

## AN EXPERIMENTAL STUDY ON PATNA DISTRICT: PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY) EFFECT ON NON-AGRICULTURAL LABOURERS

Mr. Avanikant Vidhyarthi<sup>1</sup>, Kanchan Shrivastava<sup>2</sup>

<sup>1</sup>Ph.D. Research Scholar, Department of Economics, SSSUTMS, Sehore (M.P.), India

<sup>2</sup>Professor, Department of Economics, SSSUTMS, Sehore (M.P.), India

Corresponding Author: [avanikant.vidyarthi@gmail.com](mailto:avanikant.vidyarthi@gmail.com)

### ABSTRACT:

Pradhan Mantri Gram Sadak Yojana (PMGSY) is one of them which are demarcated in term of 'road connectivity' for rural deprived meditations by policy makers. A fruitful effort has been made to diminish poverty by concerning the rural area through this program PMGSY. Consequently, to comprehend the realism of this program, this study is designed. Under this study, an attempt has been made to understand how much this program has been helpful in increasing the income and employment opportunities for non-agricultural labourers. In order to fulfil the objective of the study, primary data has been collected from 50 non-agricultural workers from 5 different villages of Patna district. These villages are connected by the PMGSY. The regression analysis has been used to measure the impact of PMGSY on employment and income of non-agricultural labourers through SPSS version 16. The result of this study shows that PMGSY have a substantial impact on increasing the employment and income opportunities of the people. This study will subsidize the role of the road in the study of rural employment and income opportunities.

**KEYWORDS** – *Economy, PMGSY, non-agricultural Labour, Development.*

### 1. INTRODUCTION:

Even as the Indian economy surged ahead at an unprecedented 8 percent plus growth rate for yet another year, the realization that this growth has to be of an inclusive nature meant renewed importance for development of the rural areas of the country. The four years of the United Progressive Alliance so far has seen the introduction of new programmes and restructuring of the existing ones to deal with the task of ensuring reduction of poverty, and creation of employment. The Ministry of Rural Development continued to play a key

role in this strategy. A paradigm shift in the policy of rural development has also taken place, with the rural poor treated as resource who form an integral part of the development strategy, and not as a burden. The Ministry of Rural Development co-ordinates, implements and funds the schemes which aim at ensuring the fruits of economic development and reach the villages and the common man. [1] Broadly, the aims are:

- **Bridging the rural-urban divide**

To ensure rapid and time bound development, budgetary support for implementing the various rural development schemes has increased manifold in recent years.

- **Guaranteeing wage employment and ensuring food security**

This is sought to be achieved through the National Rural Employment Guarantee Act.

- **Making rural people the arbiters of their own destiny and to provide for their economic uplift by self-employment.**

For the development to be in consonance with the people's wishes and aspirations, emphasis is put on participation of people as also social mobilization of rural poor through Self-Help Groups and Panchayati Raj Institutions.

- **Creating rural infrastructure for better economic opportunities and growth**

Connectivity is provided to all unconnected habitations through Pradhan Mantri Gram Sadak Yojana (PMGSY). Village level infrastructure is also created through works undertaken under wage employment schemes.

- **Ensuring dignified living**

The Ministry provides shelter, water and clean environment through schemes for rural housing, drinking water and sanitation.

- **Restoring lost or depleted productivity of the land for better livelihood opportunities**

This is done through integrated watershed development programmes and initiating effective land reform measures for providing land to the landless rural poor. Under Bharat Nirman, developmental works are undertaken in the areas of irrigation, road, rural housing, rural water supply, rural electrification and rural telecommunication connectivity. Three of the goals of Bharat Nirman fall within the mandate of the Ministry of Rural Development: rural connectivity, rural housing and rural water supply. Specific targets are to be achieved under each of these goals so that there is accountability in the progress of this initiative. Bharat Nirman is viewed as an effort to unlock rural India's growth potential and to be a key for ushering a new era. It is also expected that Bharat Nirman will lead to considerable rural assets creation along with the National Rural Employment Guarantee Act. Bharat Nirman however is a collective agenda in which every Indian has a role either as a user or as a partner. The Ministry is committed to achieving the targets of Bharat Nirman Components under its purview within the prescribed time-frame.

### **1.1 Pradhan Mantri Gram Sadak Yojana (PMGSY)**

The Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched on 25th December, 2000 and has now been under implementation for over two years. It is a hundred percent Centrally funded Scheme, which primarily aims to provide all weather road connectivity to over 1.60 lakh eligible unconnected habitations at an estimated investment of about Rs. 60,000 crore. The works are executed by the State Governments and monitored by the Ministry of Rural Development through the National Rural Roads Development Agency (NRRDA), set up for this purpose. The salient features of the PMGSY are:-[9]

- **Planning based on Core Network**

Every District has prepared a Core Network of Roads for planning purposes. All roads under PMGSY are to be prioritized out of the Core Network. The district Panchayat is fully involved in selecting road works under the programme as per the Guidelines.

- **Roads specifications**

Roads are to be built as per the specifications given in Rural Roads Manual published by the Indian Roads Congress (IRC: SP20:2002). Roads are to be properly designed based on climatic and traffic conditions. Provision has to be made for proper roadway width, shoulders and side and cross drains. Detailed Project Reports (DPR) have to be prepared in all cases.[9]

- **Scrutiny, Approval and Clearance:**

The detailed Project Reports are scrutinized by the State Technical Agencies (STAs) nominated by the

NRRDA. The STAs have been selected from among the Indian Institutes of Technology, Regional Engineering Colleges and Government Engineering Colleges of repute. Proposals are to be sent to NRRDA for clearance based on the scrutiny completed by STAs.

- **Programme Management in States**

Each State has designated a State level Autonomous Agency to maintain and operate Bank account to receive the project funds from the Ministry of Rural Development. The agency has appointed a State Quality Coordinator, Financial Controller and IT Nodal Officer to ensure management of various aspects of the programme at state level. The District Programme Implementation Units (DPIUs) headed by Superintending and Executive Engineers execute the road works in accordance with the programme guidelines.[9]

- **Tendering**

The works are tendered as per the States Standard Bidding Document approved by NRRDA. Projects will be completed within 9 months except in case of Hilly States where the duration of the project will be for 18 months. Cost escalation, if any, due to overruns or tender premium will be borne by the State Governments.

- **Quality**

PMGSY roads are expected to be of the highest quality. A 3-tier quality control system has been envisaged. The Contractor is expected to set up a field laboratory at the work site and the DPIU functions as the first tier of the quality control. The State Quality Monitor coordinates a second, independent, tier of quality control and the NRRDA enforces a 3rd tier of quality control through National Quality Monitors who are informed senior engineers.

- **Online Monitoring**

Online monitoring of the programme is done using internet based software (called OMMS), outputs of which are available on a website ([www.pmgysy.org](http://www.pmgysy.org)).

- **Maintenance**

Roads constructed under PMGSY are required to be maintained by the State Governments. The Scheme envisages Performance Guarantee for five years by the Contractor backed by a 5 year maintenance contract.[9]

### **1.2 Objectives of PMGSY**

- To assess the overall socioeconomic impact on the lives of the rural people as a result of enhanced rural connectivity provided through the PMGSY, and
- Documenting the improvement or the changes brought about by PMGSY roads in the lives of the rural poor at the household level and village level.

## 2. RESEARCH METHODOLOGY:

This study is based on primary data. The data are collected from field survey. In this study, only those villages of Patna district which are connected by Pradhan Mantri Gram Sadak Yojana are considered for study purpose. From these villages, 50 non-agricultural labours have been taken as respondents. Selected villages are Amhara, Gauri Pundah, Hasanchak, Bharatpura and Nadwan. In this study non-agriculture labours means non-agricultural unskilled wage earners, livestock, poultry, mining and quarrying, construction labour, trading/shop keeping, driver/service in transport sector, traditional artisans, private service.

The data analysis is based on the mean, percentage, bar diagram and regression analysis SPSS version 16. The following key parameters to produce outcomes are:

Change in principal occupation, 2) Increase in days of employed, 3) Changes in place of employment, 4) Change in Annual Income, 5) Change in means of travel to reach the workplace, 6) Reduction in travel time, 7) Increasing in women's employment, 8) Helps in up-down for works.

### Objective of the Study

The main objective of this study is to assess the impacts of Pradhan Mantri Gram Sadak Yojana on the employment and income of non-agricultural labourers who are beneficiaries. While considered beneficiaries are as a result of enhanced rural connectivity provided through PMGSY in Patna district.

### Hypothesis

H1: There is a significant impact of PMGSY on income of non-agriculture labours.

H2: There is a significant impact of PMGSY on increasing employment opportunities for non-agriculture labours.

## 3. LITERATURE REVIEW

*Madhukar Itewar, Dr. Utasav Anand(2019)* Pradhan Mantri Gram Sadak Yojana (PMGSY) is one of them which are defined in term of 'road connectivity' for rural poor remedies by policy makers. A successful effort has been made to reduce poverty by connecting the rural area through this program PMGSY. Therefore, to understand the realism of this program, this study is designed. Under this study, an attempt has been made to see how much this program has been helpful in increasing the income and employment opportunities for non-agricultural labourers. In order to fulfill the objective of the study, primary data has been collected from 50 non-agricultural workers from 5 different villages of Sagar district. These villages are connected by the PMGSY. The regression analysis has been used to measure the impact of PMGSY on employment and income of non- agricultural labourers through SPSS version 16. The result of this study shows that PMGSY

have a significant impact on increasing the employment and income opportunities of the people. This study will contribute the role of the road in the study of rural employment and income opportunities.[3]

*Madhukar Itewar (2019)* An effective transport system is essential for sustainable economic development and modernization; There is no doubt that transport plays an important role in the overall development of the country's economy. This is not only the main infrastructure for the development process but also plays an important role in maintaining national integration. A high rate of growth will definitely indicate high transport demand. It is believed that the growth of GDP and transport sector have a positive relationship. Through the Pradhan Mantri Gram Sadak Yojana programme in 2000, the Government of India has endeavored to intensify the rural economy. The success of this effort will be achieved when all the villages are well connected with all-weather roads. To know the status of connectivity, this study is designed. The objective of this research paper is to understand the connectivity status of Pradhan Mantri Gram Sadak Yojana in India. Quantitative analysis has been done using secondary data. Percentages and correlation are calculated using SPSS.[2]

*Clive Bell et al. (2015)* investigated the effects of India's rural roads program (PMGSY) on morbidity, using data on 279 households drawn from 30 villages in upland Orissa. The households were surveyed in 2010 and 2013, yielding an unbalanced panel of 1580 individuals, 1076 of whom were present in both years. By 2013, ten villages had received a direct all-weather road connection since the inception of PMGSY in 2004. Treating the village as a unit within the whole network of roads and medical facilities, the provision of a connection, whether direct or in the neighbourhood, is estimated (random effects) to have reduced an inhabitant's probability of falling sick by 4.3 percentage points, and the expected duration of incapacitating illness by 0.54 days, for each km of unpaved track so replaced. The fixed-effects estimates are qualitatively the same, but less precise. A simple indicator variable for the presence or absence of such a connection yields qualitatively similar estimates, but with very large standard errors, which confirms the importance of employing fine measures of the network regressors.[7]

*Santanu Panda and Arup(2013)* Majumder (The Rural development generally refers to the process of improving the quality of life and economic well-being of people living in relatively isolated and sparsely populated areas. Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is considered as a "Silver Bullet" for eradicating rural poverty and unemployment, by way of generating

demand for productive labour force in villages. It provides an alternative source of livelihood which will have an impact on reducing migration, restricting child labour, alleviating poverty, and making villages self-sustaining through productive assets creation such as road construction, cleaning up of water tanks, soil and water conservation work, etc. For which it has been considered as the largest anti-poverty programme in the world. In this paper, based on the secondary data, an attempt has been made to comprehensively understand the development effort to rebuild the rural life and livelihood on the basis of various secondary data.[4]

**Sannalingappa Heraka et al. (2016)** Rural roads constructed under PMGSY provide good connectivity to schools, health and market centres. The impact of huge investments made under PMGSY is very significant in influencing institutional strengthening of local construction industry. A survey has been carried out in Karnataka to assess the impact of PMGSY on construction industry. The findings indicate, 1.5 times increase in engineers employed by the contractors to maintain and monitor the quality on site. Seven fold increase in the vibratory rollers, 2.3 times increase in the hot mix plants, 2.8 times increase in pavers, 2.7 times increase in earth movers and 3.3 times increase in crusher plants owned by the contractors is observed in ownership of equipment resources is influenced by PMGSY. 35 % response indicated no cost overrun in maintenance of PMGSY roads. About 65% responses

indicate that the scheme require up gradation to newer technologies for speedy execution.[8]

#### 4. DATA ANALYSIS AND RESULTS

##### Distribution of respondents

The demographic character of the respondents i.e. non-agriculture villagers are describe in table 1. Total 50 labours are taking from five villages of Patna district. Respondent's profile is presented in frequency and percentage.

**Table 1:** Distribution of respondents

Principal Occupation	Frequency	Percentage
Non-agricultural Unskilled Wage Earners	16	30
Livestock, Poultry etc.,	3	6
Driver/service in transport sector	3	10
Trading/shop keeping	5	14
Construction labour	6	6
Mining and quarrying	7	14
Pvt. Service	8	16
Traditional artisans	2	4
<b>Total</b>	<b>50</b>	<b>100</b>

From the above table we can understand that among the 50 respondents, highest percent covered by non-agriculture unskilled wage earners and after this private service labour is covered. Villages which are selected for the study have availability of mining, quarrying and cursing of stones.

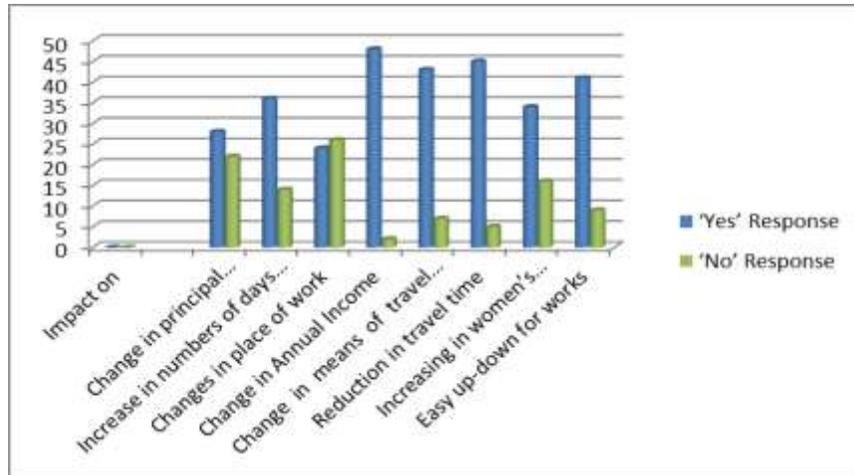
**Table 2:** Impacts of the PMGSY road on income and employment

Impact on	'Yes' Response		'No' Response	
	No. of Respondent	% of Respondent	No. of Respondent	% of Respondent
Change in principal occupation	28	56	22	44
Increase in numbers of days employed	36	72	14	28
Changes in place of work	24	48	26	52
Change in Annual Income	48	96	02	04
Change in means of travel to reach the workplace	43	86	7	14
Reduction in travel time	45	90	5	10
Increasing in women's employment	34	68	16	30
Easy up-down for works	41	82	9	18

The data of the table number 02 are display in figure 1 and its descriptions are listed below:

Change in principal occupation: Construction of roads comes with new opportunities for occupation. In an attempt to assess whether construction of PMGSY also impacts on any changes in occupation of non-agriculture labours in Patna district. The findings are represented by the table no.2 and also in figure no. 1. From the table and figure, it is known that connectivity provided by the PMGSY helps 28 (56%) respondents to change their principal occupation, where 22 (44%) have an answer that PMGSY is not helping to change in their principal occupation.

Increase in numbers of days employed: Information was collected on connectivity provided by PMGSY whether helping or not for increasing in employed days of the non-agriculture labours. After the study of table no.2 and also in figure no. 1, we found that 36 (72%) have reported that PMGSY helping to get more employed days within a year. And 14 (28%) said that the construction of road does not help to get more employed days. The most benefited groups by PMGSY are non-agriculture unskilled wage earners, construction labour and labourers engaged in the transport sector.



**Figure 1:** Impacts of PMGSY on Income and Employment

Changes in place of work: Table no. 2 and figure no.1 depicts that 24 (48%) respondents have shifted their place of employment from within the habitation to outside the habitation. Due to better and quicker access to the place of employment provided by PMGSY and 26 (52%) said that road did not help to change in their place of work.

Change in Annual Income: Better connectivity creates new opportunities for direct and indirect employment adding to the income of the non-agriculture labours. Information of impact on annual income was collected through schedule from the study area. It is observed from table no.2 and figure no.1, 34 (68%) respondent report that construction of PMGSY is helping to increase their annual income and 16 (30%) reported no impact on annual income.

Change in means of travel to reach the workplace: Improved all season connectivity in the rural areas is resulted in increasing usage of motorized vehicles. Table no.2 and figure no.1 represented that 43 (86%) respondent reported that construction of PMGSY helps to increase means of transport to reach workplace and 7 (14%) respond no impact on change in means of transport, because some labours already have motorcycle and some do not go too far from village so they prefer walking to workplace.

Reduction in travel time: Data collected whether the road has made an impact on the reduction in travel time has been analyzed and presented in table no.2 and figure no.1. Through the study of table and figure, we found that 45 (90%) people reported that construction of road gave quicker access to the workplace and helped to reduce travelling time. 5 (10%) respondent reported no impact of PMGSY on travel time.

Increasing in women's employment: Table no.2 and figure no.1 shows that construction of PMGSY increases the means of transport and employment

opportunities these helped women to go outside for work. Among all respondent 34 (68%) reported a positive impact on increasing women's employment and 16 (30%) respondent no impacts on women's employment.

Easy up-down for works: Increasing all-weather road connectivity is helped to up-down for non-agriculture labours those who go outside for works. Collected data for up-down for work is analyzed and represented in table no.2 and also figure no.1. The table and figure depict that 41 (82%) respondent favour the positive impacts on up-down for work. Only 9 (18%) peoples said that they do not think the road has helped to make up-down easy.

### Regression analysis and Hypothesis Testing

Model 1: Impact on Income of PMGSY

To assess the impact of PMGSY on income of non-agriculture labours, we assumed increase in days of employed ( $\beta$ ) as predictors (constant) and change in annual income as dependent variable:

$$Y = \alpha + \beta x$$

**Table 3:** Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.775	.600	.592	.290

**Table 4:** ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.051	1	6.051	72.104	.000
Residual	4.029	48	.084		
Total	10.080	49			

A simple linear regression was calculated to predict the impact of PMGSY on income non-agriculture labours' by helping in increasing in days of employed. A significant regression equation was found  $F(1, 48) = 72.104, p < .000$ , with an  $r^2 = .600$ . Labour's predicate

change in income is equal to .296+.734(numbers of days employed) rupees when employment is measured in days. Labourers average income increased .734 rupees for increasing in each day of employed. The coefficient of determination ( $r^2$ ) is 0.600, consider as 60%. This indicates that about 60% of the total variation in income is explained by change in days of employed. The remaining 40% of variation in income may be attributed to other factors and stochastic error.

**Table 5:** Coefficients

	Standardized Coefficients Beta	t	Sig.
(Constant)		2.407	.020
Increase in days of employed	0.775	8.491	.000

### Model 2: Impact on Employment of PMGSY

To know the impact of PMGSY on employment change in principal occupation ( $\beta_1$ ), Change in means of travel to reach the workplace ( $\beta_2$ ) assumed as predictors (Constant), and Increase in days of employed as dependent variable:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2$$

**Table 6:** Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.495	.245	.213	.424

**Table 7:** ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.752	2	1.376	7.638	.001
Residual	8.468	47	.180		
Total	11.220	49			

A multiple regression was calculated to predict increasing in employment opportunities by helping in change in principal occupation of non-agriculture labours. A significance regression equation found  $F(2, 74) = 2.752$ ,  $p < .001$  with an  $r^2 = .245$ . Labours predicted employment generation is equal to .283+.357(change in numbers of principal occupation) +.431 (change in means of travel to reach the work place). Employment opportunities for non-agriculture increased as .357 days for change in a principal occupation and 0.431 for change in one means of travel to reach the workplace.

**Table 8:** Coefficients

	Standardized Coefficients Beta	t	Sig.
(Constant)		4.065	.301
Change in principal occupation	.376	2.602	.005
Change in means of travel to reach the workplace	.350	2.753	.008

The output of the proposed hypothesis is given in table no. 9. However all hypothesis is accepted in this study.

**Table 9:** Output of the proposed hypothesis

S.N.	Hypothesis	Accepted/Rejected
H1	There is a significant impact of PMGSY on income of non-agriculture labours.	Accepted
H2	There is a significant impact of PMGSY on increasing employment opportunities for non-agriculture labours.	Accepted

### Findings

The major findings of this study is given below-

- [1]. Significant impact found in increasing in employment opportunities of non-agriculture labours of Patna District.
- [2]. In study are better and fast connectivity provided by PMGSY is a help to increase in means of transport and reduce travel time to reach the workplace.
- [3]. Due to the all-weather road connectivity provided by PMGSY principal occupation of labours has been changed.
- [4]. Due to the construction of PMGSY, employment opportunities for women are also increased.
- [5]. Helping in increasing in days of employed is leads to an increase in annual income of non-agriculture labours.

### 5. CONCLUSION

The most important purpose of the government is to include the rural area in the development process by providing all-weather road connectivity with the construction of rural PMGSY. Two important dimensions of development are income and employment. In this study, the impact of Pradhan Mantri Gram Sadak Yojana on these dimensions has been studied and it has been concluded that the Prime Minister Gram Sadak Yojana has a positive impact on the employment and income opportunities for non-agricultural labourers. PMGSY help to increases numbers of employed days, an annual income of labours, means of transport to reach the workplace, change in principal occupation, made easy up-down for the worker and last but very important, this road construction helping to increases the employment opportunities for women hence rural roads under PMGSY help to attain the overall development of the country and its citizens. This study is very important for policymakers and academic researchers. The policymakers will need to pay more attention to the increase facilities by developing road connectivity and; this will help to increase more income and employment opportunities for labours. The maintenance of the road

continues from time to time, so the labours require less time to reach the workplace and to be free from the fear of accidents. This plan is working very well, whose positive impact has been studied, therefore, it should be extended for a few years and connectivity should be provided to all the villages.

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