

Impact of Chief Minister's Rojgar Yojana (CMRY) on Employment Generation in Goa: An Empirical Analysis

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Abstract: *This study examines the impact of the Chief Minister's Rojgar Yojana (CMRY), a self-employment loan scheme of the Government of Goa, on employment generation in the state. Secondary data on CMRY funds utilised and employment generated over the period 2003-04 to 2020-21 were obtained from the Economic Development Corporation (EDC) Ltd., Goa. Ordinary Least Squares (OLS) regression analysis was employed to evaluate the effectiveness of the scheme in generating employment. The findings reveal a statistically significant and positive relationship between funds utilised under the CMRY program and employment generation (Adjusted R² = 0.893; $\hat{a}$ = 0.763; $p < 0.001$). The results indicate that increased financial assistance under the scheme contributes significantly to creating self-employment in Goa. This study provides empirical evidence of the effectiveness of state-sponsored entrepreneurship programs and offers useful policy insights for government agencies and policymakers involved in employment generation initiatives.*

Keywords: Employment Generation, OLS Regression, Microfinance, Public Policy, Self-employment

INTRODUCTION

Since independence, the Indian economy has prioritised economic growth and improved living standards. Despite steady growth over the years, poverty and unemployment remain challenges. Consequently, various employment creation and poverty reduction programmes were implemented throughout the different Five-Year Plans (Planning Commission of India, 2013).

Persistent unemployment and underemployment remain significant developmental challenges in India, particularly among educated youth. The Economic Survey of 2014-15 highlighted that economic growth combined with job creation is crucial for enhancing the country's socio-economic conditions. Similarly, United Nations Sustainable Development Goal 8 (SDG 8) emphasises the importance of sustained and inclusive economic growth, together with productive employment and decent work for all (United Nations, 2015).

In states such as Goa, where the economy primarily relies on tourism, trade, and small-scale services, self-employment is vital for income generation and boosting the local economy. Small businesses and entrepreneurial activities offer significant employment opportunities, especially for educated youth and first-time entrepreneurs. In this context, government-sponsored programs for entrepreneurship are key policy tools to encourage new businesses, decrease unemployment, and foster inclusive economic growth.

As the labour force expands, it cannot all be absorbed into wage jobs, highlighting the growing importance of self-employment and entrepreneurship as alternative means of livelihood and job creation in developing countries. In this scenario, access to institutional finance becomes essential, especially for first-generation entrepreneurs who often lack collateral, financial history, and formal credit access. To address this, the Government of Goa launched the Chief Minister's Rojgar Yojana (CMRY) in 2001, managed by the Economic Development Corporation (EDC) Ltd., its primary financial body, to support educated unemployed youth with financial aid for self-employment and entrepreneurial initiatives.

A formal overview of the Chief Minister's Rojgar Yojana (CMRY) is that it is a self-employment loan scheme implemented through EDC Ltd., the apex financial institution of the Government of Goa, providing financial

assistance of up to Rs. 25 lakhs for individuals with professional degrees or diplomas and up to Rs. 20 lakhs for others for economically viable, legal business activities, excluding alcohol and tobacco. Educated unemployed youth aged 18 to 42 who are permanent residents of Goa are eligible, with age relaxation for widows, persons with disabilities, and SC/ST/OBC categories.

Despite the increasing focus on entrepreneurship-driven employment initiatives, empirical data on government-supported self-employment programs, especially in Goa, are limited. This study seeks to evaluate the impact of CMRY fund utilisation on employment creation in Goa by applying OLS regression analysis to secondary data from 2003-04 to 2020-21.

This study aims to analyse the relationship between CMRY fund utilisation and employment generation using OLS regression analysis and assess the effectiveness of CMRY as a state-sponsored self-employment scheme for promoting employment generation in Goa.

REVIEW OF LITERATURE

Several studies have emphasized the significance of entrepreneurship and self-employment in promoting economic growth and employment generation (Toma, Grigore, & Marinescu, 2014). In developing economies such as India, self-employment has emerged as an important policy response to unemployment, especially among educated youth (Musa and Semasinghe, 2013).

Access to institutional finance is crucial for fostering entrepreneurship. Consequently, microfinance and subsidised credit programs have become important policy tools for supporting enterprise growth and job creation (Omar & Inaba, 2020; Polloni-Silva et al., 2021).

Prior research has highlighted the crucial role of institutional credit in supporting entrepreneurship among economically disadvantaged and financially excluded population. Access to formal finance allows entrepreneurs to acquire productive assets, start business ventures and enhance income opportunities. Consequently, government-backed credit programs are becoming increasingly vital for fostering self-employment and lowering unemployment rates in developing countries.

In the Indian context, employment-oriented self-employment programs have increasingly been promoted as policy instruments to address unemployment and encourage entrepreneurship among young people. Government-supported credit schemes aim to enhance access to finance while fostering livelihood opportunities through enterprise development. These programs are particularly relevant in regional economies, where wage employment opportunities are limited and self-employment is an important source of income. By facilitating access to productive assets and business capital, such schemes contribute to enterprise creation, local economic activity and employment generation.

The existing literature also suggests that the effectiveness of such programs depends on the extent of institutional support, access to credit, and successful implementation at the regional level. Therefore, an empirical evaluation of these schemes is important to understand their contribution to employment generation and assess their

policy relevance in addressing unemployment. In addition, studies on self-employment programmes indicate that access to institutional finance alone may not be sufficient unless it is supported by effective implementation and sustained policy support. The success of these schemes often differs by region owing to factors such as local economic conditions, institutional frameworks, and beneficiary involvement. This underscores the importance of conducting region-specific empirical research to evaluate how government employment programs perform in their unique socioeconomic settings.

Several Indian studies on government-sponsored schemes have mainly used descriptive statistics and observed trends, with little focus on econometric analysis (Deshpande et al., 2005; Fatima, 2017). However, these studies relied primarily on descriptive data and offered limited empirical evidence on how financial support relates to employment creation. This emphasises the relevance of regional empirical investigations.

Multiple studies which have been done have explored the importance of entrepreneurship financing and focused on national-level programs. However, there is very little empirical evidence on state-sponsored employment-generation schemes, such as the CMRY in Goa. This study addresses this gap, by empirically evaluating the relationship between CMRY fund utilization and employment generation using OLS regression analysis.

METHODOLOGY

This research adopts a quantitative exploratory research design using secondary time series data on CMRY funds utilised and employment generated over 18 years from 2003-04 to 2020-21, obtained from EDC Ltd., Goa. This study adopts a quantitative research approach to analyse the connection between CMRY fund usage and job creation in Goa. The number of CMRY beneficiaries is used as a proxy for employment generated under the scheme. This assumption rests on the premise that the scheme is intended exclusively for unemployed individuals seeking self-employment. Loans under the CMRY scheme are granted only for approved and economically viable business activities. Furthermore, financial assistance is not disbursed in cash to beneficiaries; instead, EDC Ltd. makes payments directly to third-party vendors to procure business-related assets and equipment, which are hypothecated against the loan. Since each loan approved under the scheme depends on establishing business activities and acquiring productive assets, every sanctioned loan is assumed to lead to the creation of self-employment. Therefore, the number of beneficiaries receiving these loans serves as a representation of the employment generated by the scheme. This study measures employment generation using the number of beneficiaries financed under the CMRY as a proxy for self-employment. Although this indicator does not capture business survival or long-term employment outcomes, it evaluates the scheme's immediate employment-generation objective using official administrative records.

This study used official administrative records from EDC Ltd., Goa, ensuring the reliability and authenticity of the data.

Ordinary least squares (OLS) regression analysis

was conducted using EViews. OLS regression analysis enables the examination of the linear relationship between CMRY fund utilisation and employment generation, and thus is suitable for this study. This technique is widely used in empirical social science research to estimate the extent to which changes in an independent variable influence the dependent variable.

For the regression analysis:

Dependent Variable (Y): Employment Generated (Number of Beneficiaries).

Independent Variable (X): CMRY funds utilised (funds disbursed).

Hypothesis

H0: CMRY fund utilisation does not significantly affect employment generation.

H1: CMRY fund utilisation significantly affects employment generation.

Data normality, stationarity, correlation, and serial correlation were tested prior to the regression analysis to ensure model validity.

This study used secondary data from EDC Ltd., Goa; no human subjects were involved. All data were publicly accessible administrative records, and no personal or sensitive information was collected.

RESULTS

CMRY Funds Utilized and Employment Generated

Table 1 presents the employment generated and CMRY funds utilized during 2003-04 to 2020-21. Employment generation was highest in 2004-05 (751 beneficiaries) and lowest in 2020-21 (134). Fund utilisation was highest in 2018-19 (Rs. 2,399.97 lakh) and lowest in 2007-08 (Rs. 173.28 lakh).

Table 1: Employment Generated and CMRY Fund Utilization, 2003-04 to 2020-21

Year	Employment Generated (No.)	CMRY Fund Utilization
		(Rs. lakh)
2003-04	374	278.12
2004-05	751	748.89
2005-06	277	196.38
2006-07	389	289.4
2007-08	164	173.28
2008-09	313	501.45
2009-10	504	1,058.21
2010-11	661	1,887.46
2011-12	552	1,416.77
2012-13	279	559.53
2013-14	405	1,409.16
2014-15	340	1,099.20
2015-16	307	1,071.05
2016-17	422	1,591.27
2017-18	320	1,654.36
2018-19	487	2,399.97
2019-20	344	1,893.29
2020-21	134	959.81

Source: Secondary data obtained from EDC Ltd., Goa.

Table 2 shows the log growth rates of employment generated and the CMRY funds utilised.

Table 2: Log Growth of Employment Generated and CMRY Funds Utilized, 2004-05 to 2020-21

Year	Employment Generated Log growth	CMRY Fund Utilization Log growth
2004-05	69.71	99.05
2005-06	-99.74	-133.85
2006-07	33.96	38.78
2007-08	-86.37	-51.29
2008-09	64.63	106.26
2009-10	47.64	74.68
2010-11	27.12	57.87
2011-12	-18.02	-28.69
2012-13	-68.23	-92.9
2013-14	37.27	92.37
2014-15	-17.49	-24.84
2015-16	-10.21	-2.59
2016-17	31.82	39.59
2017-18	-27.67	3.89
2018-19	41.99	37.2
2019-20	-34.76	-23.71
2020-21	-94.28	-67.93

Source: Computed from secondary data from EDC Ltd., Goa.

Outlier Analysis

To investigate the presence of outliers in the log growth variables, boxplot analysis was performed. As displayed in Figure 1, no data points fall outside the whisker boundaries for either variable, indicating no significant outliers and consistent data for the analysis.

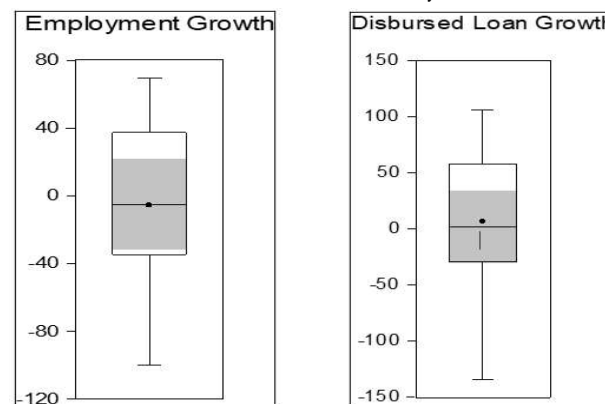


Figure 1: Boxplot of Log Growth Variables

Normality Test

The Jarque-Bera test confirmed normality for both variables. The mean annual growth rate of employment generated was negative (-6.04), while CMRY fund utilisation growth was positive (7.29). Both variables exhibited near-symmetric negative skewness and platykurtic kurtosis (below three). Jarque-Bera probability values of 0.51 and 0.70 confirm a normal distribution.

Table 3: Descriptive Statistics and Jarque-Bera Normality Test

Statistic	Employment Generated	CMRY Fund Utilization
Mean	-6.04	7.29
Median	-10.21	3.89
Maximum	69.71	106.26
Minimum	-99.74	-133.85
Std. Deviation	56.13	69.79
Skewness	-0.37	-0.32
Kurtosis	1.85	2.22
Jarque-Bera	1.33	0.71
Probability	0.51	0.7
Observations	17	17

Source: Computed from secondary data from EDC Ltd., Goa..

Stationarity Test (Augmented Dickey-Fuller)

The ADF test examined stationarity (H0: unit root present; H1: series is stationary.) The ADF test results indicate t-statistics of -5.676 and -5.514 with p-values of 0.000 for both variables, confirming stationarity at the 1% significance level. For both series, the null hypothesis of a unit root was rejected.

Table 4: Augmented Dickey-Fuller (ADF) Test Results

Variable	t-Statistic	Probability
Employment Generated	-5.676	0
CMRY Fund Utilization	-5.514	0

Source: Computed from secondary data from EDC Ltd., Goa.

Correlation Analysis

A strong positive correlation of 0.949 ($p < 0.01$) was observed between CMRY fund utilisation and employment generation (Table 5), indicating a strong linear association.

Table 5: Correlation Matrix

Variable	Employment Generated	CMRY Fund Utilization
Employment Generated	1	0.949
CMRY Fund	0.949	1

Source: Computed from secondary data from EDC Ltd., Goa. Note: Correlation coefficient is significant at $p < 0.01$.

OLS Regression Analysis

The results show a positive and statistically significant impact of CMRY fund utilisation on employment generation ($\beta = 0.763$, $p < 0.001$) under OLS regression. The adjusted R^2 of 0.893 indicates that approximately 89.3% of the variation in employment generation is explained by the fund utilisation. The F-statistic of 134.64 ($p = 0.000$) confirms the overall model significance, and the Durbin-Watson statistic of 2.274 indicates no autocorrelation. The null hypothesis, H0, was rejected.

Table 6: OLS Regression Results for Employment Generated

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-11.596	4.477	-2.59	0.021
CMRY Fund Utilization Growth	0.763	0.066	11.603	0
R^2	0.9	Adj. R^2	0.893	
F-statistic	134.64	Prob(F)	0	
Durbin-Watson	2.274	S.E. of Reg.	18.353	

Source: Computed from secondary data from EDC Ltd., Goa.

Breusch-Godfrey Serial Correlation LM Test

The Breusch-Godfrey LM test (Table 7) confirms the absence of serial correlation in the residuals: both the F-statistic probability (0.301) and chi-square probability (0.256) are well above the 5% significance level, validating the OLS model assumptions.

Table 7: Breusch-Godfrey Serial Correlation LM Test

Statistic	Value	Probability
F-statistic	1.153	0.301
Obs*R-squared	1.293	0.256

Source: Computed from secondary data from EDC Ltd., Goa.

DISCUSSION

The findings indicate a statistically significant and positive relationship between CMRY fund utilisation and employment generation in Goa (Adjusted $R^2 = 0.893$; $\beta = 0.763$; $p < 0.001$), with a strong correlation of $r = 0.949$, confirming that increased financial assistance under the scheme substantially contributes to self-employment creation.

The findings of this study are consistent with those of Musa and Semasinghe (2013), who reported that self-employment schemes significantly contribute to employment generation in developing economies. This is also consistent with Khandker (2005), who found which institutional credit enhances livelihood opportunities and contributes to economic development by creating enterprises. Although Banerjee et al. (2015) reported mixed impacts of microcredit programs on enterprise and employment outcomes, the present study found a significant positive relationship between CMRY fund utilisation and employment generation. This difference could reflect CMRY's targeted design, institutional monitoring, and focus on viable business activities. In line with Meager (2019), the success of entrepreneurship finance depends on program design and implementation. This study's findings provide evidence that CMRY has contributed positively to employment generation in the Goan context. Similarly, Toma et al. (2014) emphasised the role of entrepreneurship in economic development. This study builds on previous findings by extending the evidence to the sub-national context of Goa and empirically demonstrating that CMRY fund utilisation is a significant determinant of state-level employment generation.

The study's findings demonstrate that state-supported entrepreneurship financing is important for regional employment generation. Because the scheme targets unemployed youth lacking access to institutional finance, CMRY serves as an important mechanism for facilitating enterprise creation among first-generation entrepreneurs.

The strong statistical association between fund utilisation and job creation indicates that well-implemented entrepreneurship credit schemes can significantly reduce unemployment and promote inclusive economic growth in states. Additionally, the findings reinforce the idea that institutional financing supports entrepreneurship and self-employment (Omar & Inaba, 2020; Polloni-Silva et al., 2021). The EDC's direct disbursement mechanism, which links loans to approved business proposals, establishes a strong accountability framework that enhances the scheme's ability to generate employment opportunities.

Nevertheless, the decrease in employment creation and fund use toward the end indicates that scheme performance is influenced by economic conditions and policy choices of the government. The decrease in CMRY budget allocation in the later years of the study could affect the scheme's ability to generate employment, especially during times of increasing youth unemployment (National Statistical Office, 2019).

CONCLUSION

This study investigates the relationship between CMRY fund utilisation and employment generation in Goa using secondary data for the period 2003-04 to 2020-21. The findings revealed a statistically significant and positive relationship between CMRY fund utilisation and employment generation, indicating that increased financial assistance under the scheme contributes substantially to self-employment creation in the state. Therefore, this study emphasises the crucial role of government-supported entrepreneurship and self-employment programs in creating jobs for educated unemployed youth in Goa. The findings also indicate that institutional financial aid through entrepreneurship-focused programs can significantly aid enterprise establishment and regional economic growth. Enhancing schemes like CMRY by increasing financial backing and ensuring better execution will help promote sustainable livelihoods and generate employment in the state.

However, the findings should be viewed with some limitations. The study relies on secondary administrative data and uses the number of beneficiaries as an indicator of employment created by the scheme. Future research could explore sector-specific employment outcomes under the CMRY or evaluate these results with similar state-level entrepreneurship programs to gain more comprehensive policy insights.

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