# THE EFFECTIVENESS OF GOVERNMENT ELEMENTARY EDUCATION EXPENDITURE ON DROPOUT RATE IN INDIA

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**Abstract** - This paper examines how the level of Governments elementary educationl expenditure affects dropout rates. A sample of 15 States over a fifteen-year period 2000-2015 had taken in India. We shed further light on the impact of government education expenditure on school dropout rates by examining the elaborateinterface between two key variables such as government elementary expenditure on education and per capita income. The main findings are that educational expenditure at elementary level was with lesser impact. The results also show that per capita income as a stronger impact on dropout rates in elementary school. The results are strong to a collection of panels including different methodology, variable conditions that schools function in.

**Keywords** - Governmental Educational Expenditure, Enrolment, India, Panel Analysis, Least Square Dummy Variable Regression

## I. INTRODUCTION

The major focus of the paper is to evaluation of the impact of public expenditure on education and dropout outcome and performs panel serial correlation tests between public expenditure and outcome indicator.The paper represents the regression model for the study and analysis to investigate the effects for the outcome indicator for dropout rates and analyzed the determining factor for the outcome indicators. Finally, summing-up and conclusion.

## II. FIXED EFFECT OR LSDV MODEL

The Fixed Effect panel regression model taken for the analysis. For this we had gone through tests like F-test with the pooled OLS model being the restricted model and the Fixed Effects model being the unrestricted model (Baltagi, 2005, p. 13, see section 4.3.6).

| | DOR |
|---|---|
| RRSS | 41.36 |
| URSS | 21.44 |
| df1 | 138 |
| df2 | 125 |
| F-stat | 8.93 |
| F-critical* | 2.84 |
| Ho | Reject |
| *At 1% significant | |

**Table 1 F-test for the Fixed Effects**

The F-tests results are presented in Table 2 for dropout rates.. The F statistics for dropout rates are significantly higher than the F critical value and are significant at 1% level. This suggests that the null hypothesis of the OLS panel model can be rejected and the test is in favor of the fixed effect model.

### 2.1 Serial Correlation Tests

| S.No. | Dependent Variables | Baltagi-Wu LBI statistic |
|---|---|---|
| 1 | Drop-out Rates | 1.819 |

**Table 2 Baltagi-Wu LBI test for Fixed Effects**

The second question is the problem of serial correlation. The Baltagi-Wu LBI statistic presented in the Table 2 for dropout outcome indicator and the test statistics rejects the null hypothesis of no first-order serial correlation.

## III. SPECIFICATION OF THE MODEL

$\ln(Y_{it}) = \alpha_i + \beta_1 \ln(EXP_{it}) + \beta_2 \ln(PCI_{it}) + u_{it}$ ..... .....(1)

$Y_{it}$ = Dependent variable is dropout rates indicator of the State i at time t

$EXP_{it}$ = Total expenditure on elementary educationof the State i at time t

$PCI_{it}$ = Per capita income of the State i at time t

Ln = Natural logarithm

$u_{it}$ = The panel error term

$\alpha_i$= State- Specific intercepts

Here we dropped Kerala State to avoid the dummy variable trap. There is no dummy for Kerala. In other words,$\alpha_i$ represents the intercept of Kerala.

## IV. EMPIRICAL ANALYSIS

In this section we tested the poolability of the data and the data found to be poolable with a fixed effect method.. We applied the panel data LSDV model. In this exercise we applied to examine the impact of public education expenditure and per capita income on dropout rate outcome indicator and the variations of the parameter coefficients across the States. Before we move on to the interpretation of estimated regression, for convenience, we state the expectations of the expenditure and per capita income on

dependent variable.The public spending and per capita income are expected to have a negative relation with drop-out rates, which means lowest estimated coefficients has the highest impact.

**Effectiveness of Government Educational Expenditure on Drop-out rates**

| Variable | Coefficient | Std. Err. | t-Statistic | Prob. |
|---|---|---|---|---|
| Total Exp. on Education | -0.005 | 0.05 | -0.101 | 0.918 |
| Per Capita Income | -0.464 | 0.11 | (-3.93)*** | 0.000 |
| Constant | 4.750 | 0.62 | (7.57)*** | 0.000 |
| $R^2$ | 0.82 | | | |
| Adj. $R^2$ | 0.80 | | | |
| No. of Groups | 15 | | | |
| Total no. of observations | 150 | | | |

*denotes significant at 10% level; ** significant at 5% level; *** significant at 1% level.

**Table 3 Effect of Public Expenditure on Education and Per Capita Income on Dropout Rates**

The fixed effects estimated results on drop-out rates are presented in (Table 5.7). The coefficient of public education expenditure on drop-outs rates is -0.005. It means that drop-out rates decreased by 0.005% points per increase in public education expenditure. But the t-statistic is only -0.101. It means that it is not statistically significant. In short public expenditure on education doesn't have any influence on the dropout rates. In the same way dropout rates declined by -0.464 % points per unit increase in per capita income. The coefficient is significant at the 1 % level with t-statistic -3.93. It means when 1 % increase in per capita income there is 0.464 % point's reduction in dropout rates. The per capita income has more impact than public expenditure on dropout rates.

| S.No. | States | Coeff. | Std. Err. | t-value | p-value | Rank |
|---|---|---|---|---|---|---|
| 1 | Andhra Pradesh | 8.020 | 0.20 | (16.63)*** | 0.000 | 13 |
| 2 | Assam | 7.908 | 0.20 | (15.99)*** | 0.000 | 11 |
| 3 | Bihar | 7.935 | 0.23 | (13.86)*** | 0.000 | 12 |
| 4 | Gujarat | 7.818 | 0.20 | (15.59)*** | 0.000 | 10 |
| 5 | Haryana | 7.083 | 0.23 | (10.17)*** | 0.000 | 3 |
| 6 | Karnataka | 7.546 | 0.20 | (14.31)*** | 0.000 | 7 |
| 7 | Kerala | 4.750 | 0.60 | (7.84)*** | 0.000 | 1 |
| 8 | Madhya Pradesh | 7.434 | 0.20 | (13.61)*** | 0.000 | 5 |
| 9 | Maharashtra | 7.326 | 0.20 | (13.08)*** | 0.000 | 4 |
| 10 | Orissa | 7.780 | 0.20 | (15.2)*** | 0.000 | 9 |
| 11 | Punjab | 7.639 | 0.21 | (13.52)*** | 0.000 | 8 |
| 12 | Rajasthan | 8.197 | 0.20 | (17.44)*** | 0.000 | 15 |
| 13 | Tamil Nadu | 6.984 | 0.20 | (11.41)*** | 0.000 | 2 |
| 14 | Uttar Pradesh | 7.517 | 0.22 | (12.47)*** | 0.000 | 6 |
| 15 | West Bengal | 8.066 | 0.20 | (16.81)*** | 0.000 | 14 |

*denotes significant at 10% level; ** significant at 5% level; *** significant at 1% level.

**Table 4 Estimated Coefficients of Dummy Variables for Drop-out rates.**

The Table 5.8 showed the impact analysis on drop-out rates between the 15 States of India. Rajasthan, West Bengal, Andhra Pradesh, Bihar and Assam showed a lower impact on dropout rates. The impact is higher in the States Madhya Pradesh, Maharastra, Haryana, Tamil Nadu and Kerala. The medium impact is seen in the States like Gujarat, Orissa, Rajasthan, Karnataka and Uttar Pradesh.

## V. THE DETERMINING FACTORS FOR OUTCOME INDICATOR

In this section we consider an important point is that whether the impact of public expenditure and per capita income of the 15 States on outcome indicators is determined or not. For example, to see whether the highest impact on outcome indicators by a particular State is through high per capita income or high expenditure or other things. For this we had divided the impacts into three types for the States on each outcome indicator according to their highest efficient coefficients. The ranking from 1 to 5 States as highest impact whereas States, ranging from 6 to 10 considered as medium impact. The States, ranging from 7 to 15 are considered as lower impact. In case of per capita income, average growth rates are used for ranking the 15 States. States with highest ranking from 1 to 5 are considered as high per capita income States followed by middle income States ranking from 6-10. The States with lower income ranking from 7-15 are considered with low per capita income. This impact analysis, determination is clearly done in the following table for dropout rates outcome indicator.

## VI. IMPACT ANALYSIS ON DROP OUT RATES (DOR)

| DOR | High Exp. | Medium Exp. | Low Exp. | High Income | Medium Income | Low Income |
|---|---|---|---|---|---|---|
| High Impact | Tamil Nadu, Maharashtra | Kerala, Madhya Pradesh | Haryana | Haryana Tamil Nadu, Maharastra | Kerala | Madhya Pradesh |
| Medium Impact | Uttar Pradesh | Karnataka, Gujarat | Orissa, Punjab | Punjab, Gujarat, | Karnataka | Uttar Pradesh, Orissa |
| Low Impact | Bihar, West Bengal | Andhra Pradesh | Rajasthan Assam | | West Bengal, Andhra Pradesh, Rajasthan | Bihar Assam |

**Table 5 Impact analysis on Drop Out Rates (DOR)**

The States with high expenditure and high per capita income and their impact is high on dropout rates are seen in Tamil Nadu and Maharashtra (Table 5.21). The medium expenditure on education and lower per capita income, but the impact is higher in the State Madhya Pradesh. Though high expenditure is seen in the States, Bihar, West Bengal, and Andhra Pradesh showed lower impact. The more impact of the public education expenditure on the dropout rates is seen in the States Madhya Pradesh, Kerala, Tamil Nadu, Maharashtra, Gujarat, Uttar Pradesh, Orissa, Punjab, and Haryana whereas lower impact is seen in the States Bihar, West Bengal, Andhra Pradesh, Rajasthan and Assam.

## VII. SUMMING UP AND CONCLUSION

Estimated results of the dropout rate regression reveal that public expenditure on education has long run positive sustainable impact on dropout rate. There is no significant impact of government educational expenditure on dropout rates whereas per capita income has significant impact on dropout rates.The results shown that levels of impact on education vary greatly between States to reduce dropout rates. State-wise evaluations reveal widespread inadequacy in interpreting expenditure into educational outputs.

Public expenditure on education per se will not necessarily produce progress towards the MDG

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