- 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.