RESEARCHING SHADOW EDUCATION: METHODOLOGICAL CHALLENGES AND DIRECTIONS

ISMAIL SENTURK[1], AMNA SHAFIQ MINHAS[2]

ABSTRACT

This study tries to tell that shadow education has a great impact on economy of Pakistan. It helps the weaker students to overcome on the difficult subject in which they are poor. They need a lot of attention on that subjects. Some students take extra classes of that subject by their own will. But some students are forced by their parents or teachers. Government should increase their funds for the betterment of the economy. Government should pay attention on such tuition or academies for the bright future of the students. For this study we have also check the impact of total students in getting primary and secondary education from institutions of primary and secondary. The results of this study show that enrollment in educational institutions has deep effect and impact on number of educational institutions. Government should take steps to increase and improve the educational system of Pakistan.

Keywords: education, economy, government
JEL Code: P36, P48

[1] Department of Economics, Tokat Gaziosmanpaşa University, Turkey.
[2] Lahore School of Accountancy and Finance, University of Lahore, Pakistan.

I. INTRODUCTION

The basic challenge in education is to understand the importance of shadow education in Pakistan. Shadow education is expanding widely in the world. The data in this study has been collected from different sources. The extra classes of difficult subjects such as mathematics and science subjects in which student feel difficulty has been taken by the weaker students to improve that subject. Some students are pressurized to take extra classes by their parents. Some teachers also played a very important role in this case. In this study we have also checked that the impact of total students in primary education, secondary education and their corresponds institutions. The teachers are prescribed to complete the examination syllabus, and the homework of the students. Students also said that they are dependent on the academies or private tuitions to complete their homework. Many economists are much interested to give us ways so that we can improve the system of education in our country and how we can increase the shadow education in our country for the bright future of students. We have also check that does enrollment in educational institutions effect the institutions in accordance to their education. We have taken the data of Pakistan but shadow education has also been expanding in UK, US, Canada and some more countries. From 1990s many researchers are also working on it. Shadow education has also been affected by lack of government attention and politics. As it has a great effect on the economy of Pakistan. Government should take steps to increase the shadow education in Pakistan for the betterment of students so they can easily improve their subjects. Government should also raise some funds for private tuitions and academies.

II. LITERATURE REVIEW

Stevenson and Baker (1992) examines a shadow education is set of educational activities that occur out-side formal schooling and are designed to enhance the students formal school career. It points outs that high school seniors in Japan indicates the student from higher socioeconomic backgrounds are more likely to participate in shadow education. Analyses of data from a longitudinal study of high school seniors in Japan indicate that students from higher socioeconomic backgrounds are more likely to participate in shadow education and that students who participate in certain forms of shadow education are more likely to attend university. Expanding theories of allocation to incorporate shadow education may enhance the study of how students are allocated to places in formal schooling and how social advantages are transferred across generations.

Wolf (2002) concludes extra school instruction in mathematics and science. It is necessary to analyze the resulting data for the two population levels differently. ESI varies between populations 1 and 2. At population 1, students use to answer questions about ESI responding YES or NO. At population 2, it is possible to obtain percentages for each category of response by an average weighted by the percentage of students. It is intended to denote teaching and coaching activities in mathematics and science taking place outside of the regular school structure. It excludes extra help given to students by teachers under the auspices of the school.

Robitaille and Beaton (2002) examine the third international mathematics and science study is the most ambitious and arguably the most successful project ever under taken under the auspices of IEA. In the first round of TIMMS testing in 1995, the data was collected from over 500000 students of mathematics and science at five age grade levels from their teachers in more than 40 countries around the world. A study such as TIMSS costs a great deal of money to carry out and if the true value of that investment is to be realized much more studies of the kind reported in this collection is needed. The impacts that TIMSS has had in the participating countries.

Smith (2003) examines that homework and coaching is recognizing by parents and students in the Asia –Pacific region. It is as important complements to classroom learning and teaching. It points out that increasingly crowded curriculum which teachers find difficult to cover during school hours. Globalization is placed a premium on formal education qualifications. It should be noted, that the Handbook is not concerned with research methodology, and only considers the methods employed in inquiry in so far as the particular methods of research contribute to the effective investigation of problems and issues that have arisen in the conduct and provision of education at different levels within the region.

Silova *et al*., (2006) examines the objectives in the definition of private tutoring used distinguishes between private tutoring lessons (offered by individuals) and preparatory courses (offered by institutions). It focuses on both types of private tutoring. It points out to inform and stimulate discussion about private tutoring among policy makers, curriculum developers, teachers and researchers. There is a lack of sufficient variation in terms of MH and quality of life scores, in particular in non-clinical samples. There is no need for further research or reviews dealing with the

----

question of whether or not physical activity results in improved mood. There are, however, many questions that remain unanswered, and these questions will hopefully be addressed in the decade ahead.

Roesgaard (2006) examines the Japanese educational system is well known for its high demands on the students. It is also widely respected for the remarkable results it has achieved in the fields of mathematics and the natural sciences. The criticism of Japanese education has concentrated not only on the way one learns and on the contents of the teaching. Although juku have often been decried as enhancing competition in the Japanese system of schooling, this study also provides evidence that without them, the regular system of schooling would not be able to function. In the modern polarized society that is Japan, juku are taking on a variety of new functions that this study aims to uncover.

Nishio (2007) examines a rapidly growing educational phenomenon in the United States. This instruction is offered out of school time, focused on academic subjects, and provided mostly for a fee. Its primary goal is to help students prepare for college entrance examinations or address difficulties in academic subjects. The study examines if families with higher levels of educational aspirations or less academic satisfaction with their schools are more likely to use private supplementary instructions. It also points out the demonstrates that issues related to use and effects of private supplementary instruction require additional theories to account for social and cultural factors.

Watson (2008) examines a multi-university initiative developing (free) open source software which is also PKP and conducting research to improve the quality and reach of scholarly publishing. Open Conference Systems (OCS) is a free web publishing tool that will create a complete web presence for your scholarly conference. The use of private tutoring by school-aged children in Australia is increasing and the Australian government now provides vouchers for private tutoring to students who fall below national bench marks in literacy and numeracy. The quality and cost effectiveness of government funded private tutoring as an educational interventions is also discussed.

Smyth (2009) examines a number of countries, including Ireland experience a recent growth in the prevalence of shadow education that is paid private tuition outside the schooling system. This point out a major difference between those taking private tuition and other students. It explores the characteristics of students taking private tuition. Private tuition is disproportionately concentrated among students from middle class families, those with higher prior performance and those with greater engagement in the schooling process. When the selective nature of the group taking private tuition is accounted for, private tuition yields no advantages in terms of upper secondary examination performance.

Dang and Rogers (2009) examines a rapid economic growth during Vietnam's two decades. Its fertility rate has fallen sharply at the same time that its educational attainment has risen rapidly. We point outs the coincidence of these two trends could be explained by parents making a tradeoff. Policy measures affecting fertility should change the slope of the budget constraint in quantity-quality space, changing the optimal quality. Larger number of siblings predicts lower educational investment in Vietnam, in instrumented regressions. There should be better availability of family planning may increase investment in education, and also the Two-child policy may have led to more education in Vietnam.

Silova (2010) examines that private tutoring is increasingly visible in Easter Europe and central Asia. This unprecedented growth of private tutoring in it's varies forms and arrangements is remained and largely unnoticed by policy makers in the region. This is based on the data from the cross-national studies of private tutoring in 12 countries. It examines factors driving the demand for private tutoring and discusses government responses to private tutoring in Azerbaijan. This study analyzes various policy contexts and examines challenges that confront education stakeholders and policymakers as they formulate their responses to the rapidly-spreading and constantly-changing phenomenon of private tutoring.

Rao and Chan (2010) examined that researchers have accorded increasing attention to understanding Chinese students over the past two decades. This interest has been spurred by many factors including the consistently high performance of East Asian students in Cross National Studies of achievement. The large numbers of Chinese students studying overseas and more recently the marked expansion and influence of the Chinese economy. Organization for Economic Co-operation and Development [OECD], 2007, pioneering research that has sought to explain this superior performance. The large numbers of Chinese students studying overseas.

KWO and Bray (2011) examines the pressure faced by Hong Kong families have increased in competitive society. The so called shadow education system of supplementary tutoring has spread in influence and intensity. For both parents and their children, it is difficult to find the right balance. Some of the tutoring is conducted on a one-to-one basis, while other tutoring is in small groups, and the third variation, especially for senior secondary students about to sit the HKDSE examination, is in large classes. In the domain of shadow education, it may include large classes and even full lecture-theatres. The scale of the tutoring services in these Chinese societies are estimated to be close to other East Asian countries such as Japan, Korea, and Singapore.

Zhang (2013) examines multilevel factors that drive the demand for private supplementary tutoring among grade 9 students in Mainland China. Private supplementary tutoring in academic subjects has become a major phenomenon in China. It points outs macro-level factors such as educational policies, high stakes examinations and the traditions of a Confucian culture. At the institutional level, school type was the strongest predictor of participation. Students sampled in the key schools in the metropolitan area were about five times more likely to receive tutoring than those in the remote rural schools. At the household and individual levels, the students' socioeconomic status and academic aspirations had significant and positive effects on their likelihood of receiving tutoring.

Bray *et al.*, (2014) examines a growing number of students around the world receive private tutoring in academic subjects such tutoring is widely called shadow education because it mimics regular schooling as the school sector grows, so does the shadow , and as the curriculum in the shadow education. This study focuses on private tutoring in Hong Kong. It draws on data collected through questionnaires from students in Grades 9 and 12, and analyzes the factors which shape the demand for private tutoring. The paper highlights the influence of school, family and individual factors on students' demand, and reports on students' declared reasons for taking private tutoring. It commences with a broad comparative picture, and concludes by showing what the Hong Kong data add to wider conceptual understanding.

Dang (2014) examines an update review of the private tutoring phenomenon in Vietnam including the reasons, scale, intensity, form, cost and legality of these classes. It point outs that proper working on the purpose of building is done in earlier 2007 and 2008.Several (micro-) correlates are examined that are found to be strongly correlated with student attendance at tutoring, including household income, household head education and residence area, student current grade level, ethnicity, and household size. In particular, the analysis focuses on the last three variables, which have received little attention in the previous literature on the determinants of tutoring.

III. THE METHODOLOGY

The qualitative and quantitative analysis are one of the most important aspects. The involvement of total number of students in this case has a great impact on the total population of Pakistan, total number of institutions (primary and secondary) primary education and secondary education. Education is also increasing the human capital of country's population. Qualitative and quantitative work both are important in the case of shadow education. Shadow education has been expanding from the last decade from 1990s. These debates also will be enriched by a stronger base of Evidence which can be provided by researchers who pay close attention to methodological issues. Bray et al., (2014) examines a growing number of students around the world receive private tutoring in academic subjects and it is called shadow education because it mimics regular schooling as the school sector grows, so does the shadow, and as the curriculum in the shadow education. Shadow education is a macro phenomenon of modern schooling. We use considerable cross-national variations and shadow education is prevalent worldwide. It shows that there are lower levels of funding and limited access to the institutional factors of education. Contexts of schooling dominate the institutionalization of mass schooling regarding the degree of theory and educational policy. It says that the private tuition has become the part of the education environment. Private tutoring has become very vast and it has grown really very high. Private tutoring deserves greater attention. Private tutoring has different sides both negative and positive aspects. This paper examines that public system is schooling should be free of cost that people will be able to pay a lot of money for private tutoring. It has an effect on social inequalities and economic development. It has an effect on social inequalities and economic development. Ali (2011), Ali (2015), Ali (2018), Ali and Bibi (2017), Ali and Ahmad (2014), Ali and Audi (2016), Ali and Audi (2018), Ali and Rehman (2015), Ali and Naeem (2017), Ali and Zulfiqar (2018), Ali et al., (2016), Arshad and Ali (2016), Ashraf and Ali (2018) Haider and Ali (2015), Sajid

----

and Ali (2018), Ali and Senturk (2019), Kassem et al, (2019) and Ali and Bibi (2020). In non-stationary time series data shocks are permanent. In case if the time series date has only negative or positive shocks the time series data is non-stationary (for details see Dickey and Fuller 1979). In literature, several unit root tests are available for making data stationary. For this purpose, the study uses Augmented Dickey-Fuller (ADF) unit root test (1981) Phillips perron (PP) unit root test (1988).

IV. EMPIRICAL RESULTS AND DISCUSIONS

The descriptive statistics is presented in table 1 for overviewing the temporal properties of data. According to the estimation results state that total number of institutions (primary), primary education is negative skewed. Total number of students, secondary education, total population and total number of educational institutions (secondary) are positively skewed. Estimated results show that all variables have positive kurtosis. Jarque-Bera values of all variables are also higher than significant level. So, this information confirms that selected data sets are normally distributed.

Table 1: Descriptive Statistics

TOTAL_STU	TOTAL_POP	TOTAL_INS_SEC	TOTAL_INS_PRIMARY	SECONDRY_EDU	PRIMARY_EDU
14015.65	1.33E+08	1734.297	132.6297	1718.405	13600.51
13919.00	1.32E+08	612.0000	149.7000	1574.000	14182.00
26271.00	1.93E+08	5572.000	167.0000	3865.000	22330.00
5539.000	78068144	231.0000	59.20000	509.0000	5474.000
6647.741	34242970	1844.603	34.03329	945.2540	5026.216
0.371987	0.081550	1.036743	-0.955897	0.589524	-0.104411
1.773868	1.842503	2.464195	2.470443	2.433739	1.714911
3.171050	2.106535	7.070743	6.067056	2.637489	2.613218
0.204840	0.348796	0.029148	0.048145	0.267471	0.270737
518579.0	4.92E+09	64169.00	4907.300	63581.00	503219.0
1.59E+09	4.22E+16	1.22E+08	41697.54	32166185	9.09E+08
37	37	37	37	37	37

Table 2: Pairwise Correlation

Probability	TOTAL_STU	TOTAL_POP	TOTAL_INS_SEC	TOTAL_INS_PRIMARY	SECONDRY_EDU	PRIMARY_EDU
TOTAL_STU	1.000000					

TOTAL_POP	0.980145	1.000000				
	29.24453	-----				
	0.0000	-----				
TOTAL_INS_SEC	0.890561	0.860235	1.000000			
	11.58285	9.980845	-----			
	0.0000	0.0000	-----			
TOTAL_INS_PRIMARY	0.814921	0.887638	0.578939	1.000000		
	8.318457	11.40254	4.200605	-----		
	0.0000	0.0000	0.0002	-----		
SECONDRY_EDU	0.974697	0.976220	0.915624	0.817980	1.000000	
	25.79713	26.64174	13.47373	8.412454	-----	
	0.0000	0.0000	0.0000	0.0000	-----	
PRIMARY_EDU	0.966346	0.985926	0.801580	0.916633	0.955617	1.000000
	22.22375	34.88903	7.931609	13.56634	19.18974	-----
	0.0000	0.0000	0.0000	0.0000	0.0000	-----

Table 3 which estimate the result of unit root state that Total number of student's variable is stationary at level and also at first difference. The independent variable primary education is stationary at level but non stationary at 1st difference. Other than the estimated results of secondary education, total number of institutions (primary and secondary) and total population variables are not level stationary at level they are non-stationary at level but stationary at first difference in case of ADF (Augmented Dickey fuller). Hence there is mixed order of integration which state that it is suitable condition for apply ARDL co-integration approach in model to estimate.

Table 3: Unit Root Test

Variables	ADF
Total stu.	0.9956
Total pop	0.9926
Total insti secondary	0.9861
Total insti. Primary	0.6375
Secondary Edu	0.9999
Primary Edu	0.9261

At 1st Difference

Variables	ADF
Total stu.	**0.0012**
Total pop	**0.005**
Total insti secondary	**0.0065**
Total insti. primary	**0.0059**
Secondary Edu	**0.0566**
Primary Edu	**0.0007**

Keeping in view the number of observation and variables the lag order selection criterion are reported in table 4. Maximum two lags are allowed to VAR (Vector Auto-Regressive) process. The results show that all criterions allow optimal lag length 2 except SC (Schwarz information criterion). Thus, following to the LR test statistics, FPE test, AIC test and HQ test suggest that lag length 2 is used for the variables of the model.

Table 4: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	124.583	NA	2.04e-13	-7.682	-7.414	-7.412
2	318.352	304.738*	7.30e-15*	-17.991	-16.954*	-17.345*
3	355.812	42.735	8.79e-14	-13.885*	-14.295	-16.918

*indicates the lag order selected by the criterion

LR→Sequential modified LR test statistics (each test at 5%level)

FPE→Final prediction error

AIC→Akaike information criterion

SC→Schwarz information criterion

HQ→Hennan-Quinn information criterion

The estimated bound test result approach are given in table 5. ARDL bound test technique is used for investigating the co-integration among total number of students, total population, total number of institutions (primary and secondary), primary education and secondary education. Calculated F-Statistics value (5.732566) is greater than the upper bound value (4.68) at 1% also from 2.5%, 5%, and 10%. So, we reject the null hypothesis of no co-integration which confirms co-integration among the variables of the model. We can also say that F-Statistics verified the existence of co-integration among the variable of model. Now the L-R (long-Run) relation among total number of students, total population, total number of institutions (primary and secondary), primary education and secondary education can be examined.

Table 5: **ARDL Bounds Testing Approach**

Test Statistic	Value	K
F-statistic	5.732566	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

The estimated L-R results are presented in table 6.

Table 6: Estimated L-R Coefficients using the ARDL Approach

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOTAL_POP	0.000337	0.000115	2.924682	0.0138
TOTAL_INS_SEC	-0.374211	0.889809	-0.420552	0.6822
TOTAL_INS_PRIM	-56.942629	29.386497	-1.937717	0.0787
SECONDARY_EDU	3.023147	2.163684	1.397222	0.1899
PRIMARY_EDU	-0.460967	0.712610	-0.646871	0.5310
C		10722.161500	1.196359	0.2567

**Table 7: Estimated L-R Coefficients using the ARDL Approach**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TOTAL_STU(-1))	0.218443	0.183108	1.192974	0.2580
D(TOTAL_POP)	-0.039463	0.014836	-2.660002	0.0222
D(TOTAL_POP(-1))	0.105856	0.039054	2.710520	0.0203
D(TOTAL_POP(-2))	-0.036973	0.013685	-2.701754	0.0206
D(TOTAL_INS_SEC)	0.053990	0.412608	0.130850	0.8983
D(TOTAL_INS_SEC(-1))	-0.402691	0.428755	-0.939211	0.3678
D(TOTAL_INS_SEC(-2))	0.861451	0.506647	1.700299	0.1171
D(TOTAL_INS_PRIMARY)	14.099948	27.802323	0.507150	0.6221
D(TOTAL_INS_PRIMARY(-1))	52.631373	26.271137	2.003392	0.0704
D(TOTAL_INS_PRIMARY(-2))	-0.315595	29.576968	-0.010670	0.9917
D(SECONDRY_EDU)	1.695118	2.119033	0.799949	0.4407
D(SECONDRY_EDU(-1))	-2.953633	1.647276	-1.793041	0.1005
D(SECONDRY_EDU(-2))	0.209862	2.077730	0.101005	0.9214
D(PRIMARY_EDU)	-0.298456	0.218968	-1.363011	0.2001
D(PRIMARY_EDU(-1))	0.259648	0.249507	1.040647	0.3204
D(PRIMARY_EDU(-2))	0.118560	0.286745	0.413469	0.6872
CointEq(-1)	-0.699256	0.186675	-3.745853	0.0032

Table 8: Diagnostic test

Test statistics	LM-VALUE	F-Statistics(prob)
A-serial correlation	24.56291	0.3184
B-Functional form	32.75683	0.1200
C-Normality	1.853938	0.2032
D-Heteroscedasticity	0.140053	0.932369

Table 8 show the estimated results of diagnostic tests. Results of LM test of residuals serial correlation show that there is no any serial correlation among variables of the model. Correct functional form of a model is presented with the help of Ramsey's RESET test. Ramsey's RESET test using the square of fitted value shows that the model has correct functional form. Normality test results is based on skewness and kurtosis. As given in table 8 the results of normality test based on skewness and kurtosis explains that the time series data of all variables is normally distributed, also the results of LM white test show that there is no problem of heteroscedasticity.

The estimated results of Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) and given in figure A and figure B. So, both figures show that Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) lie between the two critical lines which indicated that the estimated model is stable.

Figure A

Figure B
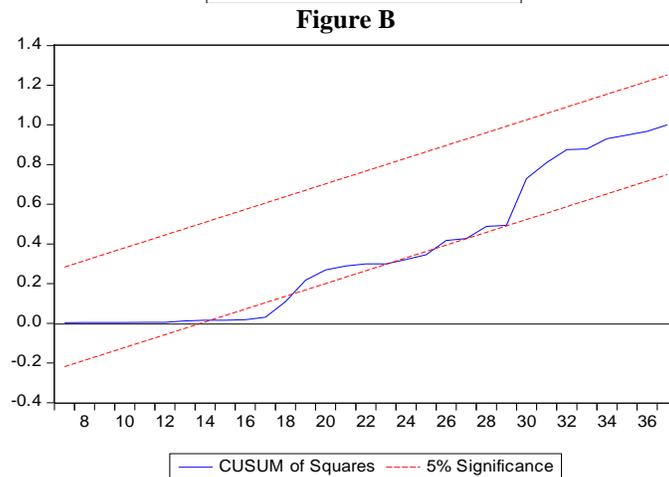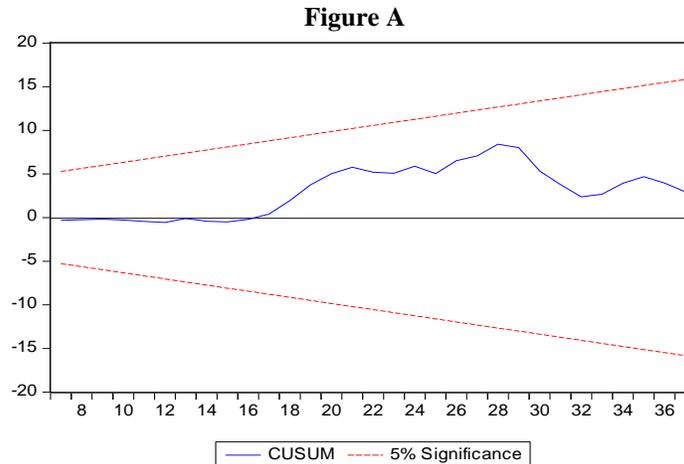
V. CONCLUSIONS
The results of ARDL bound testing approach show that there is co-integration between variables. The L-R results shows the secondary education has significant and positive results. The L-R estimates and shows a positive and significant relationship with total population of Pakistan. The estimated L-R results shows that total population, total number of educational institutions secondary has positive and significant impact. The S-R coefficients shows the negative and significant impact on total number of educational institutions and total population. The negative impact shows that total number of students has also impact negative and significant. The study concludes that the government of Pakistan has to pay a great attention on the educational system of Pakistan. For the betterment of students learning and for their bright future government should also pay attention on shadow education. To increase in shadow education government of Pakistan should raise funds for them.

REFERENCES

Ali, A & Bibi, C. (2020*). Public Policies, Socio-Economic Environment and Crimes in Pakistan: A Time Series Analysis. *Bulletin of Business and Economics,* 9(1), 1-11.

Ali, A. & Naeem, M.Z. (2017). Trade Liberalization and Fiscal Management of Pakistan: A Brief Overview. *Policy Brief-Department of Economics, PU, Lahore*. 2017 (1), 1-6.

Ali, A. (2011). Disaggregated import demand functions of Pakistan; An empirical Analysis. M-Phil Thesis, NCBA&E, Lahore, Pakistan, 1-70.

Ali, A. (2015). *The impact of macroeconomic instability on social progress: an empirical analysis of Pakistan*. (Doctoral dissertation, National College of Business Administration & Economics Lahore).

Ali, A. (2018). Issue of Income Inequality Under the Perceptive of Macroeconomic Instability: An Empirical Analysis of Pakistan. *Pakistan Economic and Social Review*, 56(1), 121-155.

Ali, A. and Bibi, C. (2017). Determinants of Social Progress and its Scenarios under the role of Macroeconomic Instability: Empirics from Pakistan. *Pakistan Economic and Social Review* 55 (2), 505-540.

Ali, A., & Ahmad, K. (2014). The Impact of Socio-Economic Factors on Life Expectancy in Sultanate of Oman: An Empirical Analysis. *Middle-East Journal of Scientific Research*, 22(2), 218-224.

Ali, A., & Audi, M. (2016). The Impact of Income Inequality, Environmental Degradation and Globalization on Life Expectancy in Pakistan: An Empirical Analysis. *International Journal of Economics and Empirical Research*, 4 (4), 182-193.

Ali, A., & Audi, M. (2018). Macroeconomic Environment and Taxes Revenues in Pakistan: An Application of ARDL Approach. *Bulletin of Business and Economics* (BBE), 7(1), 30-39.

Ali, A., & Rehman, H. U. (2015). Macroeconomic instability and its impact on the gross domestic product: an empirical analysis of Pakistan. *Pakistan Economic and Social Review*, 285-316.

Ali, A., & Şenturk, İ. (2019). Justifying the Impact of Economic Deprivation, Maternal Status and Health infrastructure on Under-Five Child Mortality in Pakistan: An Empirical Analysis. *Bulletin of Business and Economics*, 8(3), 140-154.

Ali, A., & Zulfiqar, K. (2018). An Assessment of Association between Natural Resources Agglomeration and Unemployment in Pakistan. *Pakistan Vision*, 19(1), 110-126.

Ali, A., Ahmed, F., & Rahman, F. U. (2016). Impact of Government Borrowing on Financial Development (A case study of Pakistan). *Bulletin of Business and Economics* (BBE), 5(3), 135-143.

Ali, A., Mujahid, N., Rashid, Y., & Shahbaz, M. (2015). Human capital outflow and economic misery: Fresh evidence for Pakistan. *Social Indicators Research*, *124*(3), 747-764.

Arshad, S., & Ali, A. (2016). Trade-off between Inflation, Interest and Unemployment Rate of Pakistan: Revisited. *Bulletin of Business and Economics (BBE)*, *5*(4), 193-209.

Ashraf, I., & Ali, A. (2018). Socio-Economic Well-Being and Women Status in Pakistan: An Empirical Analysis. *Bulletin of Business and Economics (BBE)*, 7(2), 46-58.

Bray, M., Zhan, S., Lykins, C., Wang, D., & Kwo, O. (2014). Differentiated demand for private supplementary tutoring: Patterns and implications in Hong Kong secondary education. *Economics of Education Review*, *38*, 24-37.

Dang, H. A. (2014). Private tutoring in Vietnam: a review of current issues and its major correlates. In *Out of the shadows: The global intensification of supplementary education* (pp. 95-127). Emerald Group Publishing Limited.

Dang, H. A., & Rogers, H. (2009, May). The decision to invest in child quality over quantity: Has declining fertility increased household investment in education in Vietnam? In *Annual Meeting of the Population Association of America, Princeton* (Vol. 2).

Højlund Roesgaard, M. (2006). *Japanese education and the cram school business: Functions, challenges and perspectives of the juku*. NiAS Press.

Kassem, M. Ali, A. & Audi, M. (2019). Unemployment Rate, Population Density and Crime Rate in Punjab (Pakistan): An Empirical Analysis. *Bulletin of Business and Economics (BBE),* 8(2), 92-104.

Kwo, O. W. Y., & Bray, T. M. (2011). Facing the shadow education system in Hong Kong. *IIAS Newsletter*.

Nishio, M. (2007). *Use of private supplementary instruction (private tutoring) by US high school students: Its use and academic consequences* (Doctoral dissertation).

Rao, N., & Chan, C. K. (2010). Moving beyond paradoxes: Understanding Chinese learners and their teachers. In *Revisiting the Chinese learner* (pp. 3-32). Springer, Dordrecht.

Robitaille, D. F., & Beaton, A. E. (2002). TIMSS: a brief overview of the study. In *Secondary analysis of the TIMSS data* (pp. 11-18). Springer, Dordrecht.

Sajid, A. & Ali, A. (2018). Inclusive Growth and Macroeconomic Situations in South Asia: An Empirical Analysis. *Bulletin of Business and Economics (BBE),* 7(3), 97-109.

Silova, I. (2010). Private tutoring in Eastern Europe and Central Asia: Policy choices and implications. *Compare*, *40*(3), 327-344.

Silova, I., Bray, M., & Zabulionis, A. (2006). Methodological considerations. *Education in a hidden marketplace: monitoring of private tutoring*, 61.

Smith, I. D. (2003). Homework and coaching. In *International handbook of educational research in the Asia-Pacific region* (pp. 755-766). Springer, Dordrecht.

Smyth, E. (2009). Buying your way into college? Private tuition and the transition to higher education in Ireland. *Oxford review of education*, *35*(1), 1-22.

Stevenson, D. L., & Baker, D. P. (1992). Shadow education and allocation in formal schooling: Transition to university in Japan. *American journal of sociology*, *97*(6), 1639-1657.

Watson, L. (2008, November). Private expectations and public schooling: the growth of private tutoring in Australia. In *Peer Refereed Conference Paper Presented to the Australian Association for Research in Education (AARE) National Conference* (Vol. 30).

Wolf, R. M. (2002). Extra-school instruction in mathematics and science. In *Secondary analysis of the TIMSS data* (pp. 331-341). Springer, Dordrecht.

Zhang, W. (2013). Private supplementary tutoring received by grade 9 students in Chongqing, China: determinants of demand, and policy implications. *HKU Theses Online (HKUTO)*.