Sheikh, U.Q. Iqbal, M.Z. and Ahmad, H.K. (2016). The Impact of Foreign Aid, Energy Production and Human Capital on Income Inequality: A Case Study of Pakistan. Bulletin of Business and Economics, 5(1), 1-9.

The Impact of Foreign Aid, Energy Production and Human Capital on Income Inequality: A Case Study of Pakistan

Usman Qamar Sheikh
Ph.D Student at National College of Business Administration and Economics, Lahore, Pakistan
economistusman@Yahoo.com

Muhammad Zafar Iqbal
University of Agriculture,
Faisalabad, Pakistan

Hafiz Khalil Ahmad
Punjab University Lahore, Pakistan

Abstract
This study attempt to examine the impact of foreign aid, energy production and human capital on income inequality in case of Pakistan. For empirical analyses, the study have been used annual time series data covering the period 1984 to 2012. The study has been used the Johansen co-integration to see the long run co- integration among the variables of the study. The results of Johansen co-integration shows that there is long run co-integration among the variables of the study. The long run coefficient shows that foreign aid and human capital play significant role to decrease the income inequality in case of Pakistan. When energy production positively and significantly affect income inequality in case of Pakistan.

Keywords: foreign aid, energy production, human capital and income inequality
JEL Code: E40, E44

I. Introduction

It is one of the main objective of the macroeconomic policy makers to make such policies which prove helpful to increase the economic growth as well as to reduce the income inequality. Most of the developing nations have to face the problem of income inequality. Many researchers and policy makers are busy to investigate the factors that can prove helpful to increase the income of poor segment of population. This paper investigate the impact of some selective macroeconomic factors on income inequality in case of Pakistan. Developing nations have to face the problem of saving investment gap (Nurkse, 1952). Foreign aid has been considered one of the main external source to fill the saving investment gap. Pakistan is highest aid recipient nation during 60s and 70s (Khan and Ahmed, 2007). Although this share reduced after 70s due to the nuclear policy but still Pakistan receiving a handsome amount of aid in the form of grants. The present study is going investigate that either this aid effect significantly to reduce the income inequality in case of Pakistan or not. Further, after the late 90s, Pakistan have to face the swear problem of energy production. Many researcher see its impact on overall economic growth of Pakistan. But the present study examines its impact on income inequality in case of Pakistan. Energy production may affect more on the upper segment of population than lower. So it is necessary to examine its impact on income inequality.

Human capital is also considered one of the main source to determine the economic growth at aggregate level as well as disaggregate level (Chani et al., 2012). This study investigate the impact of human capital with some other variables on income inequality in case of Pakistan. Many researchers also studied the impact of trade openness to decrease the income inequality. But the finding of their studies show that the relationship is still debatable. The present study interested to investigates the impact of foreign aid and energy production on income inequality. For this purpose, the study examines the long run co-integration among the variables of the study by applying Johansen co-integration technique proposed by (Johansen and Juselius, 1990).

II. Literature Review

Herzer and Nunnenkamp (2012) investigates the long-run effect of foreign aid on income inequality in case of 21 aid recipient nations. For empirical analysis, the study has been used the annual time series data covering the period 1970–1995. The empirical results of penal co-integration show that foreign aid significantly and positively affect the income inequality.

Gregorio and Lee (2002) examines the long run impact of education and economic growth on income inequality. For econometric analysis, the study has been used the time series data ranging from 1960 to 1990 with five years interval. The reported results of the study show that there is negative and long run relationship between education and income inequalities. The empirical results of the study also confirm the existence of inverted U shaped Kuznets relationship between economic growth and income inequality.

Shahpari and Davoudi (2014) examines the long run relationship between human capital and income inequality in case of Iran. The study has been used annual time series data covering the period 1969-2007 for econometric analysis. By using auto regressive distributed lag bound testing approach of co-integration; the study has been found the long run co-integration among the variables of the study. The empirical results of the study show that human capital plays positive and significant role to decrease the income in equalities of Iran.

Savvides (1998) have been used the panel of 41 nations to see the impact of trade openness and human capital on income inequalities during 80s and 90s. The empirical results of regression show that trade openness increase the income of poor segment of population which prove helpful to decrease the income inequality. The empirical results also show the positive role of human capital to decrease income inequality.

Meschi and Vivarelli (2009) have been used the panel of 65 developing countries to investigates the impact of trade openness on income inequality. The study has been used the annual time series data covering over the 1980–99 periods. The empirical results show that there is negative relationship between trade and income inequalities in case of developing nations.

Jalil (2012) examines the relationship between trade openness and income inequalities by using the framework of Kuznets in case of china. The study has been applied annual time series data covering the period from 1952 to 2009. The results of ARDL bound testing shows that firstly, trade openness increases the income inequalities but after a breakeven point, it plays an inverse role.

Anderson (2005) has been used the panel of 35 developing countries to see the impact of trade openness on income inequality. For empirical analysis, the study has been used the annual time series data ranging the period 1960-2001. The empirical results show that openness of trade increases the demand of labor which increases their income and income inequality decreases.

Paweenawat and McNown (2014) estimate a model of human capital and income inequality for Thailand. The study has been used synthetic cohort data from 1992–2011. The empirical results of the study suggest the positive impact of human capital to reduce income inequality in case of Thailand. Ali (2015) examines the impact of macroeconomic instability on income inequality.

Yu et al. (2011) estimate the effect of foreign direct investment on income inequality in case of china. The study has been used annual time series data set of 29 Chinese provinces covering the period 1990 to 2005. By applying simultaneous equation model the study investigates that foreign direct investment simply effect regional income inequality.

Wu and Hsu (2012) has been used cross-sectional data of 54 nations over the period 1980–2005. By using endogenous threshold regression model, the study has been investigated that foreign direct investment is may be dangerous to the income distribution of those recipient nations which have low levels of absorptive capacity. On the other hand, foreign direct investment plays significant and positive role to decrease income inequality in those nations which have better absorptive capacity.

III. Theoretical Framework

The model of this study includes five variables Income inequality, energy Production, Human capital (HC) and Trade openness (TOP). We may write the functional form of our model as following:

$$IE_t = f(FA_t, EP_t, HC_t, TOP)$$

$$IE_t = \beta_0 + \beta_1 FA_t + \beta_2 EP_t + \beta_3 HC_t + \beta_4 TOP_t + \varepsilon_t$$

Where
T = 1,2,3,……. 28 (time period ranging from 1984 to 2011)
IE_t = Income Inequality with time t
EP_t = Energy Production with time t
HC_t = Human Capital with time t
Top_t = Trade openness with time t
Et = Error Term

When $\beta_1, \beta_2, \beta_3 and \beta_4$ are the elasticity coefficients?

Linear expression of above production function is:-

$$\log IE_t = \beta_0 + \beta_1 \log FA_t + \beta_2 \log EP_t + \beta_3 \log HC_t + \beta_4 \log TOP_t + \varepsilon_t$$

Where ε_t shows the white noise error term. The sign elasticity is most expected in coefficients to be positive.

IV. Data Sources and Methodology

The study has been used the annual time series data covering the period 1984 to 2011. The data for the energy production and trade openness has been taken from by the World Development indicator (World Bank, 2014) . The data of human capital and foreign aid has been collected from different economic surveys of Pakistan. The study has been calculated the variable income inequality by using UNDP (2010). Due to the diversity of unit, the study has been used the natural logarithmic form of data.

IV.I Methodology

Non- stationary behavior is considered common characteristics of time series data due the existence of irrelevant time trend in data. According to Granger and Newbold (1974), regression analysis applied on such type of data may provide spurious estimates. Phillips (1986) further explains that the existence of co-integrating relationship is pre condition to get reliable results from regression analysis. It the data is stationary and variables are co-integrated in

long run, the results of ordinary least square (OLS) become reliable.

IV.II Test of Unit Root

To check the problem of unit root, there are certain tests available in econometrics. We use Augmented Dickey-Fuller (ADF) proposed by Dickey and Fuller (1981) for finding. The general form of the ADF test is followings:

$$\Delta X_t = \alpha + \delta X_{t-1} + \sum_{j=1}^{q} \gamma_j \Delta X_{t-j} + \in_{1t}$$

$$\Delta X_t = \alpha + \beta t_1 + \delta X_{t-1} + \sum_{j=1}^{q} \gamma_j \Delta X_{t-j} + \in_{1t}$$

$$\Delta\Delta X_t = \alpha + \delta \Delta X_{t-1} + \sum_{j=1}^{q} \gamma_j \Delta\Delta X_{t-j} + \in_{2t}$$

$$\Delta\Delta X_t = \alpha + \beta t_1 + \delta \Delta X_{t-1} + \sum_{j=1}^{q} \gamma_j \Delta\Delta X_{t-j} + \in_{2t}$$

Where

$\Delta X_t = X_t - X_{t-1}$

Firstly we will apply simply OLS to calculate t-statistic of the co-efficient of X_{t-1} and compare this values with the Dickey and Fuller (1981) " ι " critical.

Q = no of lags in the model

To test the stationary, following are the hypothesis:

$H_0 = 0$ no unit root

Ha < 0 unit root problem exists

IV.III Johansen co-integration test

The present study uses Johansen co-integration test suggested by Johansen and Juselius (1990) to find out the long run co-integration among the variables of the study. Engle and Granger (1987) firstly presented the idea of co-integration. After that, Stock and Watson (1988) and (Johansen, 1988, 1991, 1992; Johansen and Juselius, 1990; Johansen and Juselius, 1992) extended it . This study is going to use Johansen co-integration test proposed by Johansen (1988) and Johansen and Juselius (1990) to see the long run association among the variables of the study. Johansen and Juselius (1990) test can apply only when all variables have same order of integration other that zero. The other test of co-integration is the Engle and Granger (1987) test which can found only one co-integrating vectors. When Johansen (1988) and Johansen and Juselius (1990) recommend maximum likelihood testing method to find out the number of co-integrating vectors in the Vector Autoregressive (VAR) design. The general form of VAR is as under:

$$IE_t = \alpha_{10} + \sum_{i=1}^{p} \beta_{1i} FA_{t-i} + \sum_{i=1}^{p} \gamma_{1i} EP_{t-i} + \sum_{i=1}^{p} \varphi_{1i} HC_{t-i} + \sum_{i=1}^{p} \delta_{1i} TOP_{t-i} + \sum_{i=1}^{p} \phi_{1i} IE_{t-i} + \varepsilon_{1t}$$

$$FA_t = \alpha_{20} + \sum_{i=1}^{p} \beta_{2i} FA_{t-i} + \sum_{i=1}^{p} \gamma_{2i} EP_{t-i} + \sum_{i=1}^{p} \varphi_{2i} HC_{t-i} + \sum_{i=1}^{p} \delta_{2i} TOP_{t-i} + \sum_{i=1}^{p} \phi_{2i} IE_{t-i} + \varepsilon_{2t}$$

$$EP_t = \alpha_{30} + \sum_{i=1}^{p} \beta_{3i} FA_{t-i} + \sum_{i=1}^{p} \gamma_{3i} EP_{t-i} + \sum_{i=1}^{p} \varphi_{3i} HC_{t-i} + \sum_{i=1}^{p} \delta_{3i} TOP_{t-i} + \sum_{i=1}^{p} \phi_{3i} IE_{t-i} + \varepsilon_{3t}$$

$$TOP_t = \alpha_{40} + \sum_{i=1}^{p} \beta_{4i} FA_{t-i} + \sum_{i=1}^{p} \gamma_{4i} EP_{t-i} + \sum_{i=1}^{p} \varphi_{4i} HC_{t-i} + \sum_{i=1}^{p} \delta_{4i} TOP_{t-i} + \sum_{i=1}^{p} \phi_{4i} IE_{t-i} + \varepsilon_{4t}$$

$$HC_t = \alpha_{50} + \sum_{i=1}^{p} \beta_{5i} FA_{t-i} + \sum_{i=1}^{p} \gamma_{5i} EP_{t-i} + \sum_{i=1}^{p} \varphi_{5i} HC_{t-i} + \sum_{i=1}^{p} \delta_{5i} TOP_{t-i} + \sum_{i=1}^{p} \phi_{5i} IE_{t-i} + \varepsilon_{5t}$$

V. Empirical Results and Discussion

The present study has been used. ADF test to check the problem of unit root or non-stationary in the time series data. Here data is used in transformed form with natural logarithm. The table 1 presents the results of unit root test based

on ADF test. The results indicate that all the variables in the model are stationary at first difference.

Table 1: Augmented Dickey – Fuller (ADF) Test for unit Root

Augmented Dickey – Fuller (ADF) Test at level		
Variables	**t-statistics**	**Prob. Values**
LNFA	-2.571080	0.1137
LNEP	-2.191078	0.2139
LNHC	-2.370623	0.1600
LNTOP	-2.329988	0.1703
LNIE	-1.912962	0.3203
Augmented Dickey – Fuller (ADF) Test of 1st difference		
Variables	**t-statistics**	**Prob. Values**
D(LNFA)	-4.634514	0.0012
D(LNEP)	-3.697271	0.0103
D(LNHC)	-3.738180	0.0094
D(LNTOP)	-6.050014	0.0000
D(LNIE)	-3.267012	0.0293

Optimal lag Length

There are different criterion to select the optimum lag length. Following table 2 shows that Schwarz information criterion (SC) suggest 1 lag as optimum. When Hannan-Quinn information criterion (HQ) and Aikaike information criterion (AIK) suggest an optimal lag length of 2. Therefore by following Schwarz information criterion (SC) the lag length 1 has been used in our analysis.

Table 2 VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	93.53379	NA	7.59e-10	-6.810291	-6.568350	-6.740621
1	196.6240	158.6003	1.95e-12	-12.81723	-11.36558*	-12.39921
2	232.4772	41.36905*	1.08e-12*	-13.65209*	-10.99073	-12.88572*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

We used Johansen co-integration to check the long run dynamics of foreign aid, energy production, human capital, trade openness and income inequality. Johansen's co-integration test results have been shown in table 3. Trace statistics λ trace are used to check the number of co-integration vectors. Trace statistics test the null hypothesis of no co-integration against the alternative of co integration. Starting with the null hypothesis of no co-integration ($r \leq 0$) among the variables. The trace-test statistics is 116.35, which is above the critical value of 69.86 at 5% significance level. Hence, it rejects the null hypothesis ($r \leq 0$) in favor of alternative hypothesis ($r=1$) and the null hypothesis ($r \leq 1$) rejected in favor of alternative hypothesis of (r=2) because trace statistics 70.77 which is greater than the critical value of 47.86 at 5% significance level. The null hypothesis ($r \leq 2$) rejected in favor of alternative hypothesis of (r=3) because trace statistics 34.12 which is greater than the critical value of 29.80 at 5% significance level. But the null hypothesis ($r \leq 3$) *cannot be* rejected in favor of alternative hypothesis of (r=4) because trace statistics 12.77 which is greater than the critical value of 15.49at 5% significance level.

Table 3: Co integration Foreign Aid, Energy Production, Human Capital, Trade Openness and Income Inequality (Unrestricted Co integration Rank Test (Trace))

Ho	H1	Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
R=0*	R≥1	None *	0.826732	116.3500	69.81889	0.0000
R≤1*	R≥2	At most 1 *	0.755742	70.77413	47.85613	0.0001
R≤2*	R≥3	At most 2 *	0.560111	34.12635	29.79707	0.0149
R≤3	R≥4	At most 3	0.366709	12.77427	15.49471	0.1234
R≤4	R≥5	At most 4	0.033905	0.896830	3.841466	0.3436
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values						

Now we see the results of maximum Eigen value in table 4. This criteria also shows the existence of three co-integrating equation. Thus the analysis of data confirms the presence of three co-Integrating vector and we can conclude that a long run relationship exists between foreign aid, energy production, human capital, trade openness and income inequality.

Table 4: Unrestricted Co integration for Max-eigenvalue test

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)						
		Hypothesized		Max-Eigen	0.05	
Ho	H1	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
R=0*	R≥1	None *	0.826732	45.57585	33.87687	0.0013
R≤1*	R≥2	At most 1 *	0.755742	36.64778	27.58434	0.0026
R≤2*	R≥3	At most 2 *	0.560111	21.35208	21.13162	0.0466
R≤3	R≥4	At most 3	0.366709	11.87744	14.26460	0.1153
R≤4	R≥5	At most 4	0.033905	0.896830	3.841466	0.3436
Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values						

As co-integrating exists among the variables of our interest, therefore, the results obtained from OLS are reliable. The results obtained from OLS have been reported in table 5.

Table 5: Long Run Relationship among Foreign Aid, Energy Production, Human Capital, Trade Openness and Income Inequality

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNFA	-0.142382	0.062826	-2.266279	0.0332
LNEP	0.278742	0.108898	2.559654	0.0175
LNHC	-0.495272	0.137293	-3.607414	0.0015
LNTOP	0.060360	0.205716	0.293417	0.7718
C	-1.646048	1.027757	-1.601593	0.1229
R-squared = 0.568940 Adjusted R-squared = 0.493973 S.E. of regression = 0.072429 Sum squared residual = 0.120656 Log likelihood = 36.52790 F-statistic = 7.589198 Prob(F-statistic) = 0.000473				

The result reported in the table 5 shows that foreign aid, energy production and human capital are statistically significant but the impact of trade openness on income inequality is insignificant. The reported results indicate that

the foreign aid and human capital does negative impact on income inequality whereas energy production has positive impact on income inequality. The positive impact of energy production on income inequality shows that energy production increase the benefits of the upper segment of population. The empirical results postulates that on average 1 percent rise in energy production brings 0.278 percent increase in income inequality whereas 1 percent increase in foreign aid and Human capital leads to 0.1423 percent, 0.4952 percent decrease in income inequality.

The following table 6 shows the Diagnostic tests for normality, .serial correlation, and heteroskedasticity and model specification.

Table 6: Diagnostic Test

Normality Test (Jarque-Bera Statistics)	Jarque-Bera Statistics=1.360084	Probability=0.506596
Serial correlation (Beurash- Godfery serial correlation LM Test)	F-Statistics=1.838765	Probability =0.1837
ARCH Test (Autoregressive Hetroskedasticity Test)	F- Statistics=0.845862	Probability=0.3365
Hetroskedasticity Test (White Hetroskedasticity Test)	F- Statistics=1.162785	Probability =0.3956
Model Specification Test (Ramsey RESET Test)	F- Statistics=0.003616	Probability =0.9526

These econometrics results shows that the residual gained from short run model are normally distributed and there is no presence of heteroskedasticity as well as no problem of serial correlation. Ramsey's RESET test shows that the model is well specified.

Figure1

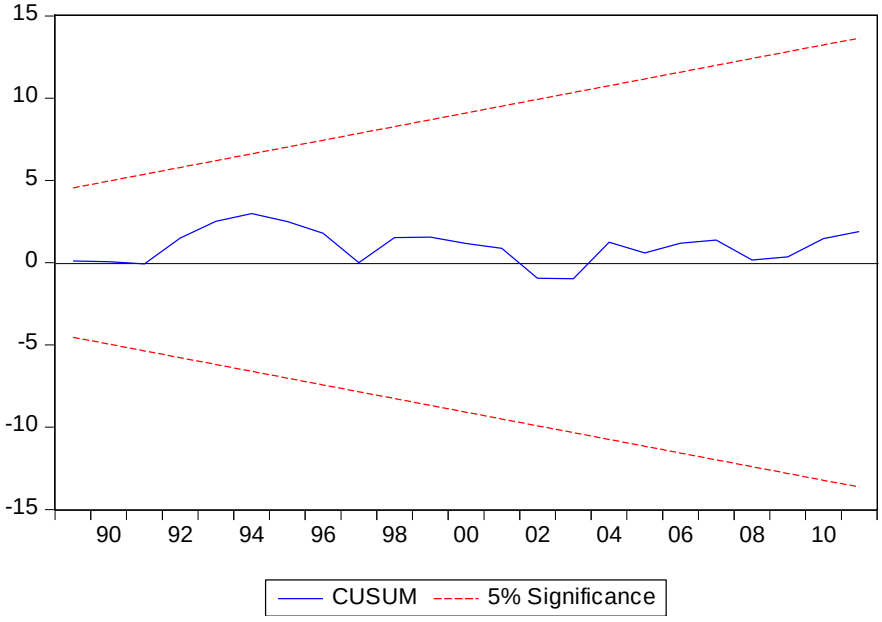
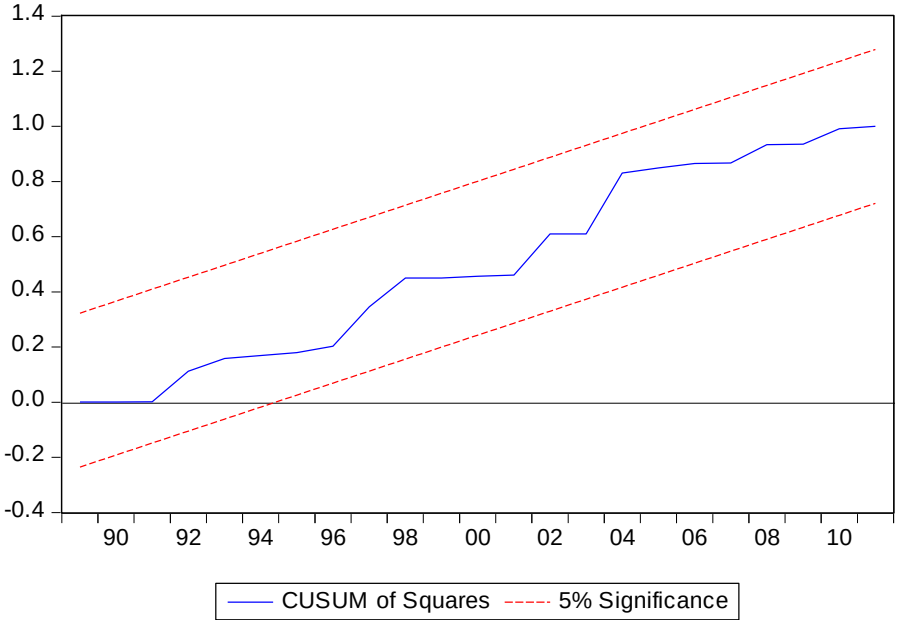


Figure2



The study has been used CUSUM and CUSUMsq test to study the stability of the long run coefficient. Following figures 1 and 2 show the CUSUM and CUSUMsq graphical presentation. As the curve of the CUSUM and CUSUMsq are within the upper and lower bounds so, we cannot reject the null hypothesis that the regression equation is correctly specified cannot be rejected if the plot of these statistics remains within the critical boundaries of 5 % significance level. Fig. 1 and 2 shows that the plots of both the CUSUM and the CUSUMsq are within the boundaries and hence these statistics confirms that the model is correctly specified.

VI. Conclusion

The present study investigates the impact of foreign aid, energy production, human capital and trade openness on income inequality in case of Pakistan. For empirical analysis, the study has been used the annual time series data covering the period 1984 to 2012. To examine the problem of unit root, the study has been used the ADF test. As all the variables are stationary at 1st difference, the study uses Johansen co integration approach to investigate the long run co-integration among the variables of the study. The results of Johansen co integration indicates that there exist long run co-integration among the variables of the study. The long run co-efficient indicates that human capital and foreign aid play significant role to decrease the degree of inequality in case of Pakistan. The positive and significant co-efficient of energy production shows that there is positive association between energy production and income inequality. This positive relationship shows that energy production may increase the income of rich segment of population. The reported results indicate that the impact of trade openness is also positive but insignificant on income inequality in case of Pakistan. Different diagnostic tests reported in the study shows that there is no problem of heteroskedasticity or auto correlation and the residual is normally distributed.

References

Ali, A. (2015). *The Impact of Macroeconomic Instability on Social Progress: An Empirical Analysis of Pakistan*. Ph.D Dissertation. NCBA&E, Lahore, Pakistan, 1-152.

Anderson, E. (2005). Openness and Inequality in Developing Countries: A Review of Theory and Recent Evidence. *World Development*, 33(7), 1045-1063.

Chani, M. I., Hassan, M. U. and Shahid, M. (2012). Human Capital Formation and Economic Development in Pakistan: An Empirical Analysis. *Actual Problems of Economics*(06), 486-495.

Dickey, D. A. and Fuller, W. A. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica: Journal of the Econometric Society*, 1057-1072.

Engle, R. F. and Granger, C. W. (1987). Co-Integration and Error Correction: Representation, Estimation, and Testing. *Econometrica: journal of the Econometric Society*, 251-276.

Granger, C. W. and Newbold, P. (1974). Spurious Regressions in Econometrics. *Journal of econometrics*, 2(2), 111-120.

Gregorio, J. D. and Lee, J. W. (2002). Education and Income Inequality: New Evidence from Cross-Country Data. *Review of Income and Wealth*, 48(3), 395-416.

Herzer, D. and Nunnenkamp, P. (2012). The Effect of Foreign Aid on Income Inequality: Evidence from Panel Cointegration. *Structural Change and Economic Dynamics*, 23(3), 245-255.

Jalil, A. (2012). Modeling Income Inequality and Openness in the Framework of Kuznets Curve: New Evidence from China. *Economic Modelling*, 29(2), 309-315.

Johansen, S. (1988). Statistical Analysis of Cointegration Vectors. *Journal of economic dynamics and control*, 12(2), 231-254.

Johansen, S. (1991). Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models. *Econometrica: Journal of the Econometric Society*, 1551-1580.

Johansen, S. (1992). Testing Weak Exogeneity and the Order of Cointegration in Uk Money Demand Data. *Journal of Policy Modeling*, 14(3), 313-334.

Johansen, S. and Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration—with Applications to the Demand for Money. *Oxford Bulletin of Economics and statistics*, 52(2), 169-210.

Johansen, S. and Juselius, K. (1992). Testing Structural Hypotheses in a Multivariate Cointegration Analysis of the Ppp and the Uip for Uk. *Journal of econometrics*, 53(1), 211-244.

Khan, M. A. and Ahmed, A. (2007). Foreign Aid—Blessing or Curse: Evidence from Pakistan. *The Pakistan Development Review*, 215-240.

Meschi, E. and Vivarelli, M. (2009). Trade and Income Inequality in Developing Countries. *World Development*, 37(2), 287-302.

Nurkse, R. (1952). Some International Aspects of the Problem of Economic Development. *The American economic review*, 571-583.

Paweenawat, S. W. and Mcnown, R. (2014). The Determinants of Income Inequality in Thailand: A Synthetic Cohort Analysis. *Journal of Asian Economics*, 31, 10-21.

Phillips, P. C. (1986). Understanding Spurious Regressions in Econometrics. *Journal of econometrics*, 33(3), 311-340.

Savvides, A. (1998). Trade Policy and Income Inequality: New Evidence. *Economics Letters*, 61(3), 365-372.

Shahpari, G. and Davoudi, P. (2014). Studying Effects of Human Capital on Income Inequality in Iran. *Procedia-Social and Behavioral Sciences*, 109, 1386-1389.

Stock, J. H. and Watson, M. W. (1988). Testing for Common Trends. *Journal of the American statistical Association*, 83(404), 1097-1107.

UNDP. (2010). *The Real Wealth of Nations: Pathways to Human Development*. New York: United Nations Development Programme.

World Bank. (2014). *World Development Indicators: Online Database*. Washington: The World Bank.

Wu, J.-Y. and Hsu, C.-C. (2012). Foreign Direct Investment and Income Inequality: Does the Relationship Vary with Absorptive Capacity? *Economic Modelling*, 29(6), 2183-2189.

Yu, K., Xin, X., Guo, P. and Liu, X. (2011). Foreign Direct Investment and China's Regional Income Inequality. *Economic Modelling*, 28(3), 1348-1353.