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**Impact of Foreign Aid in Education
on Educational Outcomes**

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ABSTRACT

The study is an attempt to reveal a link between foreign aid and educational projects in the last one and a half decade. This study used nonlinear model by adding square term of foreign aid to capture the nonlinear association with the primary enrolment, secondary enrolment and higher enrolment. Nevertheless the linear model is also estimated and in the all the three models the results are same that foreign aid in the three sectors does not affect enrolment rate. The study concludes that foreign aid could be effective in increasing primary enrolment but not secondary or higher enrolment.

JEL Classification: I2, H5, I22, F35

Keywords: Aid, Education, Effectiveness, Enrolment

1. INTRODUCTION

The ultimate financial responsibility for improving educational access, participation, and quality lies with national governments. However, for many countries, particularly the poorest and most conflict affected, educational progress depends, to a significant extent, on aid coming from bilateral, multilateral, and philanthropic agencies. [Benavot, et al. (2010)].

Education, among other socio economic variables has important role in shaping the development of society. Our religion also stresses to acquire knowledge. It helps individuals in decision making by broadening their horizon and give them more opportunities to play their positive role in the society. Educated person can bring changes in the society and contribute towards society in a responsible way. Apart from social changes, new growth theory suggests that education also helps in promoting growth by providing skilled labour force in the economy. In the era of globalisation education and skills are very vital especially in the competitive environment to increase productivity, thus lead to higher productivity, exports and welfare.

Pakistan is lagging behind in education sector. Our total budget has not been increasing from 2.2 percent of GDP for a very long time. Despite the facts are known to the policy-makers, enrolment rates are not increasing at the desired rate and we did not achieve the MDG target of 100 percent primary completion rate among many others. Several donor agencies in their own capacity have been working on promoting education around the world and Pakistan is no exception to it. UN, World Bank, DFID, ADB etc. are among the top donor agencies who have been working in Pakistan to promote primary education to meet MDG target.¹ However their agenda is based on their own findings which may be the problem of non-coherent policies between government and donor agencies, though it is believed “rhetorically” that government follows donor’s agenda blindly.

Pakistan has been receiving foreign aid and loans from developed countries and international agencies since 1947. Earlier, the aid that has been given to was fulfilling the increasing in demand of industrialisation in the country and for the completion of five year plans. But with the passage of time,

¹Multifold increase in foreign aid has been witnessed in the past decade. It has been seen that most of the aid in education sector came due to Millennium Development Goals. MDGs most significant goal is to achieve primary completion rate and this is one of the reasons that primary schooling.

the requirement of aid in Pakistan has increased and until now Pakistan is receiving huge amount of foreign aid to keep its economy at a safer level. It is also believed that due to lack of governance and coordination failures most of the aid comes to Pakistan has been wasted.

Foreign aid received by Pakistan is not spent on education generally, instead it is either come as a project aid or relief aid or balance of payments correction aid. Very small chunk is spent directly by the donor agencies on education. This is also evident in the recent aid given by US to Pakistan during 2002 to 2008 in which 75 percent was spent on military and less than 10 percent on education due to the nature of aid.

Foreign aid in education sector comes in multiple ways (i) it helps the government of Pakistan to fulfil their objectives which was initiated by the government, e.g., aid comes during five year plan to achieve the goal, (ii) it starts new educational project which helps in eradication of some serious problems in the system, e.g., training of individuals, provision of physical infrastructure etc. and (iii) donors starts their projects by themselves as well as they give money to government such as USAID scholarships distribution through Higher Education Commission (HEC) .

First education goal of MDG, i.e., 100 percent primary completion rate is a wish of UN and signed by Pakistan was funded by UN and other agencies who wants Pakistan to achieve that goal. Similar to that CIDA started teachers training program, DFID started student's enrolment drive as well as teacher training programs etc. Several projects were started using the foreign funding by the local and international organisations.

Although monitoring and evaluation of each project has been done internally by each donor agency but there is a no study to our knowledge which explains the overall impact of aid in education sector on the education sector outcomes. Since the projects are of different natures and it is difficult to evaluate each project for its own objectivity therefore we checked the impact of aid in education sector on enrolment. Anwar and Aman (2010), previously, examines the impact of foreign aid on education in Pakistan however, the study uses total aid and literacy as education outcome. However we are using sector specific aid and enrolment as education outcome which is a better measure than literacy rate.

Therefore, main objective of this study is to examine the impact of foreign aid in education sector on educational outcomes. Due to non-availability of time series data on most of the outcomes we have selected enrolment as one of the outcome in education sector. It is further bifurcated into three categories i.e., primary enrolment, secondary enrolment and higher enrolment because these sectors/levels are the main recipient of the foreign aid.

Organisation of the study is as follows; second chapter explain literature review, Chapter 3 discusses data and methodology, while Chapter 4 explains finding of the results and Chapter 5 draws conclusions of the study.

2. EFFECTIVENESS OF AID—LITERATURE SURVEY

Pakistan is the recipient of foreign aid for developing programs since 1947. However, these development programs did not have significant share of education in it. Insofar average share of education aid in total aid does not exceed than 10 percent in DAC countries [EFA Global Monitoring Report (2005)]. Heynemann (2005) reports that proportion of education aid in total USA aid is 3.3 percent while in case of DAC countries it is 8.7 percent.

Role of aid is intensely discussed in various studies. Nevertheless, the results are very ambiguous. For instance Aslam (1987) demonstrates that total foreign capital inflows have a negative and noteworthy effect on national reserve funds yet did not essentially influence the local investment. Similarly, Anwar and Michaelowa (2006) argues that debt plays negative role in case of Pakistan, though US aid contributed a lot in the economy. While Mallick (2004) argues that United States should give more aid in order to make its economy better because Pakistan has spent good amount of money in war and terror. Moreover, Qayyum and Haider (2012) concluded in their panel study that role of institution is important if we are looking at the impact of foreign aid on economic development. Therefore, as suggested by Burnside and Dollar (2000) poor policies dampens the impact of aid.

Clemens, *et al.* (2012) spells out two major reasons for inconclusive impact of aid, i.e., each aid is different from other² and every aid takes its own time to effect the economic development, secondly it is important to see that which country receives what kind of aid and how good they utilise it. Similar results are obtained in Asideu and Nandwa (2007) for impact of education sector aid on growth. Asideu (2014) concludes three important results (i) aid in primary education has a positive and significant effect on growth; (ii) aid in post-primary education has an adverse effect or at best no significant impact on growth; and (iii) growth increases as aid in primary education as a share of total education aid rises.

Although aid is positively associated with human development [Williamson (2008)] however, but negatively associated with primary completion rate [Fielding, McGillivray, and Torres (2006)]. This implies that foreign aid is ineffective and/or insufficient in achieving the MDG goal of primary completion but it contributed positively to overall human development in the form of project or relief aid. On the other hand Dreher, Nunnenkamp, and Thiele (2006) finds that foreign aid significantly enhances the completion rate of primary school. Furthermore, it also finds positive effect of foreign aid, during

²Clemens, Radelet and Bhavnani (2004) categorised aid into three components: (i) emergency and humanitarian aid; (ii) short-impact aid, defined as aid that increases the growth within four years (includes budget support, infrastructure, banking, agricultural and industry); and (iii) long-impact aid, which refers to aid that affects growth over the long term (includes technical assistance, democracy, environment, health, education).

1970-2005 for education to 100 countries, on enrolment rate. Another study Baldacci, Clements and Gupta (2008) utilising the data of 118 developing countries from 1971-2000 examines that expenditure on education plays a significant impact on the enrolment of schools. Similar results are obtained in Kwabena and Asiedu (2008) for developing countries. Consequently expenditures are important to increase enrolment whether it is done through government's own pocket or through foreign aid.

Aid in education sector comes in different forms. In general it build schools, give training to teachers, help government and other NGOs to spread awareness about education and setting up new disciplines by providing financial resources, human resources etc. Aid giving countries also help in finding out a way that is more commercial to have access to education, to improve the quality of education, fairness and to deal with the increasing demand of aid due to the increase in population in developing countries. Aid given to education and its assessment needs to be systemic and long-term, and the development of capability that is afforded needs to be managed at national level and should be coordinated [Riddell (2012)]. Sustainable education outcomes will not be achieved simply by reproducing yet more successful, but individual projects. Grindle (2010) and Booth (2011) both have stated intelligently about the consistency in policy and development of institutions. The strong suggestion is very much evident: in order to have an effective and efficient impact of aid on educational systems, we should be having approaches which will cater and focus ahead of the short-term and ahead of particular or specific involvements. The approaches should be much longer term, and there is a need to pay much greater attention to the educational system as a whole, including the institutions, organisational practices and incentives, with greater understanding of the political, economic and social context which underpins it and with which it has a significantly important interface.

3. DATA AND METHODOLOGY

The study is an attempt to reveal a link between foreign aid and educational projects in the last one and a half decade. The impact of each aid would be difficult to obtain using the time series data because aid in education sector comes in different ways. In general, aid comes under different projects which has several targets to achieve. Nonetheless, the ultimate objective in the last one and half decade is to increase enrolment rates and more importantly primary completion rate. Unfortunately, to estimate the impact of foreign aid on every outcome we do not have sufficient details of every project, therefore we have used primary enrolment is an outcome of primary educational projects, secondary enrolment is an outcome of secondary educational projects and higher (degree colleges and universities) enrolment is an outcome of higher education projects.

To do the analysis the data on enrolment, student to teacher ratio and government expenditure on education has been obtained from economic survey and data on foreign aid in different education sectors is taken from Pakistan Donor Profiles 2014, UN Publication. Data on foreign aid is given by project in the report by different donor agencies, therefore we add them together for each year to make it time series data.

Three different equation which we estimated are;

$$\text{Primary enrolment} = \alpha + \beta_1 \text{PAid} + \beta_2 \text{GEE} + \beta_3 \text{GEE} + \mu_t \quad \dots \quad (1)$$

$$\text{Primary enrolment} = \alpha + \beta_1 \text{SAid} + \beta_2 \text{GEE} + \beta_3 \text{SSTR} + \mu_t \quad \dots \quad (2)$$

$$\text{Higher enrolment} = \alpha + \beta_1 \text{HAid} + \beta_2 \text{GEE} + \beta_3 \text{HSTR} + \mu_t \quad \dots \quad (3)$$

PAid – Foreign Aid in Primary

SAid – Foreign Aid in Secondary

HAid – Foreign Aid in Higher

GEE – Government Expenditures in Education Sector

PSTR – Student Teach Ratio in Primary Schools

SSTR – Student Teach Ratio in Secondary Schools

HSTR – Student Teach Ratio in Higher Schools

We have also included non-linear term of aid in each equation to capture the impact of non-linearity in it. Due to data limitation and limited scope of the study we estimate the Equations (1) (2) and (3) by ordinary least square method. The results of estimation are given in next section.

4. ESTIMATION AND RESULTS

Along with several data limitations we are able to gather data and managed to estimate parameters using OLS method of estimation. One of the problem which we face is detecting autocorrelation issues using Durbin Watson statistic which is not applicable if our sample size is lesser than 10 and parameters are 5 or more. However, this issues is resolved by estimating Lagrange Multiplier test.

Primary Enrolment

Estimation results show that aid in primary education is insignificant if we run a linear regression (1) by ordinary least square method. However then we add square term of aid in primary education, which is reported in Table 1 the results are robust and came out to be significant from our previous estimation. It shows that if we increase aid in primary education then it increases the primary enrolment at decreasing rate. This implies that primary aid in education sector to increase primary enrolment is not enough. This could be one of the reasons that MDG target of primary completion rate is not achieved. Government expenditures in education sector is also significantly effecting the primary

enrolment. Nonetheless, the impact of government expenditures is very small due to higher share of current expenditures in total government expenditures on education. Student teacher ratio which is taken as a proxy variable for the quality of education which effect enrolment significantly in a positive way. However the use of this variables has several irregularities when our dependent variable is primary enrolment.

The results of the Lagrange Multiplier test shows that both the lagged residuals are insignificant thus there is no serious problem of autocorrelation.

Secondary Enrolment

Similar to the results of primary enrolment estimation results aid in secondary education is insignificant if we run a linear regression (2) by ordinary least square method. Contrary to the results of primary enrolment, by adding square term of secondary education aid does not change the significance of result, reported in Table 1. Nonetheless, these results show that if we increase aid in secondary education then it increases the secondary enrolment at decreasing rate. Overall the results imply that either aid agencies do not focus on the enrolment in secondary education or it is so less that the effects coming out of it are not significant. Coefficient of government education expenditures is lesser in secondary enrolment than primary enrolment. This implies that although it effects significantly to the secondary enrolment but government is not focusing much on the enrolment in secondary education due to which secondary enrolment is very low, although increase in private and public secondary schools are more than primary and higher.³ This is also evident due to decline in student teacher ratio at the secondary level, which is taken as a proxy variable for the quality of education that effects enrolment significantly in a positive way.

The results of the Lagrange Multiplier test shows that both the lagged residuals are insignificant thus there is no serious problem of autocorrelation.

Higher Enrolment

Similar to previous two results aid in higher education is insignificant in explaining enrolment in higher education if we run a linear regression. However, by adding square term of aid in higher education give opposite results that if we increase aid in higher education then it decreases the higher education enrolment. Nonetheless, the square term is positive which implies that eventually enrolment will increase. Though, the coefficients are statistically insignificant. Albeit these results have two important implications; (i) since most of the aid in higher education does not come for higher education enrolment rather it gives scholarships to students for higher education, therefore higher

³<http://data.org.pk/index.php?r=postdetail%2Fpostview&id=347>

Table 1

Results of Estimation

| Dependent Variable: Primary Enrollment | | | | Dependent Variable: Secondary Enrollment | | | | Dependent Variable: Higher Enrollment | | | |
|--|-------------|-------------|--------|--|-------------|-------------|--------|---------------------------------------|-------------|-------------|--------|
| Variable | Coefficient | t-Statistic | Prob. | Variable | Coefficient | t-Statistic | Prob. | Variable | Coefficient | t-Statistic | Prob. |
| C | -796.96 | -1.09 | 0.3573 | C | 1040.70 | 0.27 | 0.8069 | C | 271707.70 | 1.59 | 0.1726 |
| PAID | 4.32 | 7.65 | 0.0046 | SAID | 2.42 | 0.23 | 0.8321 | HAID | -5791.04 | -1.01 | 0.3590 |
| PAID^2 | -0.01 | -6.57 | 0.0072 | SAID^2 | -0.02 | -0.40 | 0.7167 | HAID^2 | 67.71 | 0.95 | 0.3851 |
| EDU | 0.01 | 13.77 | 0.0008 | EDU | 0.01 | 3.30 | 0.0457 | EDU | 3.31 | 6.58 | 0.0012 |
| PSTR | 402.34 | 18.92 | 0.0003 | SSTR | 125.45 | 0.51 | 0.6458 | HSTR | 1584.08 | 0.32 | 0.7622 |
| R^2 | | 0.998 | | R^2 | | 0.89 | | R^2 | | 0.94 | |
| <i>Adjusted R²</i> | | 0.996 | | <i>Adjusted R²</i> | | 0.75 | | <i>Adjusted R²</i> | | 0.90 | |
| F-statistic | | 410.10 | | F-statistic | | 6.28 | | F-statistic | | 20.63 | |
| DW | | 3.04 | | DW | | 1.69 | | DW | | 1.60 | |

education aid contributes insignificantly to the higher education enrolment and (ii) the enrolment will increase when we have better teachers/trainers, better education institutes and better research which will achieve in the long run. Impact of government expenditures is larger compared to primary and secondary enrolment that implies that for the last one and a half decade government is focusing on higher enrolment. Student teacher ratio which is taken as a proxy variable for the quality of education which effect enrolment significantly in a positive way.

Aforementioned results are coherent to Michaelowa and Weber (2007). Though Ibid concludes positive impact of aid but appears to be far below the target of EFA⁴ and MDG objectives.

Table 2

Lagrange Multiplier Test

| Variable | Primary Enrolment | | | Variable | Secondary Enrolment | | |
|-------------------|-------------------|-------------|--------|-------------------|---------------------|-------------|--------|
| | Coefficient | t-Statistic | Prob. | | Coefficient | t-Statistic | Prob. |
| C | -58.26 | -0.18 | 0.8887 | C | 531.96 | 0.08 | 0.9487 |
| PAID | 0.61 | 1.93 | 0.3047 | SAID | -0.004 | -0.0002 | 0.9999 |
| PAID ² | -0.001 | -1.60 | 0.3551 | SAID ² | -0.002 | -0.02 | 0.985 |
| EDU | 0.0003 | 0.65 | 0.6339 | EDU | 0.001 | 0.17 | 0.8904 |
| PSTR | -0.73 | -0.08 | 0.9518 | SSTR | -38.09 | -0.09 | 0.9418 |
| RESID(-1) | -1.71 | -3.72 | 0.1672 | RESID(-1) | -0.15 | -0.12 | 0.9267 |
| RESID(-2) | -1.64 | -2.37 | 0.2541 | RESID(-2) | -0.59 | -0.37 | 0.7724 |

5. SUMMARY AND CONCLUSIONS

The study is an attempt to reveal a link between foreign aid and educational projects in the last one and a half decade. Our study used nonlinear model by adding square term of foreign aid to capture the nonlinear association with the primary enrolment, secondary enrolment and higher enrolment, separately. Nevertheless the linear model is also estimated and in the all the three model the results are same that foreign aid is statistically ineffective to increase enrolment. However, by adding square term of foreign aid along with level term of foreign aid it shows strong and statistically significant association with the primary enrolment but not with secondary enrolment and higher education enrolment. Thus we can conclude the foreign aid could be effective in increasing primary enrolment but not secondary or higher enrolment.

Based on the finding of the study we may conclude that primary aid in education sector is not significant enough to increase primary enrolment; secondary aid is too low to impact secondary enrolment; objective of higher education aid is not to increase enrolment, nonetheless, the enrolment will increase in the long run when we have better universities, qualified teachers with

⁴ Education for All.

quality teaching environment and better research opportunities. Impact of government expenditures is higher in higher education enrolment than primary and then secondary.

Future Research

We would recommend that in future whoever wants to work on the same issue he/she can add cross terms in it or use lagged values of foreign aid. We could not do the two exercises because of severe data constraints. Moreover a bigger project can be done to evaluate different projects funded by the foreign agencies. However this will increase the cost and time significantly. We used student – teacher ratio a proxy to quality of education, the use of this variables has several irregularities when our dependent variable is primary enrolment. Therefore it would be good if one can think of other variables as well.

Limitations of the Study

Time series was too short to do comprehensive analysis. It needs more time to collect the data from different sources. Due to data limitation we are unable to do several analysis which are included in the future research.

REFERENCES

- Anwar, M. and S. Aman (2010) Aid Effectiveness in the Education Sector of Pakistan. *Pakistan Journal of Social Sciences* 30:2 (December 2010), 355–371.
- Anwar, M., and K. Michaelow (2006) The Political Economy of US Aid to Pakistan. *Review of Development Economics* 10:2, 195–209.
- Asiedu, E. (2014) Does Foreign Aid in Education Promote Economic Growth? Evidence from Sub-Saharan Africa. *Journal of African Development* 16:1, 37–59.
- Asiedu, E. and B. Nandwa (2007) On the Impact of Foreign Aid in Education on Growth: How Relevant is the Heterogeneity of Aid Flows and the Heterogeneity of Aid Recipients? *Review of World Economics* 143:4, 631–49.
- Aslam, N. (1987) The Impact of Foreign Capital Inflow on Savings and Investment: The Case of Pakistan. *The Pakistan Development Review* 26:4, 787–789.
- Baldacci, E., B. Clements, S. Gupta and Q. Cui (2008) Aid, Social Spending, Human Capital and Growth in Developing Countries. *World Development* 36:8, 1317–1341.
- Benavot, A. D., S. Archer, K. Moseley, F. Mundy, L. Steer Phiri, and D. Wiking (2010) International Aid to Education. *Comparative Education Review* 54:1, 10.5–24.

- Booth, D. (2011) Aid, Institutions and Governance: What Have We Learned? *Development Policy Review* 29:s1, s5–s26.
- Burnside, C. and D. Dollar (2000) Aid, Policies, and Growth: Revisiting the Evidence. World Bank, Washington D.C. (Policy Research Working Paper 3251).
- Burnside, Craig and Dollar David (2000) Aid, Policies, and Growth. *American Economic Review* 90:4, 847–68.
- Clemens, M. A., S. Radelet, R. R. Bhavnani and S. Bazzi (2012) Counting Chickens when they Hatch: Timing and the Effects of Aid on Growth. *The Economic Journal* 122:561, 590–617.
- Clemens, Michael A., Steven Radelet, and Rikhil Bhavnani (2004) Counting Chickens When They Hatch: The Short-Term Effect Of Aid On Growth. International Finance 0407010, EconWPA.
- Dreher, A., P. Nunnenkamp, and R. Thiele (2006) Does Aid for Education Educate Children? Evidence from Panel Data. *World Bank Economic Review* 22:2, 291–314.
- EFA Global Monitoring Report (2005) *Education for All 2000-2015: Achievements and Challenges*. UNESCO Publishing.
- Fielding, D., M. McGillivray, and S. Torres (2006) A Wider Approach to Aid Effectiveness Correlated Impacts on Health, Wealth, Fertility and Education. UNU WIDER Publication. (Research Paper No. 2006/23).
- Heyneman, S. P. (2005) Foreign Aid to Education: Recent U.S. Initiatives—Background, Risks, and Prospects. *Peabody Journal of Education* 80:1, 107–119.
- Kwabena, G. B. and E. Asiedu (2008) Aid and Human Capital Formation: Some Evidence. Paper presented at the African Development Bank/ UN Economic Commission for Africa. Conference on Globalisation, Institutions and Economic Development in Africa: November 2008.
- Mallick, H. (2004) US Foreign Aid and Economic Growth: A Post 9/11 Study of Pakistan as a Key Ally in the War against Terrorism. Published in the proceedings to the Pennsylvania Economic Association Conference.
- Michaelowa, K. and A. Weber (2007) Aid Effectiveness in Primary, Secondary and Tertiary Education. Background paper prepared for the Education for all Global Monitoring Report 2008.
- Qayyum, U. and A. Haider (2012) Foreign Aid, External Debt and Economic Growth Nexus in Low-Income Countries: The Role of Institutional Quality. *The Pakistan Development Review* 51:4, 97–116.
- Riddel, A. (2012) The Effectiveness of Foreign Aid to Education. UNU-Wider Publication. (Working Paper No. 2012/75).
- Williamson, C. (2008) Foreign Aid and Human Development: The Impact of Foreign Aid to the Health Sector. *Southern Economic Journal* 75:1, 188–207.