

Empirical Impact of Population, Poverty and Public Education Expenditure on Literacy Rate in Pakistan

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Abstract

Economy of Pakistan suffered by multiple socio-economical issues whereas; development of any country's economy highly depends on proper utilization of human resource. Education is the important source of human resource development and literacy is the basic component of education. Government of Pakistan took many initiatives to overcome the problem of low access to education. However, there are various factors that affects education scenario in the country. Therefore, this research evaluates the trend in literacy rate in Pakistan and finds out the macro economical issues that influences literacy rate in Pakistan. Study found that in Pakistan literacy rate remain low furthermore, regional and gender discrimination also found in access to education. Empirical results show that high growth in population, poverty and short of government attention (such as insufficient government expending for education sector) are the significant factors for low literacy rate in Pakistan.

Key Words: *Literacy Rate, Illiteracy, Human Resource, Economy Development, Population, Poverty, Government Expending*

Introduction

Pakistan is characterized as developing country of the world and since its existence country suffered by economy instability. Pakistan is rich in human resource and availability of education to all can make its human capital more productive, as a result, economy of Pakistan will be more stable. However, after 65 years of independence, Government of Pakistan not able to provides even basic education to its whole population. Therefore, this research paper presents to determine the empirical impacts of different macro economic variables (i.e. poverty, size of population and public sector expenditure on education sector) on literacy rate in Pakistan. The paper has three different parts. Part one based on introduction and conceptualized literature review. Part two briefly discusses research methodology of the study and last part consists on finding, conclusions and recommendations.

Conceptualization

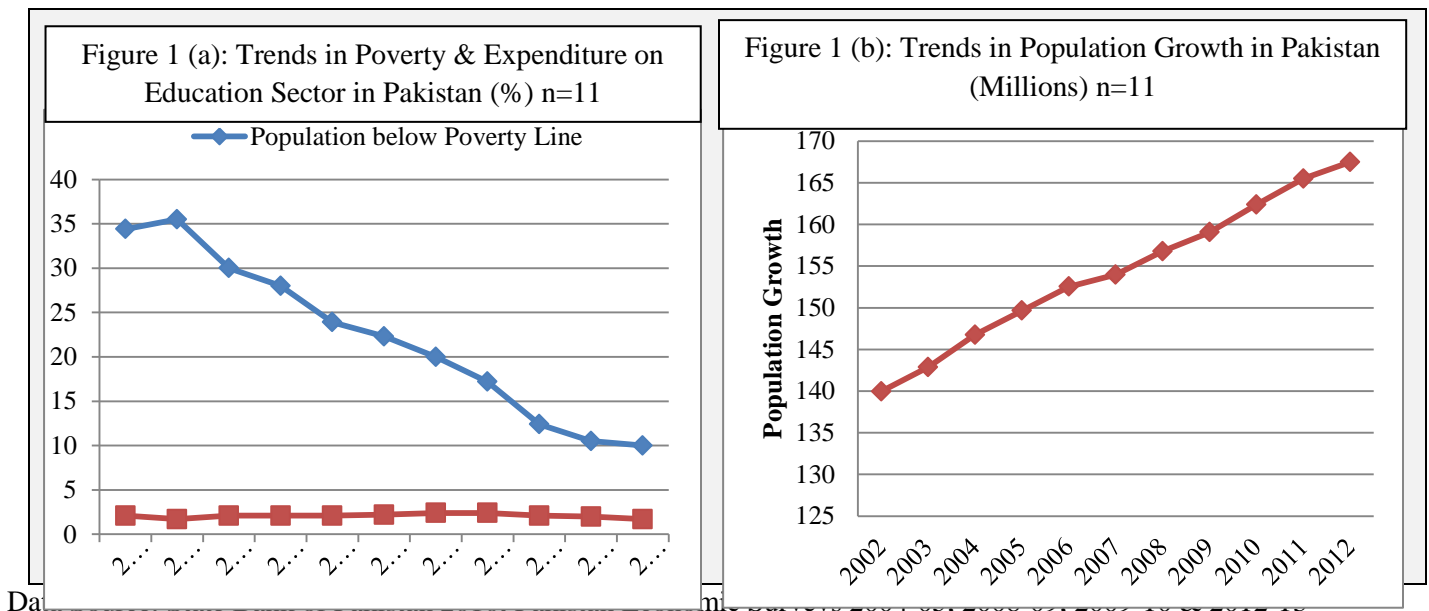
Education plays a very significant and crucial role in the socio-economic development of a nation (United Nations Educational Scientific and Cultural Organization, 2006). According to Chitrakar (2009), literacy is the foundation pillar of the education. **Literacy rate is defined as “the ability to use written language actively and passively” (Literacy from Wikipedia the free encyclopedia). “Literacy rate refer to the “ability to read, write” (Oxford Advanced Learner’s Dictionary, 2005).** Literacy rate of a country refers to the particular proportion of population who are supposed to be able to read, write, to understand and to speak a language. According to United Nations Educational, Scientific and Cultural Organization (2010), literacy is at the heart of basic education which is essential for eradicating poverty, reduction in child mortality, curbing rapid growth of population, and ensuring sustainable development, peace and democracy. Whereas, in many countries of the world literacy rate is not satisfactory, particularly, in under developed and less developed countries (Global Gender Gap Report, 2011). There are more than 780 million population is literate in the world, at the same time million are unable to get their fundamental right, to be literate (United Nations, 2010).

Pakistan came in to existence as independent state in 1947, the founder of Pakistan Quaid-e-Azam Muhammad Ali Jinnah, provided principles and guidelines for the education system in the country (Zaidi, 1999). At national and international level, Pakistan makes commitment to provide basic education to all such as Beijing Declaration and Platform for Action 1995, World Declaration on Education For All 2000, Dakar Framework for Action, Education for All: 2000 and The Millennium Declaration and Millennium Development Goals (MDGs). Government of Pakistan develops series of education policies such as national education policy 1972, national education policy 1979, and national education policy 1992 for the development of education sector and to achieve 100 percent literacy rate (Isani & Virk, 2003). However, United Nations (2010) reported that in respect of literacy rate country Pakistan stand at 160th with 50% percent literacy

rate in list of countries of the world, in other word country ranks among bottom countries of the world. According to Economic Survey of Pakistan (2010-11) the overall literacy rate of age 10 years and above are 57.7 percent on other side, regional and gender discrimination (that favors males) also be present in Pakistan. According to Social Policy and Development Center (2003) and Qasmi (2009), literacy rate in Pakistan negatively affected by various macro economical issues such high growth in population, poverty and lack of government expenditure in education sector.

Figure 1 (a) shows that during mentioned years, ratio of population below poverty line was decrease this is the positive sign for enhancing literacy rate in the country. Insufficient financial resources for education sector hampered the efforts to open more education institutions at all levels, provide missing facilities in educational institutions, and offer incentives to female child from poor families. Government expenditure on education sector (i.e. in percent of GNP) was not significantly increase. High growth in population supposed as burden on economy in less developed countries like Pakistan. Whereas, figure (b) indicates that in Pakistan growth in population is very fast.

Figure-1: Trends for Growth in Population, Poverty and Government Expenditure in Education Sector in Pakistan n=11 Years (2002 To 2012)



To sum up, literacy is the basic component to make human resource proficient. Government of Pakistan makes policies to provide education to all however, due to burden of population, poverty and lack of public expenditures on education sector, large proportion of labor force remain illiterate in Pakistan. This opens the area to investigate literacy trends and major obstacles of illiteracy in Pakistan.

1. Methodology

This research study focused to scrutinize the trend of literacy in Pakistan and to identify the impact of major macro issues of illiteracy in the country. This study is secondary data based and annual time-series data was collected on selected variables such as on literacy trends, population, poverty and public spending on education sector (i.e. in percent of GNP). To measure the significant impact of independent variables (i.e. population, poverty and government education expenditures on dependent variables (i.e. literacy rate) Ordinary Least Squares (OLS) was applied. The secondary data was taken for these variables from the website of State Bank of Pakistan and Economic Surveys of Pakistan. SPSS and MS-Excel were used to analyze the data and to present the findings. The findings of this study would provide numerical facts about the impact of population, poverty and government expenditure (i.e. in education sector) on literacy rate in Pakistan which help to generate compatible initiatives to overcome the problem of illiteracy in the country.

4.1 Multiple Regression Equation:

$$y = b_0 + b_1x_1 + b_2x_2 + b_3x_3$$

Where:

y= dependent variable (i.e. literacy rate)

b_0 =intercept/constant

b_1, b_2 & b_3 = coefficients

x_1 = population below poverty line

x_2 = expenditure on education as % of GNP

x_3 = population

2. Study Results

The table 1 indicates the literacy rate in various countries of the world. Presented data reveals that to achieve 100 percent literacy rate is not only a dream. There are many countries in the world who already achieved this ratio or at the nearest standard to educate their whole population. However, the comparative analysis of literacy rate in Pakistan with other mentioned countries indicates that Pakistan still remain far to realize the economic importance of educated human resource in the social and economical development of the country.

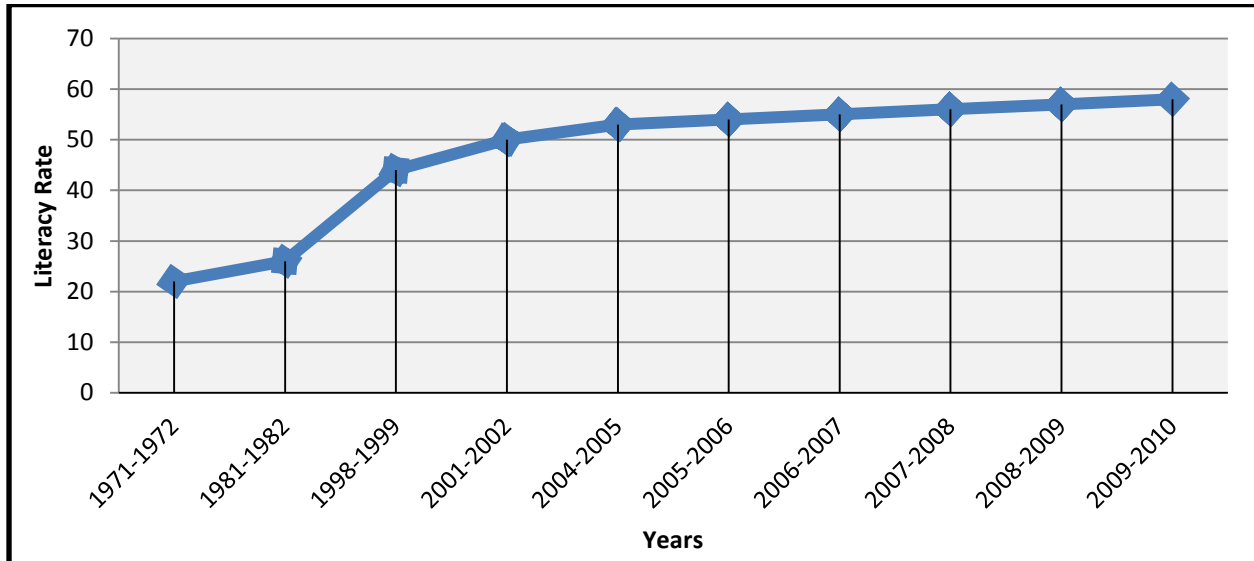
Table 1: Trends in Literacy Rate by Country n=11 (%)

Countries	Literacy Rate
Russia	100
Australia	99
Japan	99
U.K	99
U.S.A	99
China	93
Sri Lanka	91
Saudi Arabia	83
Iran	82
India	61
Pakistan	50

Source: United Nations (2010)

Figure 2 shows literacy trends in Pakistan over past years. Presented trend indicates that literacy rate in Pakistan slowly and gradually has been continuing to improve whereas, 50 percent out of total Pakistani population have no access to get basic education and remain illiterate. According to Qasmi (2009), due to socio-economic environment and government ignorance, access to basic to all remained unsolved issue in Pakistan.

Figure-2: Literacy Rate in Pakistan (%) n= 10



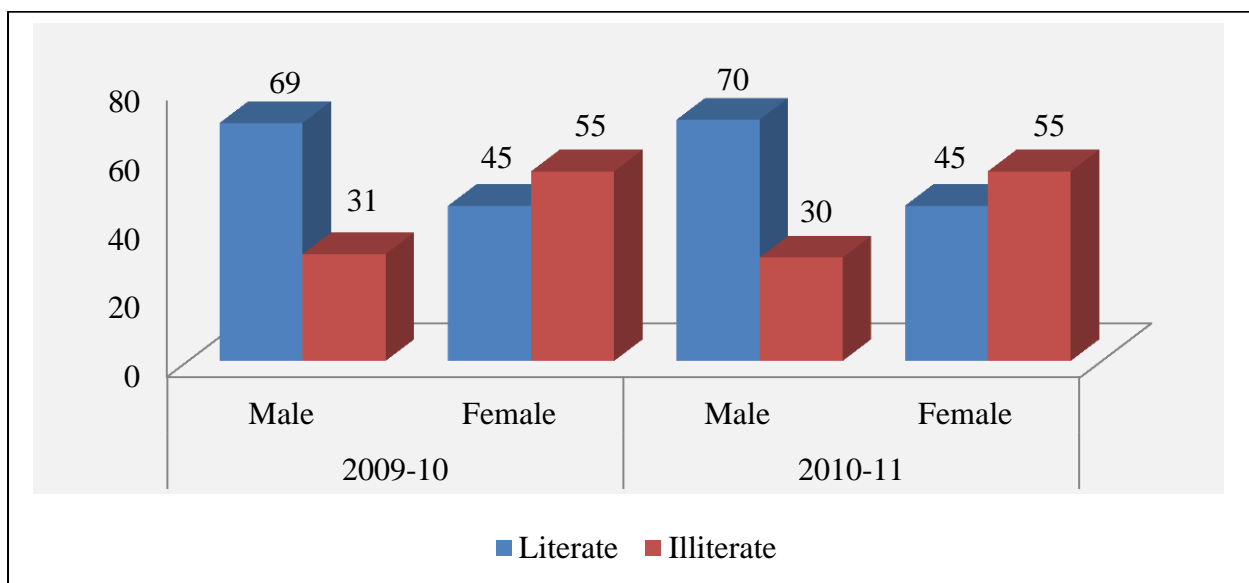
Source: Federal Bureau of Statistics of Pakistan 2011; Pakistan Economic Surveys 2004-05, 2009-10

Figure 3 highlights literacy trends in Pakistan by gender. Data show up that gender disparity to get education, exists in Pakistan. Comparative analysis shows slightly improvement in literacy rate among male during mentioned years whereas, female reported without any positive change during mentioned years. United Nations Educational, Scientific and Cultural Organization¹ (2010), reported that regional disparity (i.e. rural-urban regions) in order to get education also exists in Pakistan and rural female remain more illiterate than urban female. According to Pakistan Education Statistics (2010-11), high growth in population and poverty have more powerful negative impact on education sector in Pakistan, and this trend is more prominent in rural areas².

¹UNESCO is a specialized agency of the United Nations (UN).encourages international peace and universal respect for human rights by promoting collaboration among nations.

²Rrural area is a geographic area that is located outside cities and towns.

Figure-3: Literacy Trends in Pakistan by Gender (%)



Source: Economic Survey of Pakistan (2011-12), p.34

Table 2 presents empirical results of regression model. The value of R Square for this regression model is 0.86, this indicative that 86 percent variation in literacy rate in Pakistan explained by this model. Small value of standard error (i.e. 1.3) and value of durbin-watson³ (i.e. 1.4) under acceptable range indicative that model fulfill the requirements of good model without any numerical error in predicting literacy rate.

Table-2: Summary of Empirical Results for Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.946 ^a	.896	.844	1.395	1.481
<ul style="list-style-type: none"> ➤ predictors: (constant), population, expenditure on education as % of GNP, population below poverty line ➤ dependent variable: literacy rate 					

Data Source: Data Source: State Bank of Pakistan 2010; Pakistan Economic Surveys 2004-05, 2009-10, 2012-13

³Durbin-Watson test used to test the presence of autocorrelation in residuals.

Table 3 presents ANOVA (i.e. analysis-of-variance) statistical test results. This test is used to determine the impact of independent variables on the dependent variable in a regression analysis and assesses the overall significance of the model (Christopher, 2011). The F-test estimates the statistical significance of the regression equation and indicates the global significance of the model (Jeffrey, 2012). In this case model has a significant value of F-statistics (i.e. 17.17) this indicative that regression is useful for predicting literacy rate.

Table-3: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	100.319	3	33.440	17.177	.002
Residual	11.681	6	1.947		
Total	112.000	9			
<ul style="list-style-type: none"> ➤ Predictors: (Constant), Population, Expenditure on Education as % of GNP, Population Below Poverty Line ➤ Dependent Variable: Literacy Rate 					

Data Source: Data Source: State Bank of Pakistan 2010; Pakistan Economic Surveys 2004-05, 2009-10, 2012-13

Table 4 presents variables in equation for multiple regression model. Values of t-statistics for all independent variables are significant however, expenditure on education as % of GNP has positive impact. Whereas, population below poverty line and size of population has negative impacts on literacy rate in Pakistan. The value of B-coefficient for expenditure on education sector as % of Gross National Product (GNP) shows average increase in literacy rate (i.e. 8.608) associated with one percent add to government expenditure on education sector (i.e. as % of GNP). The value of B-coefficient for the ratio of population below poverty line shows average decline of literacy rate associated with a rise of 1.137 percent of ratio of population below poverty line. The value of B-coefficient for population size shows average decline in literacy rate associated with a rise of 1.018 million of population.

Table-4: Variables in Equation for Regression Model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero-order	Partial	Part
1 (Constant)	216.698	58.915		3.678	.010			
Population Below Poverty Line	-1.137	.306	-2.810	-3.715	.010	-.787	-.835	-.490
Expenditure on Education as % of GNP	8.608	2.635	.485	3.267	.017	.649	.800	.431
Population	-1.018	.346	-2.259	-2.943	.026	.722	-.769	-.388

➤ Dependent Variable: Literacy Rate

Data Source: Data Source: State Bank of Pakistan 2010; Pakistan Economic Surveys 2004-05, 2009-10, 2012-13

The values of t-statistics for all independent variables show significant impact (i.e. either positive or negative) of all independent variables on literacy rate. However, the comparative value of t-statistics for ratio of population below poverty line (i.e. -3.719) with other independent variables indicates that poverty has more powerful negative impact on literacy rate.

3. Conclusions & Recommendations

It is concluded that literacy has enormous significance in economic expansion of the country whereas, illiteracy slow down the socio-economic growth of the nations. In 21st century many nations of the world already pull off 100 percent literacy rate and successfully competing in global economy. Whereas, in Pakistan literacy rate, in term of most significant education indicator far from being satisfactory and doesn't compare favorably with many countries of the world. On other hand, substantial disparity in literacy rate also exists by gender and regions (i.e. rural-urban) in Pakistan. Government of Pakistan makes serious efforts as to boost up literacy rate. However, economy of Pakistan suffered by many economical and non-economical issues including high growth in population and poverty. On flip side, empirical results confirmed that, enlargement in population and poverty has more significant negative impact on literacy rate in Pakistan. In addition, insufficient financial resources for education sector hampered the efforts to open more education institutions at all levels, provide missing facilities in schools, and offer incentives to motivate families to educate their children, particularly, in low income household. Therefore, lower investment is one of the major reasons of high illiteracy in Pakistan. In the light of study results, it is suggested that low and uneven literacy rate has to be addressed and government should have to uplift its policy initiatives to remove the regional and gender discrimination in access to basic education. Public expenditures on education sector (i.e. as ratio of GNP) should be enlarged and educational institutions should be upgrade to improve both output and quality of education.

4. References

- Begum, Z., Khan, I., & Iqbal, Assad. (2011). Socioeconomic Status of the Girl Students and Their Dropout Rate at Primary Level in F.R. Kohat (FATA- Pakistan). *European of Social Sciences*, 20 (2), 356-384.
- Chitrakar, Roshan. (2009). *Overcoming Barriers to Girls' Education in South Asia: Deepening the Analysis*. United Nations Children's Fund 2009, Regional Office for South Asia. Kathmandu, Nepal.
- Christopher, D., (2011). *Introduction to Econometrics*. 4th edition, Oxford University Press.
- Colclough, C., P, Rose & M, Tembon. (2000). Gender Inequalities in Primary Schooling: The Roles of Poverty and Adverse Cultural Practice. *International Journal of Educational Development*, 20, 5-27.
- Economic Survey of Pakistan, (2004-05). Economic Advisor Wing, Finance Division, Islamabad.
- Economic Survey of Pakistan, (2009-10). Economic Advisor Wing, Finance Division, Islamabad.
- Economic Survey of Pakistan (2010-11). Economic Advisor Wing, Finance Division, Islamabad.
- Economic Survey of Pakistan, (2011-12). Economic Advisor Wing, Finance Division, Islamabad.
- Economic Survey of Pakistan, (2012-13). Economic Advisor Wing, Finance Division, Islamabad.
- Federal Bureau of Statistics of Pakistan, (2011). *Pakistan Statistical Year book 2011*. Islamabad, Pakistan.
- Global Gender Gap Report. (2011). Geneva. Switzerland. Retrieve from http://www3.weforum.org/docs/WEF_GenderGap_Report_2011.pdf
- Gujarati, Damodar. N. (1995). *Basic Econometrics*. 3rd Edition, New York, McGraw–Hill.
- Higher Education Commission (HEC) Official Website. Our Institutions. Retrieve from <http://app.hec.gov.pk/UniversityFinal2/RegionUniversity.aspx>
- Iqbal, Ahmad., Muhammad, Rauf., Aqeela, Rashid., Shahfiq Ur Rehman., & Muhammad, Salam. (2013). *Analysis of the Problems of Primary Education System in Pakistan: Critical Review of Literature*.4 (2).
- Isani, U.A.G., & Virk, Mohammad. Latif. (2003). *Higher Education in Pakistan: A Historical and Futuristic Perspective*. National Book Foundation, Islamabad.
- Jeffrey, M. Wooldridge. (2012). *Introductory Econometrics: A Modern Approach*.5th edition, South-Western College Publishers.
- Literacy, From Wikipedia the Free Encyclopedia Retrieve from <http://en.wikipedia.org/wiki/Literacy>
- Oxford Advanced Learner's Dictionary. (2005). 7th Ed, Oxford University Press. New York.
- Pakistan Education Statistics. (2010-11). National Educational Management Information System (NEMIS)-Academy of Educational Planning and Management (AEPAM). Ministry of Education. Islamabad.
- Pakistan Institute of Legislative Development and Transparency. (2011). *Right to Free and Compulsory Education in Pakistan, Enforcement of Article 25-A of the Constitution of Pakistan*.

- Qasmi, Marhab. (2009). An Analytical Study of Female Education in Rural Sindh & its Impact on Socio-Economic Environment. The Women- Annual Research Journal, 1, 82-104
- Social Policy and Development Centre. (2003). Social Development in Pakistan: The State of Education. Annual Review 2002-03. Karachi, Pakistan.
- Social Development in Pakistan, 2009, Annual Review 2007-08: Women at Work, Social Policy and Development Center (SPDC), Karachi.
- State Bank of Pakistan. (2010). Hand Book of Statistics on Pakistan Economy. Retrieve from http://www.sbp.org.pk/departments/stats/PakEconomy_HandBook/index.htm
- Syeda, T., Rabia F. & Sabiha I. (2006). Study Guide on Women and Development. Allam Iqbal Open University, Islamabad.
- United Nations Educational Scientific and Cultural Organization. (2002). Women and Management in Higher Education: A good Practice Hand Book, UNESCO, Paris.
- UNESCO. (2012). World Atlas of Gender Equality in Education. Retrieve from <http://www.uis.unesco.org/Education/Documents/unesco-world-atlas-gender-education-2012.pdf>
- United Nations. (2010). The World's Women 2010: Trends & Statistics. United Nations Publication, New York.
- United Nations Educational, Scientific and Cultural Organization Institute for Statistics. (2011). Global Education Digest 2011: Comparing Education Statistics across the World. Canada.
- UNESCO. (2006). Pakistan: where and who are the world's illiterates?. Background Paper Prepared for the Education For All Global Monitoring Report 2006 Literacy for Life. Retrieve from <http://unesdoc.unesco.org/images/0014/001459/145959e.pdf>
- Zaidi, S. A., (1999). Issues in Pakistan's Economy. Oxford University Press, Karachi.