in the wages in different categories of construction work.

Gini Co-efficient Ratio

Gini co-efficient ratio is a method used to measure income inequality among the construction work respondents. The greater the value of the Gini co-efficient, the larger would be the inequality and vice versa. In this study, the Gini co-efficient is fitted to measure the level of inequality among the 120 respondents of the construction workers and is represented in Table3. The following form of formula is computed for measuring Gini co-efficient.

$$G = 1 + \frac{1}{n} - \frac{2}{n^2 - y} (ny_i + (n-1) y_2 + \dots + 2y_{n-1} + y_{n-1} + y_n)$$

where

G – Gini Co-efficient

n – Number of individuals

y_i – Income of individual rank i ($y_1 \leq y_2 \leq y_{n-1} \leq y_n$)

y – Mean income

Table: 3 – Gini Co-efficient of Annual Income Before and After Joining Construction work

Income	Gini Co-efficient
Before Joining this Work	0.542

After Joining this work	0.343
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It is observed that the Gini ratio is 0.54 (1-0.46) which indicates that a moderate income inequality is existing among the respondents before joining the construction works. After joining construction works, inequality of income among respondents has been reduced to a large extent. The Gini ratio is 0.34 (1-0.66). This may be attributed to their increase in income, savings and borrowings. Therefore the hypothesis is “the income inequality among the sample construction workers is reduced significantly after joining the construction industry” which is proved true and hence it is accepted.

Analysis of Determinants of Per Capita Income

In this section, an attempt has been made to analyze the factors which determine the per capita income of the construction worker’s households. The factors such as, family size, number of earning members, type of construction work, productive assets and dependency ratio are selected as determinants of per capita income of the households in the study area.

In order to identify the determinants of per capita income, the following multiple log linear regression model was estimated.

$$\text{Log } Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + U$$

Where,

Y = Per capita income (₹)

X_1 = Family Size

X_2 = Number of earning members

X_3 = Type of construction work

X_4 = Productive Assets (₹)

X_5 = Dependency Ratio

U = Disturbance Term

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are the parameters to be estimated.

The above model was estimated by the method of least squares.

Relationship between Per Capita Income and its Determinates of Construction Workers

Table 4 furnishes the mean, standard deviation and co-efficient of variation of the selected five variables with per capita income for construction workers households in Thoothukudidistrict.

Table: 4 - Mean, Standard Deviation and Co-efficient of Variation and Per capita Income of the Construction Workers

Variables	Mean	Standard Deviation	Co-efficient of Variation
Per capita Income (₹)	5,615.41	2,414.15	42.99
Family Size	4.39	1.59	36.22
Number of Earning Members	1.71	0.52	30.41
Type of Construction Works	2.29	1.02	44.54
Productive Assets (₹)	2,798.53	1,012.37	36.18
Dependency Ratio	2.54	1.09	42.91

Source: Computed from Field Survey

It is inferred from Table4 that high variation was found in type of construction work of the construction workers in Thoothukudi district. It was followed by the variables, per capita income, dependency ratio, family size, productive assets and number of earning members which constitute 42.99 per cent, 42.91 per cent, 36.22 per cent, 36.18 per cent and 30.41 per cent respectively. Thus, it is inferred from the analysis that a greater variation was found in type of construction work which determine the per capita income among the construction workers.

Relationship between Per Capita Income and its Determinants

The correlation pertaining to the variables is presented in Table 5.5 for construction workers.

Table: 5 - Relationship between Per Capita Income and its Determinants

Variables	Masons	Mazdoors	Carpenters	Painters	Electrical Workers
Per capita Income (Y)	1.000	1.000	1.000	1.000	1.000
Family Size (X ₁)	-0.345*	-0.367*	-0.186	-0.782	-0.341*
Number of Earning Members(X ₂)	0.516*	0.638*	0.412*	0.561*	0.436*
Type of Construction	0.524*	0.413*	0.432*	0.457*	0.677*

Works (X_3)					
Productive Assets (X_4)	0.344*	0.563*	0.428*	0.068	0.178
Dependency Ratio (X_5)	0.123	0.076	-0.136*	-0.623*	0.284

Source: Computed from Field Survey

* Significant at 5 per cent level.

Table 5 shows that the per capita income of masons which bears significant and positive relationship with earning members (0.516), type of construction work (0.524), and productive assets (0.344). It implies that any change in these variables brings a difference in the per capita income in the same direction. Per capita income is significantly and negatively correlated (-0.345) with family size of masons. It indicates that any change in this variable leads to a change in the per capita income in the opposite direction.

The per capita income of mazdoors which bears significant and positive relationship with earning members (0.638), type of construction work (0.413) and productive assets (0.563). It implies that any change in these variables brings a difference in the per capita income in the same direction. Per capita income is significantly and negatively correlated (-0.367) with family size of mazdoors category workers. It indicates that any change in this variable leads to a change in the per capita income in the opposite direction.

The per capita income of the carpenters in construction workers has significant and positive relationship with type of construction work (0.432), earning members (0.412), and productive assets (0.428). It implies that any change in these variables brings a difference in the per capita income in the same direction. Per capita income is significantly and negatively correlated (-0.136) with dependency ratio of carpenters. It indicates that any change in this variable leads to a change in the per capita income in the opposite direction.

It is inferred from Table 5 that the per capita income of painters has significant and positive relationship with earning members (0.561) and type of construction work (0.457). It implies that any change in these variables brings a difference in the per capita income in the same direction. Per capita income is significantly and negatively correlated (-0.623) with dependency ratio of painters. It indicates that any change in this variable leads to a change in the per capita income in the opposite direction.

The per capita income of electrical workers bears significant and positive relationship with type of construction work (0.457), number of earning members (0.561). It implies that any change in these variables brings a difference in the per capita income in the same direction.

Estimated Results of Determinants of Per Capita Income for Overall Construction workers

The estimated results for overall construction workers in the study area are presented in Table 6.

Table: 6 - Estimated Results of Determinants of Per Capita Income for Overall Construction Workers

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.814	0.663	0.573	1046.16411

a Predictors: (Constant), Dependent Ratio, Productive Assets, Earning Members, Type of Business, Size of Family

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	288420961.15	5	57684192.23	52.706	.000
Residual	125862825.25	115	1094459.35		
Total	414283786.40	120			

a Predictors: (Constant), Dependent Ratio, Productive Assets, Earning Members, Type of construction Work, Size of Family

b Dependent Variable: Per capita Income

Coefficients

	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
Intercept (β_0)	2451.23	374.523		6.545	.000
Family Size (β_1)	-432.14	56.145	-0.531	-7.697	.000
Number of Earning Members(β_2)	1546.323	132.625	0.639	11.659	.000
Type of Construction Work (β_3)	4.899	1.023	0.135	4.789	.003
Productive Assets (β_4)	2.458	0.589	0.29	4.173	.020
Dependency Ratio (β_5)	-349.245	-72.123	-0.395	-4.842	.000

a. Dependent Variable: Per capita Income

It is indicated from the results in Table 6 that all the five explanatory variables jointly accounted for 66.30 per cent (R^2) variation in per capita income of the sample households in construction workers. Among the explanatory variables, all the variables are statistically significant at 5 per cent level. Among the significant variables, earning members and type of

construction work are positively related to per capita income. It implies that one per cent increase in these variables may lead to an increase in per capita income of the households among overall construction workers households by 0.639 per cent, 0.290 per cent and 0.135 per cent respectively. The family size and dependency ratio are significant and negatively related to per capita income of the households. It means that an addition made to this variable could affect 0.531 per cent and 0.395 per cent respectively decline in per capita income. Thus, it is inferred from the analysis that the variable, earning members and type of construction work had a greater influence on the per capita income. As per 'F' value, the fitted regression model was found to be significant at one percent level.

Hence, the hypothesis that 'the per capita income of the construction workers is determined by the number of earning members, type of construction work and productive assets in the study area' is valid but the per capita income of the construction workers is determined by the family size and dependency ratio was invalid.

Conclusion

The status of construction workers is not fully satisfactory in Thoothukudi district. It is inferred from the study that earnings by self earning followed by other family members constitute a major source of income. The regression analysis reveals that the variable, earning members and type of construction works had a greater influence on the per capita income of the construction workers. The government must take necessary steps for construction workers to solve the problems of unemployment and low standard of living. Lack of education and opportunities are the major reasons for their unorganized condition. Therefore they are not able to improve their economic conditions. Implementation of minimum wages will better the status of construction workers. If they are united and organized there is likelihood that their status in the society will be improved.

Suggestions

- ❖ The construction workers do not get sufficient daily wages and are unable to meet the daily needs and thereby they are forced to take loans to meet their family expenditure. The Minimum Wages Act is applicable to construction workers. Its enforcement is weak. Efforts may be taken to improve the enforcement of the Act.
- ❖ The government has already formulated several welfare schemes for the benefit of manual workers, including construction workers. Results of this study show that the

benefits have not reached the needy. So, the schemes must be reviewed and operational guidelines be issued.

- ❖ Skilled workers are economically well off. Therefore, promotion of skill will help the construction workers. This can be arranged by special training centers for construction workers. This can be arranged by special training centers for construction workers, giving them both literacy and work related skill. Alternatively, construction practices may be included in vocational causes at high school level.

References

1. BipashaBaruah, (2010). Women and Globalisation: Challenges and Opportunities facing Construction Workers in Contemporary India, *Developemnt in Practice*, 20(1): February, pp.31-44.
2. Devi Kamatchi, M., and Jeyanthi., (2008). Women Construction Workers in Sivakasi, *Kisan World*, 35(12): December, pp.57-59.
3. Gupta, S.P., (2008), "Statistical Methods", Sultan Chand and Sons, New Delhi, pp.E10-E16.
4. Morena. Nkomo, and Wellington. Thwala, (2013). Assessment of Mentoring of Construction Workers in the South African Construction Industry: A Literature Review, *International Conference on Education*, November 27-28, pp.131-135.
5. GuhaThakurta, S.N (1980), *Construction Labourer in Construction Industry*, Calcutta: VirmaKinPrivate Limited.
6. RajibDhar, (2012) *ChildcarePracticeamong Construction Workers in Chira Chas, Jharkhand*, *Childcare in Practice*, 18(1): pp23-50.
7. Sinha, (2008), *Building Blocks*, Time Journals of Construction Design.