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Case Study NJFPM

A Study on the Collision of Education Development in the Growth of the Indian Economy and Population

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Abstract

Education helps create core values for each nation. Education plays a stellar role in the development of the economy. Education not only provides solutions to economic problems like poverty, unemployment, and economic growth, but it also gives the solution to different social issues like crime rate, population growth etc. In building a nation, the contribution of education is as vital as the economy's growth for a nation's development. Hence this article aims to focus on the role of education in the Indian economy. The researcher analyzed the impact of education on economic growth and population growth. World Databank indicator database has been used for the collection of data. Data for the current study will be extracted from 1993 to 2020. Econometric models will be applied for the analysis of data. The results of the study are quite surprising; there is no significant effect of population and secondary education on unemployment. Most of the lags also have an insignificant effect on unemployment; only the fourth lag of the population has a positive and significant effect on unemployment. Finally, this study suggested that different variables may be addressed further such as the impact of education expenditure on enrolment, crime and education etc.

Keywords: Education, economy development, econometric models, unemployment

INTRODUCTION

No nation has experienced economic and social growth without investing in human capital. Research, training, basic education, learning-by-doing, and aptitude development are some of the ways of human capital accumulation that have demonstrated gratifying returns in previous studies. Education disparities are also important for economic and social development. Most nations experience a negative and significant correlation between unequal schooling and lower per capita income [1]. Furthermore, adjusting for the distribution of human capital and using functional form specifications that are appropriate for the asset allocation model make a difference in the effects of average education on per capita income, whereas failing to do so results in negligible and even adverse effects of average education [2]. Investment in human capital will not have much of an influence on growth unless people can use their education in free and competitive markets [3]. The broader and more competitive these markets are, the greater the prospects for using education and skills. Economic development and economic growth cannot be equated in the Indian context. Economic growth will be viewed, at best, as a prerequisite for economic progress by all but the most fervent supporters of the "trickle-down" theory. Without a doubt, it falls short [4]. The importance of education and educational policy is evidently increased (at least potentially) whenever one takes into account the much wider views of economic growth. In India, a list of problems that may be logically included under the heading of economic development would include all forms of inequality and exclusion (regardless of whether they are based on income, gender, caste, religion, or

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location), health, fertility and infant mortality, and child labor [5]. In general, empirical research by economists indicates that women's education in India is a significant factor influencing these concerns. In contrast to typical markers of modernization like urbanization, poverty reduction, and male literacy, in some studies, it was found that high female education is a primary determinant of low fertility [6]. Less rosy prospects exist when it comes to caste-related problems. There is scant indication that the “backward castes” have benefited economically, in part because education cannot provide better jobs, despite significant government investment in their education. This naturally causes a "discouraged worker" effect and causes such castes to stop contributing to education. Low- and middle-income nations have had historically high growth in their economy [7]. Expanded enrollments and longer schooling periods brought about by advancements in education have contributed to this expansion and thus helped to lower poverty in emerging nations [8]. In a developing nation, an average six-year-old in 1990 might anticipate spending 8.5 years in school, up from 7.6 years in 1980. Nine to ten years of schooling is the norm in Eastern Europe and Central Asia; elementary education is practically ubiquitous in East Asia, Latin America, and the Caribbean [9]. While they still have a way to go, South Asian nations and those in the Middle East and North Africa are also making significant progress. Sub-Saharan Africa is falling behind; while some of its nations are advancing, the region's primary enrolment levels are actually falling. The need to expand educational access in certain nations, promote fairness, raise the standard of education, and, where necessary, accelerate educational reform are all significant issues that still need to be overcome. The demand for higher education is often rising more quickly than the supply in the majority of nations because there are more secondary school-age pupils who want to go than there are spaces available. As enrollment rates fall in the former and climb in the OECD nations, the enrollment gap between the transition economies of Central Asia and Europe and the members of that organization is also growing.

LITERATURE REVIEW

There are different studies cited the association between education and economic development the mixed results, some of them Hanushek and Kim [10], Temple [11], Krueger and Lindahl [12], and Benhabib and Spiegel [13] studied the relationship between the education and the economic development. These studies used different statistical tools such as descriptive statistics, correlation and regression to achieve the objectives. Finally, these studies revealed that education has a positive and significant impact on the economic development of a nation while the other studies Hanushek and Kimko [14], and Hanushek and Kim (1995) [10] examined the relationship between schooling quality and economic growth.” They found a positive but insignificant effect of schooling quality on education. However, there is enough space in India to exhibit a study on the association between education and economic growth. This article aims to focus on the role of education in the development of society and economic conditions.

RESEARCH METHODOLOGY

The current study is based on the secondary database and it has a descriptive research design. World Databank indicator database has been used for data collection for the period from 1993 to 2020. Econometric models will be applied for the analysis of data. Augmented Dickey fuller unit root test has been employed to check the stationarity of the data series and an auto-regressive distributed leg model (ARDL) is employed to analyze the impact of education on the development of the economy and population growth.

RESULTS AND ANALYSIS

Result of Unit Root Test

The null hypothesis assumed there is the presence of a unit root test in the series. P value will be compared with 0.05. if the p value >0.05, then we will accept the null hypothesis, which means the series is non-stationary. In that case, we have to transform that series into a stationary series. If the p value < 0.05, then we will not accept the null hypothesis, which means the series is stationary. As shown in Table 1 p value is > 0.05, which means there is the presence of a unit root means the population series is non-stationary. The researcher has transformed the population series by two differencing and tested

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the unit root test. The result of the unit root test of series pop after transforming the series at 2 differences, shows the p value < 0.05, the null hypothesis will not be accepted means the series is stationary at I (2). Results of the series secondary education and unemployment revealed that the series is stationary, their p values are < 0.05, and the null hypothesis will not be accepted (Table 1).

Results of Correlogram

The researcher tested the autocorrelation test using a correlogram Q statistics. If p values are > 0.005, there is no autocorrelation present in the series, which means results will be more reliable. As shown in Figure 1, p values are > 0.05, and no autocorrelation is present in the series.

Results of Correlogram Squared Residual

While heteroscedasticity will be tested using a squared residual correlogram. If p values are > 0.05, that means there is homoscedasticity. As shown in Figure 2, p values are > 0.05; there is homoscedasticity.

Modelling

"Unemployment = C(1)*Unemployment(–1) + C(2)*POP2 + C(3)*POP2(–1) + C(4)*POP2(–2) + C(5)*POP2(–3) + C(6)*POP2(–4) + C(7)*SEC_EDU + C(8)"

Unemployment: Dependent Variable
C: Slope of Independent variables
POP2: (Population) Independent variable
SEC_ EDU: (Secondary Education) Independent Variable

"Unemployment = –0.111618768943*Unemployment (–1) – 62.8592287524*POP2 + 150.40623321*POP2(–1) – 19.66324842*POP2(–2) – 201.269550712*POP2(–3) + 169.791992461*POP2(–4) – 0.0719655839624*SEC_EDU + 6.46466511413"

Table 1. Unit root testing.

Unit root testing by using augmented Dickey–Fuller Test			
Null hypothesis	***T-Stat***	***Probability. values***	***Decision***
POP has a unit root	–1.237548	0.6407	Accepted
POP 2 has a unit root	–3.837125	0.0080	Rejected
Secondary Edu has a unit root	–5.328764	0.0002	Rejected
Unemployment has a unit root	–4.569169	0.0012	Rejected

Date: 10/07/22 Time: 16:21
Sample (adjusted): 7 28
Q-statistic probabilities adjusted for 1 dynamic regressor

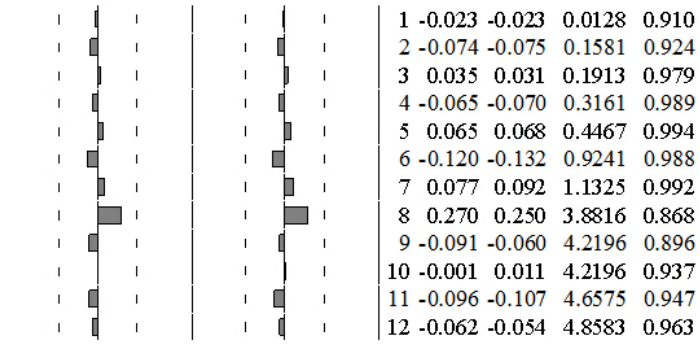
Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
		1	-0.053	-0.053	0.0707	0.790
		2	-0.175	-0.178	0.8747	0.646
		3	-0.208	-0.236	2.0768	0.557
		4	0.015	-0.058	2.0834	0.720
		5	0.302	0.238	4.9168	0.426
		6	-0.092	-0.106	5.1932	0.519
		7	-0.148	-0.097	5.9633	0.544
		8	-0.312	-0.298	9.6276	0.292
		9	0.027	-0.121	9.6580	0.379
		10	0.133	-0.105	10.433	0.403
		11	-0.029	-0.136	10.473	0.488
		12	-0.103	-0.147	11.032	0.526

*Probabilities may not be valid for this equation specification.

Figure 1. Autocorrelation test "correlogram of residuals.

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Date: 10/07/22 Time: 16:22
Sample (adjusted): 7 28
Included observations: 22 after adjustments



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
		1	-0.023	-0.023	0.0128	0.910
		2	-0.074	-0.075	0.1581	0.924
		3	0.035	0.031	0.1913	0.979
		4	-0.065	-0.070	0.3161	0.989
		5	0.065	0.068	0.4467	0.994
		6	-0.120	-0.132	0.9241	0.988
		7	0.077	0.092	1.1325	0.992
		8	0.270	0.250	3.8816	0.868
		9	-0.091	-0.060	4.2196	0.896
		10	-0.001	0.011	4.2196	0.937
		11	-0.096	-0.107	4.6575	0.947
		12	-0.062	-0.054	4.8583	0.963

*Probabilities may not be valid for this equation specification.

Figure 2. Correlogram of residual squared.

Table 2. Auto regressive distributed leg model.

Dependent variables: Unemployment (ARDL Model 1,4,0)				
Variable	***Coefficient***	***SE***	***t-stat***	***Prob****
Unemployment (–1)	–0.1111619	0.202393	–0.551494	0.5900
POP2	–62.85923	46.07850	–1.364177	0.1940
POP2(–1)	150.4062	79.88907	1.882688	0.0807
POP2(–2)	–19.66325	97.36228	–0.201960	0.8429
POP2(–3)	–201.2696	98.55904	–2.042122	0.0604
POP2(–4)	169.7920	51.53087	3.294957	0.0053
SEC-EDU	–0.071966	0.042339	–1.699736	0.1113
C	6.464665	1.1729956	5.511431	0.0001

Result of ARDL

Finally, the researcher applied the ARDL model to find the effect of population and secondary education on unemployment and how many lags of unemployment, population and secondary education have a significant effect on unemployment. p Values are to be compared with check the significant effect; if p value < 0.05, it means there is a significant effect else; there will be no significant effect. As shown in Table 2, p values of all variables > 0.05, excluding pop (–4), the fourth lag of population is the only variable that has a positive and significant effect on unemployment; otherwise, all the variables like a lag of unemployment, population, first, second, and third lag of population has no significant effect on unemployment. If there is an increase in 170 units of the fourth lag of population, that will increase one unit of unemployment (Table 2).

CONCLUSION

The results of the study are quite surprising; there is no significant effect of population and secondary education on unemployment. Most of the lags also have an insignificant effect on unemployment; only the fourth lag of the population has a positive and significant effect on unemployment. However, the current research is limited to the Indian context only, so there is scope to explore the study in different countries as well as by considering different variables that affect unemployment, and different econometric techniques may also have some different results. There is enough space for computing further studies to check the impact of different variables on unemployment that will help the government in designing relevant policies.

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