- Thesis Title: **"Impact of Oil Price and Shocks on Economic Growth of Pakistan: Multivariate Causality Analysis"**

Name of Student: **Sidra Nazir** Supervisor Name: **Dr. Abdul Qayyum**

ABSTRACT

Oil is becoming the most prominent indicator of economic growth in Pakistan with increase of its demand. Also oil prices are doing their main contribution to impact the GDP of Pakistan including different shock dummies in data. In this study, Cobb-Douglas production function has used to construct four models by introducing total oil consumption and its three major sectors (Transport, Power and Industrial sector oil consumption) and Pakistan's oil price variable to investigate the impact on GDP. ADF (1979), Johansen Maximum Likelihood method of cointegration (1988) and Granger causality test by applying restriction on dynamic model are used to test the order of integration, long run and short run dynamics and causal relationship between variable using annual data since 1972-2011 in context of Pakistan. Through examining the results the long run and dynamic relationship has detected for all the variables except total, industrial oil consumption and oil price variables for model has no short run impact on GDP. Oil prices impacting real GDP negatively in long run but positively in short run (Rasmussen and Roitman, 2011). There is evidence of causality between oil consumption (including sectors) and economic growth.

- Thesis Title**: "Exogeneity, Cointegration and Economic Policy Analysis: An Application from Financial Development and Economic Growth"**

Name of Student: **Ijlal Hayder** Supervisor Name: **Dr. Muhammad Arshad Khan**

ABSTRACT

This study analyzes the role of exogeneity and cointegration in economic policy decision making. To this end, we consider the case of financial development and economic growth nexus in case of Pakistan using the quarterly data over the period of 1972Q2 to 2012Q2. Liquid liabilities and private sector credit is used as a measure of financial development, whereas real GDP is used as an indicator of economic growth. We employ seasonal unit root test advanced by Hylleberg et al (1990) to examine the order of integration among variables under consideration. The results show that real interest rate and investment are level stationary whereas the remaining variables are stationary at first difference. To determine the long-run relationship between finance and growth we employ Johansen and Juselius (1990) multivariate cointegration test. We failed to obtain supportive result for long-run relationship between the variables. Lack of cointegration between the variables constraint us to employ variants of exogeneity test. Therefore, we employ the short run multivariate Granger causality test to determine the sources of causation. Results suggest that liquid liabilities causes" economic growth significantly however, the impact of credit to private sector on economic growth is insignificant. This means that private sector credit is weakly exogenous for economic growth. Besides, financial

development other variables such as trade openness, private investment, government expenditure and real interest rate also play a crucial role in enhancing economic growth. Results show that trade openness and real interest rate has a significant effect on economic growth whereas the other variable does not cause growth significantly. The result of the study implies that policy makers should take appropriate steps to improve the credit availability in the economy. Both trade and financial liberalization has positive impacts on growth therefore, policy makers have to enhance the level of liberalization in both of these sectors.

- Thesis Title**: "Impact of Free Trade Policy on Large Scale Manufacturing Industries: An Econometrics Analysis"**

Name of Student: **Gulzar Ahmed** Supervisor Name: **Dr. Muhammad Arshad Khan**

ABSTRACT

Pakistan manufacturing sector has been confronting high tariff rates, import substitution policies and other trade impediment since 1980s, which caused reduction in industrial productivity due to underutilization and misallocation of resources and technological inefficiency. This study empirically analyzed the pre and post liberalization trade policy impact on total factor productivity (TFP) by using pooled data of 27 manufacturing industries of Pakistan. Consistency in the face of simultaneity TFP for pre-liberalization (1981-1995) and post-liberalization (1996-2006) periods was estimated following Levinsohn and Patrin (2003) methodology. Production elasticities with respect to each input (capital, labour, raw material and energy) were estimated by using Cobb Douglas production function. Output elasticities in terms of inputs were found positive for pre and post-liberalization period; which also proved the assumption of elasticity substitution equal to unity. However, output elasticity with respect to energy was negative in post-liberalization period, perhaps due to energy crisis. Results indicated that excise duty has positive impact on TFP in pre and post-liberalization periods; however, its coefficient is very small and considered to be negligible effect on TFP. Effective rate protection which is used as trade policy proxy exerts large negative effect on TFP in post-liberalization (1996-2006) than pre-liberalization (1981-1995). Results of this study implied that it is pre-requisite to eliminate trade barriers and protection policies for technological advancement and industrial development.

- Thesis Title**: "Health Care Expenditure & Economic Growth in SAARC countries: "A Panel Causality Analysis"**

Name of Student: **Habib Nawaz Khan** Supervisor Name: **Dr. Muhammad Arshad Khan**

ABSTRACT

This study examines the relationship between health care expenditure (HCE) and economic growth and direction of causality between HCE and economic growth is SAARC countries,

using Panel causality analysis for the period of 1995-2012. Labor force, literacy rate, and elderly population of age 65 and above are used as an independent variables, as the variables are considered indicators of human and physical capitals. Panel unit root tests are used for examining the unit root in the data. Pedroni ((1997) and Kao (1999) Panel co-integration tests are applied for investigating co-integration. To obtain long run parameters, Dynamic Ordinary Least Squares (DOLS) estimation technique is used. For investigating short run and long run causality between HCE and GDP per capita by controlling other variables, Seemingly Unrelated Regression (SURE) model is used. To examine the direction of causality between HCE and GDP per capita a new technique developed by Demitrescu and Hurlin (2012) is used. The study investigates long run significant positive relationship between HCE and GDP per capita. Income is determinant of health care expenditure, and income elasticity is less than one implies that health care expenditure is a necessary good for the South Asian countries. Unidirectional causality running from GDP per capita to HCE is confirmed by the results. It is also investigated from the results that labor force, education, and elderly population causes GDP per capita and HCE in bi-directions.

- Thesis Title**: "The Energy, Output and Trade Nexus in Pakistan: An Empirical Investigation"**

Name of Student: **Muhammad Islam** Supervisor Name: **Dr. Nasir Iqbal**

ABSTRACT

This dissertation attempts to investigate the linkages between energy consumption, output and trade in Pakistan using time series data over the period 1981-2010. We have employed cointegration method to examine the casual relationship among the variables. The results have shown that in long run HOBC, diesel and furnace oil prices have a negative impact on energy consumption (oil consumption). In short run, we have found that the HOBC and diesel oil prices have positive impacts on oil consumption. While furnace oil prices has negative impacts to oil consumption. The negative impact of GDP on energy consumption shows contradiction to economic theory. This suggests that in short run the high oil prices can give high level of energy consumption but GDP and oil consumption has negative impacts. Finally it is observed that the causal relationship is running from trade to energy consumption. By using all of the three models the inferences are drawn, that in short run as well as in long run trade openness has positive impacts on energy consumption (oil consumption). In essence high level of energy consumption can be achieved on the cost of high level of trade openness.

- Thesis Title**: "Macroeconomic Forecasting using a GVAR Model: Pakistan VS Major Trading Partner Countries"**

Name of Student: **Irfan Gul** Supervisor Name: **Dr. Hasan M. Mohsin**

ABSTRACT

In this thesis an attempt has been made to analyze and estimate the macroeconomic forecasting for Pakistan and its major twelve trading partners for the period of 1995Q1 to 2012Q4, using Global Vector Autoregressive (GVAR) Model. The key feature of GVAR model is to capture the independence and co-movement across countries. Second, it provides better forecasting performance. The GVAR model is estimated for twelve trading economies. During estimation, Pakistan economy is treated as single and also treated as domestic economy while other trading partners are treated as foreign economies. The important finding of this study is that the GVAR forecasts better than the VAR forecasts in most of the cases. Second the foreign real gross domestic product and foreign inflation are reflecting the significant impact of their domestic counterpart of Pakistan real gross domestic product and inflation.

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- Thesis Title**: "Interdependence and Contagion in Financial Asset Markets: Pakistan VS Major Trading Partner Countries"**

  Name of Student: **Yasir Ali** Supervisor Name: **Dr. Hasan M. Mohsin**

ABSTRACT

The study provides the empirical estimation of interdependence and contagion across three asset classes (treasury bills rate, share price and exchange rate) for ten trading economies from the period of 2000 M1 to 2011M12. Using Global Vector Autoregressive (GVAR) model, through which we can test the transmission mechanism across border financial markets, changes during period of turbulence. The GVAR model is estimated for ten trading economies. During estimation Pakistan economy is treated as single and also treated as domestic economy while other trading partner are treated as foreign economies. In this area GVAR model will stimulate research in a number of directions, using average pair wise cross section error correlation. For interdependence in financial asserts markets and cross border co-movement business fluctuation the GVAR methodology is known to be appropriate. This methodology also developed separate bootstrapping procedure for simulation of the GVAR model, which is applied in testing the structural stability of the parameter and for establishing bootstrap confidence bounds for the impulse responses. Further generalized impulse response is used in GVAR for structural impulse analysis focus on the Pakistan economy, particularly responses from the trading partners of Pakistan. Moreover, our results indicate that stock markets are much more integrated rather than treasury bills markets across border financial markets. Contagion effects across markets are significantly notable mostly in stock markets. Impulse responses indicate that during crises time trading partner of Pakistan significantly affect stock market of Pakistan and so less foreign exchange market.

- Thesis Title**: "Modeling the Impact of Policy Environment on Inflows of Worker's Remittances in Pakistan: A Multivariate Analysis"**

  Name of Student: **Muhammad Jawad** Supervisor Name: **Dr. Abdul Qayyum**

ABSTRACT

The study investigates relevant significance of various economic determinants for inflows of worker's remittances to Pakistan. The study contributes to the current literature by studying the role of policy environment in defining the inflows of workers' remittances in Pakistan. Following precedence from the policy index developed by Burnside and Dollar (2000), we develop a policy index for Pakistan and use it as a proxy for estimating the relationship of this policy index with the remittances in Pakistan. For having efficient and precise coefficient estimates of our estimated models, the study has also taken other conventional macroeconomic determinants into account such as GDP, exchange rate, labor force participation and interest rate spread. The study finds that during the period (1972-2011) policy environment is one of the significant determinants of worker's remittances in Pakistan. Test of super exogeneity found that the estimated dynamic error correction model including economic policy in Pakistan is super exogenous against relevant class of interventions or external shocks which leads us to conclude that the estimated dynamic Error Correction Model in this study can be used for making future policy choices in Pakistan. The application of several post estimation tests proves that our empirical model is robust and the coefficient estimates are BLUE.

- Thesis Title**: "A Comparative Analysis of Factors Affecting Child Mortality in Pakistan and Provinces: Binomial Logistic Regression Analysis"**
  Name of Student: **Sarah Rabbani** Supervisor Name: **Dr. Abdul Qayyum**

ABSTRACT

The aim of this thesis is to investigate determinants of child mortality in the Pakistan and Provinces, such as Punjab, Sindh, Khyber Pakhtunkhwa and Baluchistan. The Pakistan is amongst one of the five countries who has the highest child mortality rates in the world. Between and within country, literature on the subject has found extensive variation in causes of child death. The analysis is conducted using micro-data of Pakistan Demographic Health Survey (PDHS) of 2006-07 collected by National Institute of Population Studies (NIPS). In the descriptive analysis, it is found that neo-natal mortality rate is high for Pakistan as well as for four provinces. In econometric analysis, binary logit models are estimated using maximum likelihood method (MLM) to estimate factors of child mortality for Pakistan, Punjab, Sindh, KPK and Baluchistan separately. The study puts particular emphasis on the effect of wealth, mothers' education, exposure to media and ethnicity. Effect of wealth, and exposure to media found significant determinants of child mortality in Pakistan and Punjab. While ethnicity found to be significant in Sindh and Baluchistan. Mothers' education found significant only in Pakistan. Knowledge on condition of a subject at national and local level gives a prerequisite for shaping efficient policies addressing the problem.

- Thesis Title**: "Impact of Advertisement Expenditure and Inflation on Sales Revenue: Transfer Function Analysis"**

Name of Student: **Amna Rubab** Supervisor Name: **Dr. Abdul Qayyum**

ABSTRACT

This study investigates the impact of advertisement expenditure and inflation on sales in case of Pakistan, using two firms naming ZIL Limited and Nestle Pakistan Limited, by using transfer function model. Annual time series data from 1982 to 2011 on three variables namely advertisement expenditure, sales and inflation has been used. This study found that in case of ZIL Limited sales depend upon first and second lag of advertisement expenditure and on its own first lag. While in case of Nestle Pakistan Limited sales are dependent on own first lag showing previous year sales positively affects current year sales.

- Thesis Title**: "An Evaluation of Consumption Function for Pakistan Based on Time Series Analysis"**

Name of Student: **Akbar Jan** Supervisor Name: **Dr. Abdul Qayyum**

ABSTRACT

Besides gross domestic product, aggregate consumption is the single most important macroeconomic variable which affects various sectors of the economy, directly or indirectly. For example, consumption is said to be the biggest component of aggregate demand and hence is a major determinant of economic fluctuations in an economy. Besides these well known effects of consumption, it also has a number of other effects which are very relevant form the policy perspective. For instance, variations in consumption are strongly associated with variations in government tax revenues (in particular where bulk of tax revenue is collected through consumption taxes), variations in the balance of trade, inflation and so on.

Keeping this immense importance of aggregate consumption in mind, it is important to know the sources that cause variations in aggregate consumption. This very topic is under serious scrutiny since the times of Keynes (1936) but no single answer has been reached as yet. In particular, there are still debates on the differences of short run and long run consumption study has been designed to seek answers for some of the debated issues in the area.

The study utilizes time series data from 1971 to 2012 and most of the variables mentioned relevant in the literature. As is the routine in contemporary time series based econometric analysis, we have checked all the variables for their order of integration. Since most of the Variable under consideration were found to be non stationary, the use of conventional ordinary least square was ruled out and we searched for our answers using the relatively new cointegration analysis. The relevant technique, in our case, was the Johansen and Juselius (1992) cointegration (JJ hereafter) technique which has a number of advantages over the Engle Granger cointegration technique.

The JJ test confirms the long run equilibrium relationship between consumption and the set of explanatory variables (income, wealth, rate of interest, relative prices, liquidity constraints as proxied by unemployment, government expenditure, uncertainty and exchange rate) and then we moved to estimate the VECM model to the long and short run coefficients of the variable explaining consumption. The resulting ECM term turned out to be negative and statistically significant, meaning that the set of explanatory variables, listed above, causes variations in long run consumption behavior of Pakistan. After arriving at a parsimonious ECM model, we then carried out the short run causality analysis.

The major conclusions of the study, based on the estimated long run consumption function are that current income, real exchange rate and interest rate have no explanatory power for explaining consumption. On the other hand, variables such as government expenditure, and liquidity constraints effects long run consumption negatively and the wealth effects on consumption are positive. Form the long run consumption function, we failed to found any evidence of the price confusion effect.

Similarly, the short run consumption function, based on the error correction mechanism, reveals that personal disposable income effects consumption positively while rate of interest and uncertainty affects it negatively. The short run consumption function shows that Pakistani consumers do suffer from the price confusion effects in the short run. However, wealth and liquidity constraints both turned out to be insignificant factors in the short run.

- Thesis Title**: "Foreign Aid, Political Regimes and Inflation in Pakistan"**

  Name of Student: **Muhammad Younas** Supervisor Name: **Dr. Nasir Iqbal**

ABSTRACT

This study attempts to examine the impact of foreign aid and political regimes on inflation in Pakistan. The short run and long run dynamics of foreign aid along with key determinants of inflation are estimated by applying 'Auto Regressive Distributed Lag'(ARDL) methodology over the period 1960-2013. The long run relationship between variables of interest is strongly supported by the bound test and the Gregory Hansen structural break Cointegration test. The empirical findings show that political regimes positively contribute to inflation in both short run and long run where as foreign aid has an inflationary impact in the short run and hence is a cause but in the long run foreign aid is deflationary and hence works as a cure for the economy. The results further show that other important determinants of inflation like money supply, imported inflation positively whereas exchange rate and imports negatively respond to inflation in Pakistan.