



The Impact of Public Spending on Poverty through the Channel of Social Infrastructure: An Empirical Analysis of Asian Economies

Muhammad Akbar*

Sabahat Subhan†

Haidar Farooqe‡

Abstract *This study empirically investigated the mediating role that education plays to channelize Public Spending towards Poverty alleviation in Asian economies. To capture the direct and indirect link between the main explained variable poverty and explanatory variable Public Spending, a relatively new methodology known as Moderated Mediation, has been adopted. For empirical analysis, Seemingly Unrelated Regression technique (SUR) was employed. Results revealed an inverse and significant relationship between Public Spending and Poverty in direct as well as indirect way. The direct impact of public spending on Poverty alleviation programs expressed a strong impact on poverty reduction. The indirect impact that public spending has on poverty through education found inverse and highly significant. The high rate of population growth, unemployment and high inflation cause poverty in sampled Asian economies. Suitable policies need to be adopted in order to cope with poverty in the aforementioned economies.*

Key Words: Public Spending, Social Infrastructure, Poverty, Moderated Mediation Model, Asian Countries.

JEL Classification:

Introduction

Poverty alleviation is one of the central aims of economic policy since the beginning, and that is why poverty eradication as an economic objective made it to the top priority in the list of Millennium Development Goals (MDGs). The Millennium declaration got adopted Sep, 8, 2000 by the UN consisted upon the joint report of OECD, IMF and the UN known as the set of “International Development Goals, the (IDGs)” (UN Millennium Declaration, 2000). Most of these International Development Goals (IDGs) later on became the Millennium Development Goals (MDGs), (OECD & IMF publications, 2000). The list of MDGs comprised of eight goals extracted from the Millennium Declaration. These goals are as follows; (i) eradication of extreme level of poverty and hunger, (ii) obtaining universal primary education, (iii) improving gender equality through women empowerment by providing equal opportunities to women, (iv) reducing infant mortality,

*PhD Scholar, Department of Economics, National University of Modern Languages, Islamabad, Pakistan. Email: akbar_eco@yahoo.com

†Assistant Professor, Department of Economics, National University of Modern Languages, Islamabad, Pakistan.

‡Lecturer, Department of Economics, National University of Modern Languages, Islamabad, Pakistan.

(v) improving maternal health, (vi) combating fatal diseases like HIV/AIDS, Malaria etc., (vii) to ensure environmental sustainability, (viii) establishing and developing a global partnership for sustainable development (UN Millennium Declaration, 2000).

Eradicating extreme poverty was the primary goal of MDGs, and it was targeted that extreme poverty would be cut down to half of the existing numbers by 2015. By extreme poverty was that people earning \$1.25 a day and the extreme poverty rate was 47% (1.9 billion) in 1990. As a result of different policies adopted by the international community, this objective has been achieved by the year 2010 so far, and extreme poverty was brought down to 22% while this ration further declined to 14% in 2015 (UNO, MDGs report 2015). In 1991 18% of people were earning \$4 a day, and this number has risen three times by 2015. This segment now comprises at least half of the total working force. According to the UNO report on MDGs (2015), developing countries share this segment of work-force around the globe.

Although, the progress made in alleviating extreme poverty has been tremendous so far. Having said that, there are numerous people still facing severe poverty globally and achieving the target of an ending to an extreme level of poverty looks extremely difficult by the year 2030 because the world growth forecasts have been so low (WB 2015).

Achieving a high level of social welfare in the economy is one of the major objectives and targets of any government. But how this social welfare could be achieved is the main problem where there is no or very low poverty in the economy. This objective could be achieved in different ways, and one of them is by spending on public goods and especially those goods and services which are more valuable to the general public. Public sector spends on those public goods and services where the private sector is found underproductive. These public goods may be in the form of social and physical infrastructure. Social infrastructure comprises of education and health while physical infrastructure consists upon roads and highways, energy and irrigation etc. so, when public sector spends on social and physical infrastructure, it creates some long-run positive externalities in the form of educated, skilled and health labor force on one hand side and job creation on other hand side and as a result, the objective of poverty alleviation and long-run economic growth could be achieved.

The rationale for public spending on social infrastructure is when the public sector spends on education; it leads to produce more productive labor which is need of the day for efficient production and rapid economic growth. Educated, skilled and trained labor could be more attractive for producers and more chances of getting a job and therefore fewer chances of being poor.

This research paper is an attempt exploring the nexus of public spending and poverty in the presence of high-level social infrastructure, i.e., education in 20 Asian economies. Our main objective is to empirically examine the indirect impact of public spending on poverty. These Asian economies do not allocate required resources towards education, health and other social services, and the reason is lack of enough resources as well as lesser attention towards such important activities.

In this respect, Asian economies have achieved tremendous progress in their socioeconomic matters in the recent years, but still, there is need to accomplish the goal of rendering poverty as this region contains world's almost 50% poorest population. The Asian continent is the largest one among all in terms of area as well as it has 60% of world's population. This region has most of the natural and human resources but still, Asian economies are mostly developing ones, and According to World Bank's report

(2018), out of world's total 783 million extremely poor who live below the poverty line of US\$1.9 a day, about 33% live only in South Asian region, and about 9% live in East Asian region and the Pacific. So, in this context, the current study is of significance focusing on these Asian economies with respect to public expenditure on social infrastructure, i.e., education and health, and further its role in poverty reduction. Panel Data were obtained for these economies. As a limitation of the study, those countries are excluded from the analysis where there is the unavailability of data or many missing observations for the rest of the Asian countries.

Review of Literature

Various studies are there where government role in poverty alleviation and long-run sustainable growth of economies have been addressed. The main tool to tackle poverty is the public policy in the modern world because it is the policy that can be implemented by the government. In this regard, public expenditures are used as a policy for poverty reduction in different ways. These ways might be through investing in social and physical infrastructure, i.e., allocating public funds to education sector, health sector, roads and highways and power generation ([Aschauer 1989](#); [Barro 1990](#); Tazi & Zee 1997).

Public spending can affect poverty directly as well as indirectly. In a direct way, the government spends on different poverty alleviation programs and employment creating projects, while in an indirect way, this effect of public spending on poverty might be seen when public investments are made in social and physical infrastructure. Social infrastructure comprised of education and health and physical infrastructure consists upon roads, highways, dams and also to allocate funds for power generation to make possible the smooth energy supply leading to greater employment opportunities and higher labor productivity, [Fan et. al. \(2000\)](#).

Improvement in social infrastructure, i.e., educational and healthcare outcomes, is a key element towards enhancing production capabilities as well as individual freedom. Its role is instrumental towards higher incomes. The main asset that a poor have is labor and enhancing and preserving this asset can only be done through education and health, and that is why public investment in social infrastructure, i.e., education and health is crucial especially when it is concerned to the poor. Reports of The World Development (1990 & 2000-01), conclude that the strategy of poverty reduction in developing countries should be investing in basic education and health, [Lanjouw et. al., \(2002\)](#).

According to a report of Asian Development Bank (ADB, 2003), in developing countries, federal governments finance about 70% of the total investment made in social and physical infrastructure from their own resources or from borrowings and only 3% is from aid while rest of the investment is from the private sector, Department for International Development (DFID, 2002-03). These investments are made in transport sectors, covering roads, highways and motorways, seaports and shipping yards, airports and railways (ADB 2001). The main focus has always been about public investments in the major three types of physical infrastructure, i.e., roads, irrigation, and electricity or power generation. Governments face severe budgetary constraints in many developing countries. Therefore, as a matter of fact, it is of great significance while assessing what contributions are made by physical infrastructure investments to the goal of poverty reduction, [Ali and Pernia. \(2003\)](#).

[Gupta et al. \(2002\)](#), conducted a study where they explored the link between public spending and poverty through social infrastructure (education & primary health care). They concluded that increasing public spending on social infrastructure affected secondary school enrollment rate positively, which is an indication of education attainment. Similarly, a rise in public expenditure on healthcare led to a decline in infant and child mortality rates. Both these are indicators of a decline in poverty.

[Rasmus et al. \(2001\)](#) explained the link between public expenditure and poverty in an indirect way for Mozambique. Secondary data were used for analysis, and non-behavioral benefit-incidence methodology was applied. On the basis of empirical analysis, they concluded that increasing public expenditure on social infrastructure (education & health) had an inverse impact on poverty for the Mozambican population.

Summarizing the role that public spending plays in poverty reduction, this study mainly focuses on the direct and indirect impact of government spending on poverty through social infrastructure (education & healthcare). But the emphasis of this study is on education for empirical analysis.

Data and Econometric Methodology

Variables' Description

To estimate the relationship between public spending (PS) and poverty (POV) through the channel of education (EDU) empirically, we have carried out panel data analysis for 20 Asian economies. The time span for our analysis is 1976-2018, where, the main dependent variable is poverty (POV). Poverty is the main dependent variable, and we have used Infant Mortality rate (IMR) as a proxy for it due to data unavailability or very limited observations for other variables of representing poverty, i.e., GINI coefficient or poverty headcount ratio etc. Many researchers like, ([Ordóñez, 2012](#); [Messner et. al. 2010](#); [Reidpath & Allotey, 2003 etc.](#)) have focused on multi-dimensional poverty in the last decades and the Infant mortality rate is one of the most important variables representing multi-dimensional poverty that's why we have considered it and used it in our study. Our main explanatory variables incorporated in the analysis are public spending (PS) or government final consumption expenditures taken as percent of the GDP and public expenditure on education as (EDU) as percent of the GDP too. Public spending consists of developmental spending like health, education, infrastructure and energy, as well as non-developmental spending like security and law and order maintenance etc. While of the government spending on education represents the status of educational infrastructure and other facilities in cross-section in the panel, i.e., each country or economy. Education (EDU) has been used as the mediating variable, where it is obvious from our schematic model where public spending affects education in the first phase, and then education affects poverty in the second phase, therefore, education bridges the link between public spending and poverty. We have also incorporated some control variables in the analysis like population growth rate in each economy which directly affects poverty as we would be discussing in results part, the unemployment rate in each economy and its direct relation to poverty cannot be undermined and last but not the least, inflation as GDP deflator which is more authentic and reliable when we talk about general price level hike. We obtained secondary data on poverty (POV), public spending (PS), education (EDU), population growth, unemployment and inflation from World Development Indicators (WDI, World Bank), and all variables have been transformed to log form to make comparison easy.

Moderated Mediation Analysis

This section shows schematic model explaining the direct and indirect link between Public spending and poverty through mediator, i.e., education, and to examine this relation, a method which is relatively new suggested and used by (Muller et al., 2005; Preacher et al., 2007 & Hayes, 2013) known as moderated mediation has been employed. The same methodology has also been employed by Latif et al., (2017) to estimate the mediating effect. This methodology identifies the intervening variables (in our case, it is education EDU) between the main dependent variable, i.e., Poverty and explanatory variable Public Spending (PS).

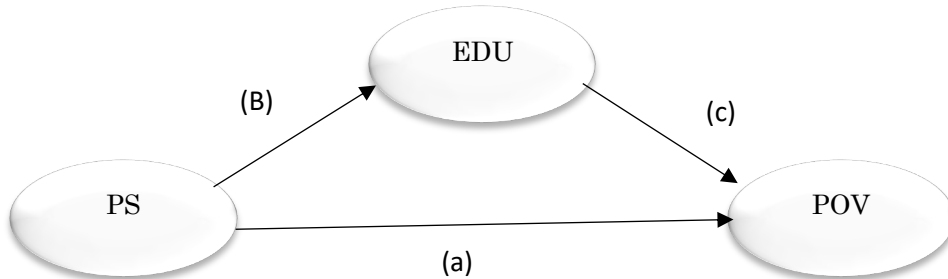


Figure 1: Schematic Model

Figure 1 shows the Causal Association among Public spending, Education and Poverty of "b" path and "c" path as "bc". Hayes & Preacher (2014) suggested that all these paths could be quantified and empirically estimated through regression analysis.

Here,

PS: Public spending in a country, the main explanatory variable

EDU: Education, the mediating variable

POV: Poverty, the main dependent variable

Schematic Model explains the direct as well as an indirect effect of the public (PS) on poverty (POV). In the model, path (a) represents the direct link of public spending (PS) and poverty (POV) while, path (b) + (c) represents the indirect effect of public spending (PS) on poverty (POV), where, in the first stage PS affects EDU shown by (b), and in the second stage EDU affects POV shown by (c).

Empirical Model and Estimation Methodology

The econometric methodology of this study elaborates econometric model, which is comprised of equations which have been estimated empirically and results obtained have been given and elaborated in section 4, named results and discussion. Latif et al., (2017) also used this method while estimating the mediating effect. An econometric model consisting of two simultaneous equation systems of the following form;

$$EDU_{it} = \alpha_1 + \alpha_2 PS_{it} + \alpha_3 'X + u_{1it} \text{-----} (1)$$

$$POV_{it} = \beta_1 + \beta_2 PS_{it} + \beta_3 EDU_{it} + \beta_4 (PS * EDU)_{it} + \beta_5 'Y + u_{2it} \text{-----} (2)$$

α_i in equation 1. and β_i in equation 2. are the coefficients in each equation in Model. 'X and 'Y are the vectors of control variables in each equation, (PS*EDU) is the interaction term to capture the composite effect, while u_1 and u_2 are residual terms in equations, respectively.

Direct Effect of PS on POV has been computed as follows: $\frac{\partial POV}{\partial PS} = \beta_2$ using equation (2)

Indirect Effect for the Mediating Variable is computed as follows:

$$\frac{\partial POV}{\partial PS} = \left(\frac{\partial POV}{\partial EDU} \times \frac{\partial EDU}{\partial PS} \right) \text{-----} \quad (3)$$

$$= \alpha_2(\beta_3 + \beta_4PS), \text{ using equations (1) and (2)} \quad (4)$$

From equations (1 and 2) equation (4) can be calculated where the partial indirect effect of public spending (PS) on poverty (POV) could be seen. It is obvious from the right-hand side of the equation (3) that, at the first stage, PS is affecting EDU and then EDU is affecting POV. While calculating Equation (3), equation (1) is partially differentiated with respect to PS and getting (α_2). Secondly, equation (2) is differentiated for EDU and getting ($\beta_3 + \beta_4PS$). Finally, to get equation (4), α_2 and ($\beta_3 + \beta_4PS$) are multiplied showing the indirect effect of PS on POV, i.e., $\alpha_2(\beta_3 + \beta_4PS)$. Sign of coefficients of the indirect effect depends on signs and magnitudes of $\alpha_2, \beta_3,$ and β_4 . Similarly; to check the significance of the indirect effect, we have calculated their confidence intervals (CI) and presented in section 4 of the paper.

Estimation Technique

For panel data analysis most frequently, used procedures are one-way random effect model (RE) and the fixed effect model (FE). These models assume that differences among cross-sections (countries) could be captured through the intercept term, and each country (cross-section) has its intercept term. RE models consider this specific intercept term as random while FE models consider it as fixed. However, for unbalanced panel-data analysis, to estimate a system of equations, econometric methods are relatively different and new. A procedure to estimate a one-way, Seemingly Unrelated Regression (SUR) system with random effects (RE) was developed by Biorn (2004). Monte Carlo simulations proved that SUR techniques are accurate and superior to standard single equation estimators (FE & RE). This study has also used SUR method for empirical analysis of unbalanced panel data, for channelizing the relation between public spending (PS) and poverty (POV) through education (EDU). While estimating regression, this study has followed general to a specific procedure where insignificant variables were dropped one by one, and the model was re-estimated.

Estimation Results and Discussions

We have presented our empirical analysis in this section consisting of two tables. Table 4.1 explains results of our econometric model that further comprised of direct and indirect effects of public spending on poverty channelized through social infrastructure, i.e., education. Table 4.2 also represents the indirect effects of public spending on poverty through the channel of social infrastructure, i.e., education, but here we estimate the composite effect.

Table 1, expresses our general model comprising results of direct as well as the indirect link between public spending and poverty. General or parsimonious model is one where we have incorporated all control variables in the regression along with the main dependent, mediating and explanatory ones.

This model elaborates the impact of public spending, education as well as their composite effect on poverty. Here we have also incorporated some control variables population growth, unemployment and inflation to capture their effect on poverty.

Empirical results reveal a positive and highly significant relationship between public spending and poverty and when there is a rise in public spending by 1 percentage point in GDP, it raises public spending on education by 0.306 percentage point. It further suggests that in the indirect effect, with an increase in public spending in an economy by 1 percentage point, first, it affects educational spending by 0.306 percentage point and then further affects poverty by -0.879 percentage point.

Table 1. Impact of Public Expenditure on Poverty through the Channel of Social infrastructure, i.e., Education

Variables	Model	
	Education (EDU)	Poverty (POV)
Public Spending (PS)	0.306*** (0.000)	-0.879*** (0.000)
Public Spending on Education (PSEDU)		-1.045*** (0.003)
PS*PSEDU		0.773***(0.000)
Population		2.501***(0.000)
Unemployment		2.956***(0.000)
Inflation		0.194***(0.000)
No. of Observations	212	212
No. of Countries	20	20

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Results show a positive link between public spending and education spending as the sign of coefficients is positive, while a negative or inverse relationship between educational spending and poverty could be seen by a negative sign. Both these links are highly significant, i.e., at 1% level of significance as could be seen through p-value, which is (0.000).

Similarly, results further reveal that the direct effect of public spending (PS) on poverty is also inverse and highly significant and as a result of a 1 percentage point increase in public spending on poverty alleviation programs, poverty declines by – (1.045) percentage points. This result suggests that for poverty alleviation in the economy, public spending could be diverted towards different programs leading to reduce poverty and breaking this vicious circle.

Now to check the composite effect of public expenditure on poverty through the channel of education, we have incorporated the interaction term in our empirical analysis and results have been presented in Table 1 By composite impact we mean that to what extent an increase in public spending leads to reduce poverty, and beyond that certain point, if there is any further increase in public spending on poverty alleviation programs, there would not be an impact on poverty in the form of decline. Our empirical results show that this composite impact is positive which means that in the sampled economies, there is no tendency for poverty to increase as a result of an increase in educational spending by the public sector leading to poverty reduction. Result suggests that when there is a 1% raise in educational spending by the public sector, it reduces poverty by 0.773 percentage points and this impact never gets negative by which we mean that beyond this level of public spending on education leads to raising poverty. By this, we mean that as public spending increases on education, it will lead to a decline in

poverty and that saturation point has not been reached where the impact becomes negative.

Control variables that we have incorporated in our analysis and their results presented in table show some positive and highly significant impact on poverty like population, unemployment and inflation. We can see from the table that if there is an increase in the population by 1 percentage point, it will lead to increase poverty by 2.510 percentage points. Similarly, when unemployment in the sampled economies increases by 1 percentage point, it will increase poverty by 2.956 percentage points. In the same way, when inflation rises by 1 percentage point in these economies, it will raise poverty by 0.194 percentage points.

Now we further extend our discussion about the indirect relation between public and poverty channelized through social infrastructure, i.e., education. In order to empirically examine this indirect link between public spending and poverty, we have taken three categories or levels of public spending, i.e., low level of public spending (25th percentile), the mean level of public spending (50th percentile) and high level of public spending (75th percentile).

Table 2. Indirect Impact of Public Spending on Poverty through the Channel of Social Infrastructure (Education)

Channel	Levels of FDI	Indirect Impact	Confidence Interval (95%)	
Social Infrastructure (Education)	Lower level of Public Spending (25 th percentile)	-0.0134*** (0.000)	-0.008	0.0187
	Average level of Public Spending (50 th percentile)	-0.0121*** (0.000)	-0.007	0.0170
	High level of Public Spending (75 th percentile)	-0.0106*** (0.000)	-0.006	0.0148

*Along with coefficients, P-values have been presented. ***, ** and * show 1%, 5% and 10% levels respectively. The lower level is 25th; median level is 50th while high level represents 75th percentile of Public Spending.*

We have empirically examined that as public spending on social infrastructure (education) rises from low level like 25th percentile to 50th and then to high level, i.e., 75th percentile, whether its impact poverty is still negative and declining or it's the other way around.

From table 4.4, it is obvious that the indirect effects of public spending on poverty through the channel of social infrastructure (education) at all three levels of public spending are negative and highly significant. Looking at a lower level, i.e., 25th percentile of public spending, its effect on poverty -0.0134, at the median level of public expenditure, i.e., 50th percentile, this effect is -0.0121 while at a high level of public expenditure, i.e., 75th percentile, this effect is -0.0106. These indirect effects at all three levels of public spending are negative and highly significant, suggesting that at every level of public spending, its effect on poverty is negative regardless of the magnitude. These results further suggest that as the amount of public spending rises it reduces poverty to a certain point. After reaching that peak point of public spending, this effect starts declining to the point where public spending does not have any effect on poverty reduction anymore, and after this saturation point, any further rise in public spending

starts affecting poverty level in a positive way and leads to increase poverty as it is clear from the composite effect, i.e., is positive and significant. It means that as public spending on education rises, beyond a certain level it would not cause a decline in poverty but rather a rise in poverty because this channel has reached to its saturation point and a further rise in funds allocation are just wastage and objective of poverty reduction could not be achieved through this channel.

Conclusions and Policy Implications

In order to address the main problem of poverty reduction, this study has been carried out with the basic objective to empirically explore the direct and indirect impact of government spending on poverty reduction in 20 sampled Asian economies. To achieve this goal and investigate the indirect impact that public spending has on poverty, social infrastructure, i.e. education has been used as the mediating variable. Moderated mediation methodology has been employed for empirical analysis. Obtained results reveal that public spending has an inverse impact on poverty directly as well as indirectly. It is concluded on the basis of obtained results that education is pre-condition to get the high impact of public spending on poverty and attain the desired lowest possible level of poverty. In other words, as the public sector spends more money on education, there are greater chances of poverty reduction in the country. Better performing education sector is also helpful in producing more educated and trained labors for production in the economy and get highly paid jobs in future. It is also concluded that public spending leads to the more effective role of social infrastructure and further investment in the education sector by the public sector enhances low poverty in the economy. We further concluded that the availability of qualified and skilled labors as human capital is also needed to get maximum benefits from public spending, and these resources could be more efficiently allocated towards poverty reduction and alleviation. As policy implication based on the conclusions, sampled nations as well as generally, countries should be more focused on social infrastructure, allocating more resources towards education as well as other direct programs targeting poverty to a certain low level. In the same way the public sector in the sampled economies should also focus on population control to make it possible that the population is growing at a targeted rate. Further controlling the high rate of unemployment by investing in different job-creating fields as well having some target for general price level so by adopting such policies and implementing them in their true spirit, the vicious circle of poverty could be broken and prosperity could be achieved.

References

- Ali, I., & Pernia, E. M. (2003). Infrastructure and poverty reduction. *What is the Connection?*
- Aref, A. (2011). Perceived impact of education on poverty reduction in rural areas of Iran. *Life Science Journal*, 8(2), 498-501.
- Aschauer, D. A. (1989). Is public expenditure productive? *Journal of monetary economics*, 23(2), 177-200.
- Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of political economy*, 98(5, Part 2), S103-S125.
- Biørn, E. (2004). Regression systems for unbalanced panel data: a stepwise maximum likelihood procedure. *Journal of Econometrics*, 122(2), 281-291.
- Fan, S., Hazell, P., & Thorat, S. K. (2000). Impact of public expenditure on poverty in rural India. *Economic and Political Weekly*, 3581-3588.
- Gupta, S., Verhoeven, M., & Tiongson, E. R. (2002). The effectiveness of government spending on education and health care in developing and transition economies. *European Journal of Political Economy*, 18(4), 717-737.
- Hayes, A. F. (2013). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach: *Guilford Press*.
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67(3), 451-470.
https://www.un.org/development/desa/dpad/wpcontent/uploads/sites/45/publication/WESP2018_Full_Web-1.pdf
- Lanjouw, P., Pradhan, M., Saadah, F., Sayed, H., & Sparrow, R. (2001). Poverty, education, and health in Indonesia: who benefits from public spending? *The World Bank*.
- Latif, K., Bhatti, A. A., & Rahman, A. (2017). Earnings Quality: A Missing Link between Corporate Governance and Firm Value. *Business & Economic Review*, 9(2), 255-280.
- Messner, S. F., Raffalovich, L. E., & Sutton, G. M. (2010). Poverty, infant mortality, and homicide rates in cross-national perspective: Assessments of criterion and construct validity. *Criminology*, 48(2), 509-537.
- Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of personality and social psychology*, 89(6), 852.
- Ordóñez, P. (2012). Financial Development and Poverty, a Panel Data Analysis. *Universidad Icesi School of Management and Economics Research Paper*, (31).
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate behavioral research*, 42(1), 185-227.
- Rasmus, H., Kenneth, S., & Finn, T. (2001). Public Spending and Poverty in Mozambique. *UNU/WIDER Project on New Fiscal Policies for Growth and Poverty Reduction*, 14.
- Reidpath, D. D., & Allotey, P. (2003). Infant mortality rate as an indicator of population health. *Journal of Epidemiology & Community Health*, 57(5), 344-346.
- Tanzi, V., & Zee, H. H. (1997). Fiscal policy and long-run growth. *Staff Papers*, 44(2), 179-209.

- United Nations reports on Millennium Development Goals (MDGs): 1990, 2013, 2015
- World Bank (1990, 1993, 1994, 1997) World Development Report, *Oxford University Press for the World Bank*.
- World Bank (2000, 2001, 2015, 2016) World Development Report, *Oxford University Press for the World Bank*.
- World Bank, 1990. World Development Report 1990: Poverty. *Oxford University Press*, New York.
- World Economic Situation Prospects 2018.
- World Health Organization. (2006). The world health report 2006: working together for health. *World Health Organization*.

Appendix

Table 1. Descriptive Statistics

Variable	N	mean	median	standard dev	minimum	maximum
govt spending	794	13.18079	11.88263	5.842829	4.030633	76.22212
govt exp on edu	281	1.349706	1.162905	.1526872	.7010263	1.453144
Poverty	840	1.349706	1.37383	.4424019	.2787536	2.18949
Population	810	0.219525	.2600547	.3859817	-2.027237	1.188953
Unemployment	540	0.591427	.5829717	.3157365	-.3098039	1.307047
Inflation	724	0.813388	.8500105	.4863702	-1.339468	3.173308

Table 2. Correlation Matrix

	Pspending	eduexp	Poverty	pop	unemployment	Inflation
Public spending	1.0000					
Govt exp on edu	0.0243	1.0000				
Poverty	-0.3496	-0.1975	1.0000			
Population	-0.0729	-0.0721	0.1204	1.0000		
Unemployment	-0.1167	-0.0782	0.1021	0.0458	1.0000	
Inflation	-0.1216	-0.1198	0.3351	0.0254	0.3421	1.0000

Asian Economies Taken for Research Analysis

Bahrain, Bangladesh, China, India, Indonesia, Japan, Jordan, South Korea, Kuwait Malaysia , Nepal, Iran, Pakistan, Philippines, Russia, Sri Lanka, Singapore, Thailand, Turkey, UAE