- 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.

- Thesis Title: **"A Panel Co-integration Analysis: Effect of Institutional Quality on Environmental Degradation in SAARC Countries"**

Name of Student: **Shahid Imdad** Supervisor Name: **Dr. Hafsa Hina**

ABSTRACT

This study is proposed to analyze the impact of institutional quality on environmental degradation and the turning point of the Environment Kuznets Curve (EKC) in SAARC Countries. For the sake of detailed analysis basic EKC model and extended EKC model; in which institutional quality and the population density joined income and income square to determine the environmental degradation. Panel of four countries (India, Pakistan, Sri Lanka and Bangladesh) is chosen whereas data is observed from 1980-2013. Macro panel non-stationary techniques would be undertaken for this analysis. Im, Pesaran and Shin (IPS) (1997) reports that all the series are integrated of order one except population density. After this, Pedroni (1999) test for co-integration have considered to check the long run relationship. Co-integration is detected for both models while taking CO2 as dependent variable but for SO2 as dependent variable co-integration is experienced for extended model (EKC with institutional quality) only. Further this long run relationship between the variables would be estimated through Dynamic Ordinary Least Square (DOLS), test proposed by Kao and Chiang (2000). Estimated results report that institutional quality improves environmental situation and also correct the turning point to minimizing magnitude. Finally, error correction mechanism for panel study is applied on the basic and extended EKC models. According to the ECM disequilibrium in the environmental degradation is corrected significant for all models in a period ranged from 0.24 years to 0.28. Institutions improve the environmental situation in the short run for CO2 but not for SO2. EKC is not proved for both CO2 and SO2 in short run. Last but not least institutional improvement leads to the environmental betterment as well to have more detailed view of EKC theory. Key Words: Environmental degradation, SAARC, EKC, CO2, SO2, Institutional Quality,
Income, IPS, ECM

- Thesis Title: **"Impact of Energy Investment on Economic Growth"**

Name of Student: **Muhammad Naveed** Supervisor Name: **Dr. Hafsa Hina**

ABSTRACT

Energy is the device of economic growth, as many production and consumption procedures include energy as an elementary input. It leads to economic growth and development in terms of higher per capita income. It is widely believed that economic growth and energy usage are mutually dependent. The aim of this study is to explore the impact of energy investment on the economic growth. For this purpose energy is introduced as factor input in the growth model (Mankiw et al. 1992) along with physical capital, labor and human capital and some other policy variables. The annual time series data are collected from period of 1970 to 2012 for Pakistan. Autoregressive Distributed Lag (ARDL) approach is used to investigate the relationship between economic growth (Gross domestic product per capita) and independent variables (share of investment in energy, share of investment in physical capital, share of investment in human

capital and growth rate of labor, technology and depreciation rate, inflation rate, foreign direct investment, external debt and trade openness). The results of this study reveal that energy investment has positive and significant impact on economic growth in the long run. Physical capital and human capital both are found to be insignificant in the long run but having negative impact on economic growth. Trade openness has a positive and significant impact on economic growth both in short run and long run. Growth rate of labour has a negative insignificant impact on economic growth. Trade openness and external debt are found to be negative with significant impact on economic growth. Inflation is found to be negatively associated with economic growth of Pakistan. The study has important policy implication that government should encourage the investment activities in energy sector to meet the rising energy demand which in turn leads to stimulate economic growth. This economic growth then generates the employment opportunities in the country.

- Thesis Title: **"Threshold Cointegration and Asymmetric Adjustment in Okun's Law: In Case of Pakistan"**

Name of Student: **Umer Hussain** Supervisor Name: **Dr. Hafsa Hina**

ABSTRACT

Time series data entails considering the linearity or nonlinearity along threshold level before processing it to comprise in a model for policy makers to policy implication. Engle and Siklos (2001) claimed that the EG procedure would be misleading in case if time series possesses possible asymmetric relationship. They recommended a model which includes the asymmetric adjustment to get stationarity of error term. This adjustment process is established by Balke and Fomby (1997) to familiarize Threshold co-integration to combine nonlinearity and co -integration along threshold error correction model. The plenty of past and existing foreign studies showed the evidence of asymmetries between the relationship of unemployment and economic growth and points out that Okun‟s coefficient is asymmetric in upswing and downswing phase of the economy because of labor force participation rate and sectorial growth rates. The objective of this study is to estimate the consistent estimate of threshold level in unemployment rate and output by Tong (1983, 1990) method. Furthermore, test the hypothesis of linear cointegration against threshold cointegration and asymmetric adjustment between unemployment rate and outuput by Balke and Fomby (1997) method for the time period of 1964-2012. A single threshold level is obtained in both unemployment rate and output. Further, the null hypothesis of linear cointegration is rejected against threshold cointegration. It is considered that the results of this study would assist the policy makers in formulating diverse policies related to macroeconomic targets like to stabilize prices, achieving targeted level of economic growth and to reduce the unemployment level and reduce the forecasting error of unemployment rate and output.

- Thesis Title: **Accounting of City Real Exchange Rates: The Case of Pa**kistan

Name of Student: **Zahid Hussain** Supervisor Name: **Dr. Hasan M. Mohsin**

ABSTRACT

In this study I scrutinized the role of traded and non-traded goods in the city real exchange rate changes in Pakistan. I employed the Engel (1999) methodology to decompose the city real exchange rate by Mean Square Error. In this study I considered 17 cities and computed 272 bilateral Pakistani cities real exchange rates, to find the proportion of traded and non traded goods variation to real exchange rate at all possible horizons that data allow. I analysed the role of consumption elasticity of substitution between traded and non traded goods. I verified that traded real exchange rate is stationary process in panel of 16 cities therefore by Im, Pesaran and Shin panel unit root test, which confirmed traded real exchange rate has long run equilibrium. I used GARCH (1, 1) and EGARCH (1, 1) modeling for each city real exchange rate on two bases Karachi and Lahore. I found that variability in real exchange rate of each city is following GARCH (1, 1) EGARCH (1, 1) both or neither; if any city is following EGARCH (1, 1) modelling then variability is symmetric or asymmetric. This would be the first study which computed and analysed the city exchange rates in Pakistan as well as the traded and non traded indices. The author claimed that the city price dynamics and exchange rates in Pakistan will be an important contribution by this study.

- Thesis Title: **"Economic Growth Response in the Wake of Natural Disasters Using Panel Data Analysis: A Regional Dimension"**

Name of Student: **Fakhra Aslam** Supervisor Name: **Dr. Zahid Asghar**

ABSTRACT

This study finds the annual mean responses of GDP growth along with its disaggregated parts i.e. agricultural growth and non-agricultural growth to four types of natural disasters like drought, flood, earthquake and storm in four major regions of world. This study pools experiences of all countries in each region over time. It uses VARX methodology by taking natural disasters as exogenous shocks to economic growth of four regions. This methodology has been applied over cross countries and time. From the analysis of this study, we find different results. Firstly, we observe that natural disasters have strong effect in all regions. This effect is somewhere positive and on some negative. Secondly, we come to know that effect of disasters depends on area, development of area and type of disaster from which that area are mostly affected. Thirdly, all natural disasters are not a bad sign for economic growth; instead, some disasters can bring positive change to the economic growth. Fourthly, we study that impact of moderate disasters is more good and beneficial rather than severe ones. Fifthly, there are also some patterns of effects

caused by the natural disasters systematically. Positive effects show delayed pattern and it appears after some delay but negative effect of disasters shows quickly as natural disaster prevails.

- Thesis Title: **"Tax Policy and Economic Growth: A Semi-Parametric Approach Using AMTR"**

Name of Student: **Mariuam Shafi** Supervisor Name: **Dr. Zahid Asghar**

ABSTRACT

The present study explores the impact of tax policy on economic growth using average marginal tax rate and average tax rate for South Asian countries. The data for five developing countries: India, Maldives, Nepal, Pakistan, Sri-Lanka is used for the period of 1991-2010. This study uses ADDITIVE MIXED MODELS with penalized spline methodology. In this study we have constructed the average marginal tax rates using methodology of Seater (1982). It further identifies that the variables like average marginal tax rate (AMTRs), average tax rate (ATR), population growth rate, trade-openness, investment, human capital and real per capita GDP are the significant determinants of economic growth in the sample countries. On average, AMTRs and population growth rate reduce the performance of economic growth in the developing countries. The main findings further suggest that nonlinear effects are exerted by tax policy on economic growth. The increase in average marginal tax rate at the lower level of taxation, effects more adversely, than at higher levels of taxation. So it suggested that to increase the economic growth a substantial tax cut in prevailing tax level is essential in developing countries. As in developing countries the AMTRs affects the economic growth adversely and significantly, so developing countries should introduce tax reforms in a way that will lead to reduce dependence on AMTRs.

- Thesis Title: **Commuting Time and its Implication on Social, Personal Care and Household Related Activities: A Microeconometric Analysis**

Name of Student: **Muhammad Nasir** Supervisor Name: **Dr. Zahid Asghar**

ABSTRACT

This study describes individuals' trade-off among daily commuting time, personal care, social and household related activities by taking into consideration the association between commuting time and daily performed main activities via a cross-sectional analysis of 37,830 individuals, from a nationally representative dataset i.e., Pakistan Time Use Survey (2007). The most important determinants of commuting time are explored using binary logistic regression model. It is examined whether there is trade-off between daily commuting time and daily performed main activities like personal care, social and household related activities using

seemingly unrelated regressions model. We calculated mean adjusted minutes made on daily performed main activities for several daily commuting time. The average daily commuting time found to be 111.00 minutes and 28.22 minutes for both male and female respectively. A 60 minutes increase in daily commuting time is associated with 38.37 minutes and 42.89 minutes decrease in personal care related activities for male and female respectively. While household related activities decrease by 24.13 minutes and 73.63 minutes for both male and female respectively. But social and cultural activities increase by 3.22 minutes and 10.95 minutes for male and female respectively. Similarly personal care related activities of individuals from urban and rural decreased by 42.89 minutes and 46.88 minutes respectively. The comparative analysis is also explored for province i.e., Punjab, Sindh, KPK and Balochistan and for age specific groups. This study concludes that few amount of time given to household based activities and personal care related activities due to lengthy daily commuting duration affects one's daily routine life. This study suggests that an individual should make utmost efforts to reduce daily commuting time: by searching a job closer to their dwelling, residence should be nearby city centre where use of land is multipurpose (not at edge of city that is greatly affected by sprawl).

- Thesis Title: **Demand and Supply Projections for Food Grains in Pakistan: 2015-2030**

Name of Student: **Maqsood Aslam** Supervisor Name: **Dr. Zahid Asghar**

Defense Date: **March 12, 2015**

ABSTRACT

This study presents projections for demand and supply of food grains (wheat and rice) for 2015, 2020, 2025 and 2030 as these are the two main staple foods for majority of Pakistani population. The LA-AIDS model is used to calculate expenditure elasticities of different food groups by taking HIES data set (2010-11). By using the estimates the demand for food grains is projected under different scenarios: pessimistic, business- as-usual and optimistic. The supply of food grains is projected by Cobb Douglass production function using time series data (GOP, 2010-11) on agriculture variables. The results of this study show that there will be demand and supply gap (deficit) for the wheat and it will be mainly due to increase in population and economic growth. Other factors important to determine food demand are urbanization and income distribution. There will be surplus in case of rice but it will reduce year by year resulting in reduction of rice" exports in the years to come. There will be deficit of 12978 thousand tons for wheat while surplus of 1094 thousand tons for rice when the population and per capita income will grow at the rate of 2 percent, 3 percent and 4 percent respectively, in 2030, due to increasing population and economic growth. To cope with projected deficit the findings of this study recommended to formulate food production policy based on investment in R&D for provision of improved inputs (seed, fertilizer, technology and pesticides) along with construction of new water reservoirs for area expansion in long run.

- Thesis Title: **Estimation of Quadratic Engel Curve in the Presence of Measurement Error and Endogeneity of Total Expenditure Using Pakistani Data**

Name of Student: **Ghulam Abbas** Supervisor Name: **Dr. Zahid Asghar**

ABSTRACT

This study examines the suitable shape for food Engel curve for Pakistan using latest data of Household Income and Expenditure Survey (HIES) for the year 2010-11. We employed three estimation methods namely instrumental variable (IV), Lewbel (1996) and Control Function approach. Our results suggest that all the estimation methods employed in this study confirm that quadratic logarithmic Engel curve fits Pakistani data very well. Using this suitable quadratic shape we estimate the food Engel curve correcting measurement error and problem of endogeneity of total expenditure and found that the latter is more serious problem than the former one. The expenditure elasticity of food demand is also examined and obtain that each estimation method provide the elasticity between zero and one which indicate that food is a necessary good for Pakistani households. Furthermore in this study we investigate the relationship between food budget share and household size. We found that there is positive and statistically significant relationship between food budget share and household size.

- Thesis Title: **"Nonlinear Cointegration in Purchasing Power Parity: In Case of Pakistan"**

Name of Student: **Kashif Ali** Supervisor Name: **Dr. Hafsa Hina**

ABSTRACT

The present study investigates non-linear co-integration along with asymmetric adjustment to explore long-run purchasing power parity (PPP) in three major trading partners (United States, China and Germany) of Pakistan. The monthly data set is used in this study for the period 1982:1 to 2013:12. Currently, in Pakistan flexible exchange rate regime is prevailing. The stability of exchange rate is of grave importance as being indicator of economic performance. To examine the behavior of nominal exchange rates the ESTAR and LSTAR models are used by following the testing procedure of Terasvirta (1994). The results support the nonlinear of exchange rate series. The asymmetric behavior of exchange rate allows to execute the threshold cointegration suggested by Enders and Siklos (2001). The results suggests that non-linear form of long-run PPP hold in case of Pak-China. Therefore, Trading will be more beneficial if exchange rate is varied with respect to major trader partner rather than only with US dollar. If rupee exchange rate is attached closely with US dollar where's parity hold with Euro, Yuan currencies fluctuation and they are misaligned with the US dollar in such a case risk of overvaluation or undervaluation increases.

- Thesis Title: **"P-star Model as a Leading Indicator of Inflation: A Case Study of Pakistan"**

Name of Student: **Saad Shabbir** Supervisor Name: **Dr. Hafsa Hina**

ABSTRACT

Inflation is an important monetary phenomenon which affects the growth of the economy adversely if it is unstable. The State Bank of Pakistan regulates the inflation mechanism in order to maintain the price level. High levels of inflation impacts the real growth negatively. Hence, controlled inflation and stable price is the prime objective the monetary policy of the State Bank of Pakistan. Therefore, it is important to predict and forecast the future price levels and plan accordingly to keep them stable. This thesis uses the P-star model of Hallman et al. (1991) as the leading indicator of inflation and compares its forecasting ability with univariate Seasonal Auto Regressive Moving Average and Auto Regressive Conditional Heteroskedastic models. Macroeconomic variables of Consumer Price Index, Real Gross Domestic Product, Income Velocity of Money, and Money Supply are used for Pakistan from the period 1970:1 to 2013:4. The three different approaches to estimate and forecast inflation are incorporated with structural breaks. The P-star model successfully predicts fluctuations in the inflation rate thereby providing the policy makers with a useful tool to control the price level.

- Thesis Title: **"Long Run and Short run Effects of Electricity Prices on Inflation in Pakistan: An Aggregate and Disaggregate Analysis"**

Name of Student: **Anam Alamdar** Supervisor Name: **Dr. Abdul Qayyum**

ABSTRACT

In this study we examine the effect of electricity prices on inflation at aggregate and disaggregate level in case of Pakistan. In this study we take aggregate electricity prices and check its impact on overall inflation, food, non food and core inflation in Pakistan and then take sectoral electricity prices (Industrial, Commercial, Agricultural and Domestic) and check its impact on overall inflation, food, non food and core inflation. Augumented Dickey Fuller (1979), Zivot and Andrews(1992) unit root test with structural break and Johansen Maximum Likelihood method of Cointegration(1988) are used to test the unit root, unit root with structural break and to find out the long run and short run relationship between the variables by taking the data from 1971 to 2013 in case of Pakistan. This study shows the mix effect of electricity prices on inflation. As at aggregate level the electricity prices effect the overall inflation, food and non-food inflation positively but insignificantly in the long run and have no impact in the short run. But in the case of core inflation, electricity prices have positive and significant impact both in the long and short run. But at the sectoral level of electricity prices we have found interesting results. At disaggregate level the domestic electricity prices effect the overall inflation, food and non-food inflation negatively in the long run as well as in the short run. But it has positive impact on core inflation in the long run but has insignificant impact. The industrial sector electricity prices effect the overall inflation, food and non-food inflation negatively in the long run but positively in the short run. But in the short run the increase in the industrial electrical prices have also a great impact on inflation, food and non-food inflation. But industrial electricity prices effect the core inflation both in the short run as well as in the long run positively. The commercial and agricultural electricity prices affect all types of inflation positively both in the long run as well as in the short run. So overall impact of electricity prices on all types of inflation is mixed as positive

and negative but the dominant impact of electricity prices on inflation is positive both in the long as well as in the short run. And we found that the most dominant effect of increasing in the electricity prices at aggregate and disaggregate level is on the core inflation.