

Estimation of Employment Generation Due to Construction of Purvanchal Expressway

Total Cost of Project is Rs. 22254.36 Cr. out of which 6835.71 Cr. is allocated for Land Acquisition.

Thus the cost of civil construction and others works out to Rs. 15418.65 Cr.

Construction Period is 3 years, thus the amount spent in each year during construction is Rs. 5139.55 Cr.

Working Paper no. 168 titled "**Employment Dimension of Infrastructure Investment State Level Input – Output Analysis**" by Employment Policy Department, Development and Investment Branch, Employment Intensive Investment Programme – Geneva: **International Labour Office (ILO)**, 2015.

The study involved impact assessment of Infrastructure Investment on Economy of West Bengal & Gujarat by dividing the entire states' economies into 20 sectors most importantly introducing four new sectors including irrigation canal construction; buildings construction; rural roads construction; and highways/urban roads constructions.

From Table 4, Table 5 and Table 6 of the Working Paper no. 168, the State Wise Type 1 & Type II Employment & Economic Multipliers are as shown on Table 6.11.

Table 6.11: Economic & Employment Multipliers of Highways/Urban Roads Construction

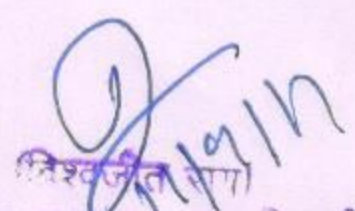
Highways/Urban Roads Construction Sector	Economic Multipliers		Employment Multipliers	
	Gujarat	West Bengal	Gujarat	West Bengal
Type I Impact	2.360	2.415	0.731 (0.068, 0.663)	1.389 (0.171, 1.218)
Type II Impact	5.765	7.516	3.071 (0.416, 2.655)	6.310 (0.725, 5.585)

Note: the numbers given in parentheses under employment multipliers are of (formal, informal) workers.

The economic output multiplier indicates the additional output generated in economy due to one unit (Rs. one hundred thousand) increase in final demand for a sector's (highway/urban roads construction) output.

The employment multiplier indicates the additional employment required throughout the year to satisfy one unit (Rs. one hundred thousand) worth of a sector's (highway/urban roads construction) output.

As we examine, the employment multipliers, it can be seen that the employment potential is higher in West Bengal than Gujarat. Moreover, the share of informal workers (Type II Impact) is also somewhat higher in West Bengal, being about 88.51% compared to that of 86.45% in Gujarat; also the population of West Bengal is higher than that of Gujarat. This has an implication on the impact

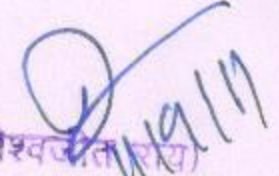

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when the models are closed (Type II) impacts (including the household income and consumption demand in the system). The impact of households is much higher in West Bengal as the total income of the economy gets occupied in building up demand and hence production. The induced effect drives up both output and employment to substantially higher degrees in West Bengal compared to Gujarat.

Using the above results, the Consultants draw inference that infrastructure investment has an increasing impact on the employment output of the State.

Based on the above:

1. Factor 0.171 for **formal workers**, works out to **87886 workers** in each year; thus for 3 years of construction the total formal workers required are 263658 workers
2. Factor 1.218 for **informal workers**, works out to 625997 workers in each year; thus for 3 years of construction the total formal workers required are 1877991 workers and assuming 30 day minimum employments for informal works, the number of person days works out to **18779910 person days** in each year of construction and total person days for 3 years of construction works out to 56339730 person days.


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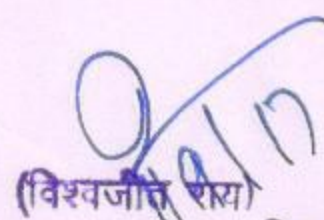
2015

Employment dimension
of infrastructure investment
State level input-output analysis

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Table 5 State Wise Type I Employment Multipliers⁸

Sector Names	Gujarat			West Bengal		
	Formal ⁹ Worker	Informal ¹⁰ Worker	Total Workers	Formal Worker	Informal Worker	Total Workers
Agriculture and Allied Activities	0.039	2.291	2.331	0.065	2.262	2.327
Mining	0.038	0.158	0.197	0.227	0.755	0.982
Furniture and Fixtures: Wooden	0.063	2.689	2.752	0.080	1.806	1.886
Petroleum Products	0.037	0.149	0.187	0.213	0.703	0.917
Bricks, Tiles (Structural Clay Products)	0.139	0.370	0.508	0.118	1.981	2.100
Cement	0.125	0.197	0.322	0.230	0.609	0.839
Non-Metallic Mineral Products	0.096	0.361	0.457	0.132	1.077	1.209
Iron & Steel (Ferro Alloys and Casting & Forging)	0.069	0.245	0.314	0.132	0.630	0.762
Iron & Steel Foundries	0.086	0.326	0.411	0.132	0.690	0.822
Electrical Machinery and Tools	0.148	0.400	0.548	0.124	0.815	0.939
Other Manufacturing	0.093	0.673	0.766	0.110	1.258	1.369
Irrigation canal Construction	0.106	0.797	0.903	0.421	3.300	3.721
Buildings Construction	0.078	0.486	0.564	0.129	0.908	1.037
Highways/Urban Roads Construction	0.068	0.663	0.731	0.171	1.218	1.389
Rural Roads Construction	0.159	2.518	2.677	0.314	2.559	2.873
Other Construction	0.072	0.784	0.857	0.131	1.486	1.617
Electricity and Water Supply	0.077	0.217	0.294	0.136	0.413	0.550
Transport Services	0.156	0.560	0.716	0.175	0.871	1.046
Other Services	0.207	0.394	0.600	0.167	0.599	0.767
Public Administration	0.550	0.033	0.583	0.365	0.010	0.375

In West Bengal, among the sectors key to the study, (excluding other construction), the highest total employment multiplier is in irrigation canal construction (3.72), followed by rural roads construction (2.87) and highways and urban roads (1.38). The employment multipliers in these sectors are again driven by informal employment. Of all the sectors, the lowest informal employment multiplier is in public administration as expected. It is interesting that in West Bengal, most of the informal employment is created in irrigation canal construction (which is mainly due to maintenance and repair) followed by rural roads. On the other hand, the buildings construction sector has the lowest total employment multiplier (1.04), demonstrating again, the capital intensive nature of this sector.

Type II Employment Multipliers: Among the infrastructure construction sectors, rural roads construction has the highest formal (0.51), informal (4.52) and total employment (5.03) multipliers in Gujarat while irrigation canal construction has the highest multipliers in West Bengal (0.97, 7.60 and 8.56 respectively) (see Table 6). Public administration has the highest formal employment multipliers in both the states. Wooden furniture and fixtures in Gujarat have the highest employment multiplier for informal workers followed by rural roads construction and then agriculture. In West Bengal, the highest multipliers for informal workers are for irrigation canal construction, followed by agriculture and bricks and tiles manufacturing.

⁸ Change in workers due to a change in output worth Rs. hundred thousand

⁹ Formal Worker: 'Regular' Worker

¹⁰ Informal Worker: 'Casual' Worker

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