

DETERMINANTS OF ECONOMIC GROWTH IN PAKISTAN: A STRUCTURAL VECTOR AUTO REGRESSION (SVAR) ANALYSIS

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Abstract: The study follows Structural Vector Auto Regression (SVAR) approach proposed by the so-called AB-model of Amisano and Giannini (1997) to find out relevant macroeconomic determinants of economic growth in Pakistan. Annual data is taken from World Development Indicators (CD-ROM, 2015) for the period 1976-2014. The widely-used Schwarz information criterion and Akaike information criterion is considered for the lag length in each estimated equation. Main findings of the study are that remittances received, gross national expenditures and inflation are found to be the best relevant positive and significant determinants of economic growth. Based on these empirical findings, we conclude that government should focus on overall economic growth augmenting factors while formulating any policy relevant to the concerned sector.

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Introduction

The most primary goal of almost every economic policy has always remained higher economic growth in economies. Because higher economic growth is probably the most important requirement for the broader concept of economic development. It allows governments to work for betterment of their masses and spend on their health and education. This increase in human capital in turn affects output positively. This increase in output will again allow government to spend more on human capital and hence bringing even more increase in output. This is known as virtuous cycle of economic growth. Economic growth ensures higher standard of living of masses and state of harmony in economy. Contrary to this absence of economic growth or a low rate of it will push population of economy in poverty and will bring unhappiness and devastation (Akanbi, 2016).

For a developing country like Pakistan sustained economic growth becomes even more important as she is facing huge socio-economic challenges. A massive 39% of Pakistan's population is multidimensionally poor (Multinational Poverty in Pakistan, 2016) Pakistan's trade deficit has widened to reach at USD 23.38 Billion in March-2017. On Human Development Index (HDI) ranking she is at 147th position out of total of 188 nations (United Nations Development Programme Human Development Report, 2016). Around 6% of her population is suffering from unemployment (Economic Survey of Pakistan, 2015-16).

Due to such a great importance of economic growth policy makers need to understand what are the factors which cause economic growth. Numerous studies have been conducted to understand the determinants of economic growth (Pattillo et al., 2011; Cordella et al., 2010; Ayadi, 2008; Uwatt, 2003; Edwards, 1998; Sala-i-Martin, 1997). Although widely explored yet no set of variables are finalized as determinants of economic growth. One of the most fundamental determinants as identified by both endogenous growth models and neo-classical models is, capital formation. Hence many studies on economic growth have focused it (Abou-Ali and Kheir-El-Din, 2009; Fowowe, 2008; Sala-i-Martin, 1997; Auerbach et al., 1994; Levine and Renelt, 1992). Another important determinant of economic growth focused in studies is the openness of economies to international trade (Arezki and Gylfason, 2011; Uwatt, 2003; Edwards, 1998; Sachs and Warner, 1995; Dollar, 1992).

One important indicator of a country's openness to international world is foreign remittances of a country which indicate labor mobility of the country. Many studies have focused on the role of foreign

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remittance on the economic growth of the country (Fayissa and Nsiah, 2010; Gupta et al., 2009; Fayissa and Nsiah, 2008; Jongwanich, 2007; Stark and Lucas, 1988) Then there are studies analyzing effect of debt on economic growth (Pattillo et al., 2011; Cordella et al., 2010; Ayadi 2008; Adepoju et al., 2007; Mohamed 2005; Were 2001). Some other studies have focused on the role of inflation in determination of economic growth (Anyanwu, 2104; Awan, 2010; Abou-Ali and Kheir-El-Din, 2009). Then there are numerous studies based on endogenous growth models as well as the neo-classical models which examine the role of human capital on economic growth (Fayissa and Nsiah, 2010; Pritchett, 2001; Topel, 1999; Brunetti et al., 1998; Mankiw et al., 1992). Some yet other studies have focused on the relationship of political factors and economic growth (Lensink, 2001; Lensink et al., 1999; Scully, 1988).

There is plethora of literature on the determinants of economic growth in Pakistan (Tahir et al., 2015; Ahmad and Wajid, 2013; Atique and Malik 2012; Shaheen et al. 2011; Rahman and Salahuddin, 2010; Azam and Khattak, 2009; Sajid and Sarfraz 2008; Iqbal and Zahid 1998). This study is unique in its application of Structural Vecor Auto Regression (SVAR) in the study of relevant significant determinants of economic growth in Pakistan. Results indicate remittances received, gross national expenditures and inflation are found to be the best relevant positive and significant determinants of economic growth. The remaining paper proceeds as: section two discusses existing literature. In section three, SVAR methodologies are explained, in section four, data, its sources and construction of variables is given followed by section five which discusses the results in detail with the help of impulse response functions and variance decompositions analysis. Section six concludes the study.

Review of past studies

Following are the most widely used determinants of economic growth in past studies:

Capital Formation

Bal et al (2016) examined the impact of capital formation on economic growth in India and found that there is long term relationship between capital formation and economic growth. Uneze (2013) studied relationship between capital formation and economic growth in Sub-Saharan African countries and found that for both private capital formation and gross capital formation there is bidirectional causality between the two. Silaghi and Medeşfălean (2014) studied determinants of economic growth in Romania and they too found positive impact of capital impact of economic growth.

Inflation

According to Abou-Ali and Kheir-El-Din (2009) in a study of determinants of economic growth found that inflation affect economic growth negatively. Anyanwu (2104) while studying factors affecting economic growth in Africa found inflation to be negatively affecting economic growth. Shamim and Mortaza (2005) have also found negative effect of inflation on economic growth in Bangladesh. However, Awan (2010) found that in Pakistan inflation is positively related with economic growth.

Foreign Remittances

(Gupta et al., 2009; Jongwanich, 2007; Stark and Lucas, 1988) while studying impact of foreign remittance on economic growth found positive impact of foreign remittances on economic growth of economies. Fayissa and Nsiah (2008) have argued that countries with less developed financial sector get huge help from foreign remittance to support their investment needs.

Human Capital

De la Fuente and Doménech (2000) in study of relationship between human capital and economic growth found significant positive affect of human capital on economic growth. Bassanini and Scarpetta (2001) for OECD countries found that one additional year of schooling leads to a 6% increase in GDP per capita. Bundell et al. (1999) too has positive effect of human capital on economic growth.

Debt

Cunningham (1993) found that by negatively affecting capital and labor debt negatively affects economic growth. Many other studies have also found similar negative effects of debts on economic growth (Sen, 2007; Chowdhury, 2001; Siddiqui and Malik, 2001). However, Lof and Malinen (2014) have found insignificant effect of debt on economic growth.

Methodology

Structural vector auto regression (SVAR) analysis

To check the possible effects of relevant determinants on economic growth in Pakistan, we employed structural vector autoregressive models (SVARs) proposed by the so-called AB-model of Amisano and Giannini (1997). The benefit of the SVAR methodology instead of the simple unrestricted vector autoregressive (VAR) models is to make researchers capable of using theoretical assumptions in their empirical models by imposing explicit restrictions for the structural relationships. Such a case can be implemented by introducing theoretical restrictions to achieve econometric identification issues. For this purpose, assume that $\Sigma = E[e_t e_t']$ is the residual covariance matrix. Then, the reduced form model used for the structural analysis can be defined as follows:

$$Ae_t = Bu_t \quad (1)$$

where e_t is the reduced form disturbance vector, while u_t represents the unobserved structural innovation vector, both with a length k . Thus, Eq. 1 relates the reduced form disturbances to the underlying structural shocks. The SVAR analysis requires some restrictions for A and B matrices with a dimension $k \times k$ to be added. Note that the structural innovations have a covariance matrix $E[u_t u_t'] = I$ where I represent the identity matrix so that u_t imposes the following restrictions on A and B:

$$A \Sigma A' = B B' \quad (2)$$

We must specify that for the identification of the AB model at least $K^2 + k(k-1)/2 = k(3k-1)/2$ restrictions are needed. If the model is over-identified, the value of a likelihood ratio (LR) statistic will be reported.

Certain assumptions are required for identification of the system since the structural shocks cannot be observed directly without identifying restrictions. For this purpose, we apply the structural restrictions to identify determinants of economic growth (y_t). At this point, we try to use the same restrictions as (Çulha, 2006) used. In this sense, economic growth (y_t) has been assumed responsive only to own shocks leading it to be the most exogenous variable in the system. Economic growth (y_t) is also responsive to inflation, consumer prices (annual %), gross fixed capital formation (% of GDP), gross national expenditures (% of GDP), and personal remittances received (% of GDP leading it to be the most endogenous variable in the system. More explicitly, the AB model used in this study can be specified as follows:

$$\begin{bmatrix} 1 & a_{12} & a_{13} & a_{14} & a_{15} \\ 0 & 1 & a_{23} & a_{24} & a_{25} \\ 0 & 0 & 1 & a_{34} & a_{35} \\ 0 & 0 & 0 & 1 & a_{45} \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} u_t y_t \\ u_t cpi_t \\ u_t gne_t \\ u_t k_t \\ u_t rem_t \end{bmatrix} = A, \quad \begin{bmatrix} b_{11} & 0 & 0 & 0 & 0 \\ 0 & b_{22} & 0 & 0 & 0 \\ 0 & 0 & b_{33} & 0 & 0 \\ 0 & 0 & 0 & b_{44} & 0 \\ 0 & 0 & 0 & 0 & b_{55} \end{bmatrix} \begin{bmatrix} e_t y_t \\ e_t cpi_t \\ e_t gne_t \\ e_t k_t \\ e_t rem_t \end{bmatrix} = B$$

The SVAR system is just identified with 5 degrees of freedom. Note that the structural parameters are estimated by means of maximum likelihood estimator.

Data

Annual data is taken from World Development Indicators (CD-ROM, 2015) for the period of 1976-2014. All variables are converted into log-form. After employing general to specific approach in ARDL and Time varying approach, significant determinants of economic growth were found out for structural vector auto regression (SVAR) analysis¹. These variables are inflation, consumer prices (annual %)

¹ ARDL analysis and Time Varying Parametric approach are not explained here, however are available on request.

denoted as (cpi_t), gross fixed capital formation (% of GDP) denoted as (k_t), gross national expenditures (% of GDP) denoted as (gne_t) and personal remittances received (% of GDP) denoted as (rem_t).

Estimation results

Results Determinants of overall Economic Growth

In this section, an unrestricted vector auto regression (UVAR) model is initially constructed upon endogenous variables. For the lag length of the said model, the widely-used Schwarz information criterion, which suggests the use of lag length 1, is considered (table 1). Note that such a lag selection is also supported by the Hannan-Quinn criterion, Akaike information criterion; Sequential modified LR test statistic (each test at 5% level) and Final prediction error. Thus VAR (1) model is estimated.

Table 1: VAR Lag Order Selection Criteria

Lag	LR	FPE	AIC	SC	HQ
0	NA	1.45e-11	-10.76717	-10.54948	-10.69042
1	168.4517*	2.48e-13*	-14.84974*	-13.54359*	-14.38926*
2	23.82773	4.15e-13	-14.41484	-12.02023	-13.57063

Note: Sample period is from 1975 to 2014, * 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 and HQ: Hannan-Quinn information criterion. Endogenous variables economic growth, inflation, gross national expenditures, gross fixed capital formation and remittances.

Impulse Response Function

The SVAR impulse-response functions of the economic growth in Pakistan using 95% confidence intervals with 1000 bootstrapped replications over a 10 year period suggested by the percentile method of Hall (1992) are given in Figure 1.

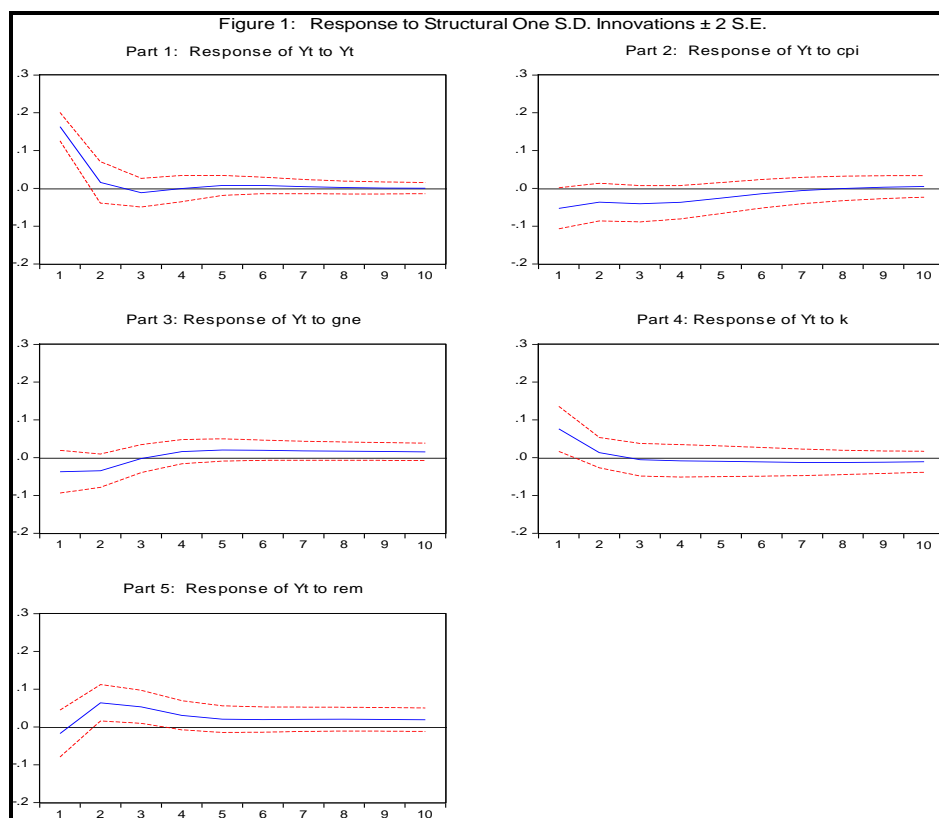


Figure 1 depicts light on response of economic growth as a result of shock in economic growth in itself which is positive. Figure 1 indicates that response of economic growth is positive from short to long run as a result of shock in inflation, gross national expenditures and remittances received. Figure 1 also shows that as a result of shock in gross fixed capital formation, response of economic growth is negative in long run.

Justification of positive relationship between inflation and economic growth is that the inflation causes individuals to change the money into other assets, which leads to greater capital intensity and promotes economic growth. Gross national expenditures increase employment, profitability and investment through multiplier effects on aggregate demand and then economic growth. The possible channels that remittances may have effects on the economic development, can be through capital accumulation, labor force growth and total factor productivity (TFP) growth. Reason of negative relationship between gross fixed capital formation and economic growth may be that when production increases in industrial sector, ratio of fixed capital formation is minimized.

Variance Decomposition of Economic Growth (y_t):

Table 2: Structural Factorization Variance Decomposition of Economic Growth (y_t)

Period	S.E.	y_t	cpi_t	gne_t	k_t	rem_t
1	0.192	72.159	7.566	3.775	15.695	0.804
2	0.210	61.183	9.367	5.884	13.587	9.978
3	0.221	55.585	11.898	5.333	12.347	14.837
4	0.226	52.736	13.924	5.554	11.855	15.931
5	0.230	51.194	14.733	6.169	11.658	16.247
6	0.233	50.210	14.797	6.745	11.647	16.602
7	0.235	49.374	14.601	7.225	11.733	17.067
8	0.236	48.599	14.369	7.636	11.840	17.556
9	0.238	47.896	14.178	7.991	11.926	18.008
10	0.240	47.276	14.041	8.294	11.978	18.411

The variance decomposition is an alternative method to impulse response function (IRF) for examining the effects of shocks to the dependent variables. It determines how much of the forecast error variance for any variable in a system is explained by innovations to each explanatory variable, over a series of time horizons. Usually own series shocks explain most of the error variance, although the shock will also affect other variables in the system. From Table 2, the VDC substantiate the significant role played by remittances received (rem_t), gross fixed capital formation (k_t), gross national expenditures (gne_t) and inflation (cpi_t) in accounting for fluctuations in economic growth. At 1 year horizon, the fraction of Pakistani economic growth forecast error variance attributable to variations in the remittances received, gross fixed capital formation, gross national expenditures and inflation (consumer prices) are 0.80%, 15.69%, 3.77%, and 7.56%, respectively. The explanatory power of all variables, namely remittances received, gross national expenditures and inflation (consumer prices) increases further at 3-year and longer horizon except gross fixed capital formation of which explanatory power decreases at 3-year and longer horizon. Obviously, at longer time horizon, percentage of forecast variance in economic growth is largely explained by innovation in remittances, among other explanatory variables as it maintains higher percentage than the other.

Variance decomposition analysis indicates that over a period of 10 year, nearly 47% of the forecast error variance of the economic growth can be attributed to the own shocks. The results indicate that the variable that best explain the forecast error variance of the economic growth is the remittances received from overseas Pakistanis. Shocks to remittances received explains nearly 18%, gross fixed capital formation 12%, gross national expenditures 8% and inflation (consumer prices) explains 14 % of the variation in economic growth. When the overall effect of all four relevant determinants has been considered, we estimate that these factors jointly account for 53% of the variation in economic growth in year ten.

Our estimation results indicate (Table: 3) that positive shocks on inflation, gross national expenditures and remittances lead to increase the economic growth while a positive shock on gross fixed capital formation lead to decrease the economic growth.

Table 3: Structural VAR Estimates

Estimated A matrix:				
y_t	cpi_t	gne_t	k_t	rem_t
1.000	0.363	4.493	-4.196	0.073
0.000	1.000	-2.922	-0.946	0.056
0.000	0.000	1.000	-0.052	-0.025
0.000	0.000	0.000	1.000	-0.007
0.000	0.000	0.000	0.000	1.000
Estimated B matrix:				
0.163	0.000	0.000	0.000	0.000
0.000	0.146	0.000	0.000	0.000
0.000	0.000	0.007	0.000	0.000
0.000	0.000	0.000	0.021	0.000
0.000	0.000	0.000	0.000	0.104

Sample period is from 1975 to 2014, Estimation method was of scoring (analytic derivatives), Structural VAR is just-identified, Model: $Ae = Bu$ where $E[uu'] = I$ and Restriction Type is short-run pattern matrix.

Conclusion

The study aimed to examine the determinants of economic growth in Pakistan. The structural vector auto regressive (SVAR) models proposed by the so-called AB-model of Amisano and Giannini (1997) were employed for this purpose. Prior to SVAR analysis; ARDL bound testing and time varying parametric estimation with general to specific approach were used to find out the relevant significant determinants of economic growth in Pakistan. The time series annual data from 1976 to 2014 were used. The widely-used Schwarz information criterion and Akaike information criterion were considered for the lag length in each estimated equation. The results show that remittance from abroad (rem_t), gross national expenditures (gne_t) and inflation (cpi_t) are found to be the best relevant positive and significant determinants of economic growth. Based on these empirical findings, we conclude that government should focus on overall economic growth augmenting factors while formulating any policy relevant to the concerned sector.

References

- Abou-Ali, H. and Kheir-El-Din, H. (2009), "Inflation and Growth in Egypt: Is There a Threshold Effect?", *Middle East Development Journal*, 1(1): 59-78
- Adepoju, A. A., Salau, A. S. and Obayelu, A. E. (2007), "The Effects of External Debt Management on Sustainable Economic Growth and Development: Lessons from Nigeria", MPRA Paper No. 2147
- Ahmed, K., & Wajid, S. (2013), "What matters for economic growth in Pakistan: fiscal policy or its composition?", *Asian Economic and Financial Review*, 2(2):196-215
- Akanbi, O. A. (2016), "The growth, poverty and inequality nexus in South Africa: Cointegration and causality analysis", *Development Southern Africa*, 33(2): 166-185
- Amisano, G., & Giannini, C. (1997), "Topics in structural VAR econometrics, 2nd edition, Berlin: Springer-Verlag
- Anyanwu, J.C. (2014), "Factors Affecting Economic Growth in Africa: Are There any Lessons from China", *African Development Review*, 26(3):468-493
- Arezki, R. and Gylfason, T. (2011), "Commodity Price Volatility, Democracy and Economic Growth", CESIFO Working Paper No. 3619
- Attique, R. & Malik, K. (2012), "Impact of domestic and external debt on the economic growth of Pakistan", *World Applied Sciences Journal*, 20 (1):120-129

- Auerbach, A., Hassett, K. and Oliner, S. (1994), "Reassessing the Social Returns to Equipment Investment", *Quarterly Journal of Economics*, 109: 789-802
- Awan, M. Z. (2010), "A Nexus between foreign direct investment & Pakistan's economy", *International Research Journal of Finance and Economics*, 52
- Ayadi, R., Arbak, E. Ben-Naceur, S. and De Groen, W. P. (2013), "Financial Development, Bank Efficiency and Economic Growth across the Mediterranean", MEDPRO Technical Report No. 30
- Azam, M., & Khattak, N.U.R. (2009), "Empirical analysis of determinants of economic growth in Pakistan", *Sarhad Journal of Agriculture*, 25(2): 307-312
- Bal, D. P., Dash, D. P. and Subhasish, B. (2016), "The Effects of Capital Formation on Economic Growth in India: Evidence from ARDL-bound Testing Approach", *Global Business Review*, 17(6): 1388-1400
- Bassanini, A. & Scarpetta, S. (2001), "Does Human Capital Matter for Growth in OECD Countries? Evidence from Pooled Mean-Group Estimates", OECD Economics Department Working Papers, No. 282
- Brunetti, A., Kisunko, G. and Weder, B. (1998), "Credibility of Rules and Economic Growth: Evidence from a Worldwide Survey of the Private Sector", *The World Bank Economic Review*, 12(3): 35384
- Bundell R., Dearden, L., Meghir, C. and Sianesi, B. (1999), "Human Capital Investment: The Returns from Education and Training to the Individual, the Firm and the Economy", *Fiscal Studies*, 20(1): 1-23
- Chowdhury, A. R. (2001), "External Debt and Growth in Developing Countries; A Sensitivity and Causal Analysis." *WIDER Discussion Paper No. 2001/95*
- Cordella, T., Ricci, L. and Arranz, M. R. (2010), "Debt Overhand or Debt Irrelevance? Revisiting the Debt-growth Link", IMF Staff Papers, Vol. 57, IMF, Washington, DC
- Çulha, A. (2006), "A structural VAR analysis of the determinants of capital flows into Turkey", CBRT Research and Monetary Policy Department, Working Paper, no. 06/05
- Cunningham, R.T. (1993): "The Effects of Debt Burden on Economic Growth in Heavily Indebted Nations", *Journal of Economic Development*, pp 115-126
- De La Fuente, Á. and Domenéch A. (2000), "A Human capital in growth regressions: how much difference does data quality make?", Economic Department Working Paper No262, Paris: OECD, 2000 (ECO / WKP (2000) 35)
- Dollar, D. (1992), "Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976–1985", *Economic Development and Cultural Change*, 40(3): 523-44
- Economic Survey of Pakistan (2015-16), Ministry of Finance, Government of Pakistan
- Edwards, S. (1998), "Openness, Productivity and Growth: What Do We Really Know?", *Economic Journal*, 108: 383-98
- Fayissa, B. and Nsiah, C. (2010), "Can Remittances Spur Economic Growth and Developments in Sub-Saharan Africa?", paper presented at the 2010 AFEA/ASSA Conference, Atlanta
- Fayissa, B. and Nsiah, C. (2008), "The impact of remittances on economic growth and Development in Africa", Department of economics and finance working paper series
- Fowowe, B. (2008), "Financial Liberalization Policies and Economic Growth: Panel Data Evidence from Sub-Saharan Africa", *African Development Review*, 20(3): 549-74
- Gupta, S., Pattillo, C.A. and Wagh, S. (2009), "Effect of Remittances on Poverty and Financial Development", *World Development*, 37(1)
- Hall, R. (1992), "The strategic analysis of intangible resources", *Strategic Management Journal*, 13(2):135-144
- Iqbal, Z., & Zahid, G.U. (1998), "Macroeconomic determinants of economic growth in Pakistan", *The Pakistan Development Review*, 37(2): 125-148
- Jongwanich, J. (2007), "Workers' remittances, economic growth and poverty in Developing Asia and the pacific countries", UNESCAP working paper, WP/07/01
- Levine, R. and Renelt, D. (1992), "A Sensitivity Analysis of Cross Country Growth Regressions", *American Economic Review*, 82(4): 942-63
- Lensink, R. (2001), "Financial Development, Uncertainty and Economic Growth", *De Economist*, 149(3): 299-312
- Lensink, R., Bo, H. and Sterken, E. (1999), "Does Uncertainty Affect Economic Growth? An Empirical Analysis", *Weltwirtschaftliches Archiv*, 135: 379-396
- Lof, M. and Malinen, T. (2014), "Does Sovereign Debt Weaken Economic Growth? A Panel VAR Analysis", *Economic Letters*, 122: 403-407
- Mankiw, N., Romer, D. and Weil, D. (1992), "A Contribution to the Empirics of Economic Growth", *Quarterly Journal of Economics*, 107(2): 407-37
- Mohamed, M.A.A. (2005), "The Impact of External Debts on Economic Growth: An Empirical Assessment of the Sudan: 1978– 2001", *Eastern Africa Social Science Research Review*, 21(2): 53-66
- Pattillo, C., Poirson, H. and Ricci, L. A. (2011), "External Debt and Growth", *Review of Economics and Institutions*, 2(3): 1-30
- Pritchett, L. (2001), "Where Has All the Education Gone?", *World Bank Economic Review*, 15: 367-91

- Rahman, M.M., & Salahuddin, M. (2010), "The determinants of economic growth in Pakistan: does stock market development play a major role?", *Economic Issues*, 15(2): 69-86
- Sachs, J. and Warner, A. (1995), "Economic Reform and the Process of Global Integration", *Brooking Papers on Economic Activity*, 1: 1-118
- Sajid, G.M., & Sarfraz, M. (2008), "Savings and Economic Growth in Pakistan: An Issue of Causality", *Pakistan Economic and Social Review*, 46(1): 17-36
- Sala-i-Martin, X. (1997), "I Just Ran Two Million Regressions", *American Economic Review, Papers and Proceedings*, 87(2): 178-183
- Scully, G.W. (1988), "The Institutional Framework and Economic Development", *Journal of Political Economy*, 96(3): 652-662
- Sen, S., Kasibhatla, K. M., & Stewart, D. B. (2007), "Debt overhang and economic growth: the Asian and the Latin American experiences." *Economic System*, 31: 3-11
- Shaheen, S., Awan, M.S., Waqas, M., & Aslam, M.A. (2011), "Financial Development, International Trade and Economic Growth: Empirical Evidence from Pakistan", *Romanian Journal of Fiscal Policy*, 2(2):11-19
- Shamim, A. and Mortaza, G. (2005), "Inflation and Economic Growth in Bangladesh: 1981-2005. Working Paper Series: WP 0604, Policy Analysis Unit (PAU) Research Department, Bangladesh, Bank Head Office, Dhaka, Bangladesh
- Siddiqui, R. & Malik, A. (2001), "Debt and economic growth in South Asia", *The Pakistan Development Review*, 677-688
- Silaghi, M.P. and Medeşfălean, R. (2014), "Some insights about determinants of economic growth in Romania. An empirical exercise", *Theoretical and Applied Economics*, 18(6), 23-36
- Stark, O. and Lucas, R. (1988), "Migration, Remittances and Family", *Economic Development and Cultural Chang*, 36(3): 465-481
- Tahir, M., Khan, I., & Shah, A.M. (2015), "Foreign Remittances, Foreign Direct Investment, Foreign Imports and Economic Growth in Pakistan: A Time Series Analysis", *Arab Economics and Business Journal*, 10: 82-89
- Topel, R. (1999), "Labor Markets and Economic Growth", in O. Ashenfelter and D. Card (eds.), *Handbook of Labor Economics*, Elsevier, Amsterdam: 2943-84
- Uneze, E. (2013), "The relation between capital formation and economic growth: evidence from sub-Saharan African countries", *Journal of Economic Policy Reform*, 16(3): 272-286
- United Nations Development Programme; Human Development Report (2016), Human Development for everyone
- Uwatt, B. U. (2003), "Capital and Economic Growth: The African Experience", Proceedings of the Nigerian Economic Society Annual Conference
- Were, M. (2001), "The Impact of External Debt on Economic Growth in Kenya: An Empirical Assessment", UNU, WIDER Research Paper, DP2001/116