



Lahore School of Economics

Department of Economics

Research Program

Research Objectives:

1. To produce cutting edge research in the area of economics and other related fields which utilizes advanced theories, principles and analytical techniques to address key issues in economics, business, and public policy.
2. To collect and analyze primary and secondary data from Pakistani and international sources in order to support the research objectives of the students and faculty and share with local and international academics, researchers, policy makers, businesses and other stakeholders.
3. To support local and international collaboration between researchers, academics, policy makers, the business community and other stakeholders in order to produce research that is relevant, timely, and impactful.
4. To publish research articles in leading national and international academic journals in order to disseminate the findings of the research to a larger community.
5. To publish the findings of the research produced in a broad variety of media, such as books, working papers, newspapers, blogs, and social media in order to increase the accessibility and impact of the research being conducted.

Research Program 2023-24:

The research program of the Faculty of Economics is divided into three components:

1. Research and publications of the faculty as a result of ongoing projects (listed in the *Research Program, 2023-2028*, below).
2. Research and publications of the faculty as a result of local and international collaborations (listed in the *Research Program, 2023-2028*, below).
3. Publication of books, working papers, newspaper articles, blog posts, etc. based on completed research.
4. Research and publications from PhD and MPhil/MS students based on their research work and theses.
5. Others

Research Program 2023-2028:

The research program of the department is centered around a series of projects which will yield working papers, policy briefs, newspaper articles and journal articles.

The main projects of the department over the next five years are:

1. *ITC, Lahore School of Economics in WTO Chairs Programme*

ITC, Lahore School of Economics was the only institution from Pakistan, among seventeen other universities from least-developed and developing country members, selected as a member of the prestigious WTO's Chairs Programme. The role of the centre, being part of the WTO Chair Programme, would be to enhance knowledge and understanding of the international trading system among academics and policy makers in the country.

The objectives of the WTO Chair at the Lahore School of the Economics are threefold: First, to further the understanding of trade related issues (including trade theory, implications of restrictions on trade, the role of international bodies like the WTO, etc.) amongst students, the business community, policy makers and other stakeholders. Second, to conduct timely, relevant, and broadly inclusive research on trade related issues which is not only of the highest academic quality but is also relevant to stakeholders. Third, to disseminate the findings of its activities (both research and stakeholder consultations) to a broader audience through an effective dissemination campaign.

2. *Nudging SMEs in Pakistan to Invest in Renewable Energy: The Role of Information Provision Researchers:* Theresa Chaudhry (Lahore School of Economics), Azam Chaudhry (Lahore School of Economics), Phillip Garner, Nikita Grabher-Meyer and Nida Jamil (Lahore School of Economics).

In this exploratory study, we intend to design and administer a survey across a sample of small-medium manufacturing enterprises in central Punjab to better understand the main structural,

informational and behavioral barriers that prevent business owners from switching to greener energy sources. In particular, we will elicit respondents' personal preferences, beliefs and attitudes around greener energy sources, as well as their intended behavior or expected likelihood of adopting greener energy.

3. ***Fixed Costs of Innovation as Barriers to Upgrading in the Surgical-Goods Sector in Sialkot***
Researchers: Azam Chaudhry (Lahore School of Economics), Shamyla Chaudry (Lahore School of Economics), Amit Khandelwal (Yale University), Eric Verhoogen (Columbia University) and David Atkin (MIT).

We propose to offer grants for innovations that increase exports and for innovations to produce new products (i.e. that have not previously been produced in Sialkot). The main goal is to evaluate the effectiveness of the grant program in promoting innovation among treated firms. We will also look for spillovers of innovations to other (untreated) firms through network links.

4. ***Developing an Optimal Industrial Strategy in the Context of the China Pakistan Economic Corridor (CPEC)***
Researchers: Azam Chaudhry, Theresa Chaudhry, Maryiam Haroon and Nida Jamil, Lahore School of Economics.

5. ***High Costs of High-Quality Inputs as a Barrier to Upgrading in the Football Sector in Sialkot***
Researchers: Azam Chaudhry (Lahore School of Economics), Shamyla Chaudry (Lahore School of Economics), Amit Khandelwal (Yale University), Eric Verhoogen (Columbia University) and David Atkin (MIT).

We develop an experiment to offer subsidies for high-quality rexine to a random subset of firms and examine if this subsidy spurs upgrading. We look at two related but distinct dimensions of behavioral responses by firms. First, since high-quality inputs are likely to be complements in production, the subsidy may induce firms to purchase complementary high-quality inputs and produce higher-quality footballs, using their existing technologies and production processes. Second, the subsidy may potentially stimulate learning and spur technological improvements in the production process, if for instance innovation has a higher return in high-quality segments of the industry or if producing higher-quality balls leads firms to transact with more knowledgeable buyers. Accordingly, we intend to track complementary changes in other inputs, shifts in the composition of output toward higher-quality footballs, and other process innovations.

6. ***Relationship between Firms' Productivity and its Export Market Participation***
Researcher: Nida Jamil (Lahore School of Economics)

This study proposes to investigate the relationship between firms' productivity and its export market participation. Using the methodology developed by De Loecker et.al (2012) we use the Census of Manufacturing Industries (CMI) data from 2000-2011 to detect the direction of causality between productivity and exports i.e., does productivity enhance exports or does the export status of the firm increase productivity. The first part of the paper will be based on studying the self-selection hypothesis where more productive firms choose to become exporters for reasons like cost advantages or ease of overcoming barriers to foreign markets entry as opposed to less productive

firms. The second part of the paper explores the learning by exporting hypothesis where firms which are already exporters enhance their productivity mainly by knowledge flows and international market competition which forces the firms to improve faster as compared to the domestic firms. Analyzing the textile sector, this study aims to find which hypothesis provides a better explanation for the dynamics within the largest export sector for Pakistan.

7. *Heterogeneous Adoption of Knowledge Capital and its impact on the firm's Performance*

Researcher: Rabia Arif (Lahore School of Economics)

We will use detailed primary data already collected by the Lahore School from firms in the textile, light engineering and automotive sectors to explore two important aspects of innovation:

First, we explore the heterogeneity in the adoption of 'knowledge capital' (defined as the new set of knowledge acquired, produced and used in the value creation process) at firm level in textile, light engineering and automotive sectors in Punjab to estimate its impact on the firm level outcomes such as revenue, cost of production, quality of the final product and market price of the final product.

This heterogeneity in the adoption of knowledge capital is introduced in two distinct ways:

First, the uneven distribution of the sources of innovation acquired across firms in different sectors. The heterogeneous sources of innovation at firm level are introduced via five distinct ways i.e., technology (equipment), product, process, marketing and business model innovation. Amongst these five different types of innovation, we estimate how significantly each of these sources of innovation have affected firm level outcomes, in different sectors.

Second level of heterogeneity is introduced in terms of the variation in technology adoption across firms based upon its origin (local versus international technology), recent versus already established technology and how often a firm upgrades their respective technology to explore how it may affect the firm level outcomes in different sectors differently.

Next, we argue that organizational and market rigidities may play an important role to motivate (deter) the firm to innovate (or not to innovate). We determine the probability of the firms to engage in innovation (product, process, marketing and business) based upon these factors as well as explore whether different sources for funding the innovation at firm level may play a trivial role in the firm's probability to innovate across different sectors.

Last, we explore if any of these factors affect the firm level outcomes and the probability of innovation for the exporting and non-exporting firms any differently.

In addition to the analysis above, we explore one more important aspect of exporting firms in global market. We argue that global competition that the local exporting firms face, may affect their tendency to innovate in terms of its both intensity and direction. While intensity is measured on a scale from 0-5 as the aggregate of five heterogeneous sources of innovation at firm level i.e., technology (equipment), product, process, marketing and business model innovation.

8. *Political Alignment and Crime*

Researchers: Hamna Ahmed (Lahore School of Economics), Dureen Latif (Lahore School of Economics), Kate Vyborny (Duke University) and Punjab Police

We investigate how political influences affect the response to crime by police in Lahore, Pakistan. We test how an area's alignment with the political party in power affects the recording of and response to reported crime. To identify effects, we exploit variation in political alignment

occurring over an election cycle when the party in power at the national level changed. We find that alignment with the party in power robustly decreases the seriousness with which police respond to citizen complaints. Alignment reduces the number of First Information Reports (FIRs) registered, particularly for lower level crime as well as the probability of a complaint moving to FIR. We explore potential mechanisms to explain our results; whether alignment changes response times of police action against crime and/or postings of police officials. We rule out the possibility that the results are explained by better crime prevention or reduced crime in politically aligned areas: policing resources and responsiveness in aligned areas actually decrease, and serious complaints once made are less likely to go to the FIR stage.

9. *Learning Losses during COVID-19: Evidence from Pakistan*

Researchers: Hamna Ahmed (Lahore School of Economics), Sadia Hussain (Lahore School of Economics), Kate Vyborny (Duke University) and Ijaz Bajwa (The Citizens Foundation)

We collaborate with The Citizens Foundation (TCF) to study the effect of prolonged school closure on learning outcomes. The research team plans to use a panel data providing test score before the lockdown in March, 2020 and another round of test score data after the reopening of schools in October, 2020. Data is used to understand how does the learning loss relate to (i) baseline learning levels; (ii) parents' education and compensatory activities during the school closure period and (iii) whether there are particular topics that were subject to more loss requiring dedicated targeting by teachers for re-building concepts in those areas.

10. *Gender and Choice over Co-workers: Experimental Evidence*

Researchers: Shamyala Chaudry (Lahore School of Economics), Shan Aman-Rana (University of Virginia), Clement Minaudier (University of Vienna) and Brais Alvarez Pereira (Universidade Nova de Lisboa). (Nov 2019 –To Date)

We study whether choice over co-workers matters for performance in gender-diverse teams. We carried out a lab-in-the-field experiment where students were randomly assigned co-workers meant to help them perform on tests. Co-worker allocation was randomized on two dimensions: (1) gender and (2) student preference for that co-worker at baseline. We find that randomly chosen male co-workers reduce the performance of females (12% of the average score), while preferred male co-workers have a positive yet statistically insignificant effect (6% of the average score). These effects are heterogeneous across the gender stereotype of the questions and materialize even though the two types of male co-workers have the same average ability. To investigate the mechanism behind these effects, we randomly allocated hints as an additional source of information across questions. We find that some (but not all) of these differences are driven by difficulty in accessing additional information or hints in the presence of random male co-workers.

11. *How Politicians Distribute Subsidies? Evidence from Wheat Procurement in Pakistan*

Researchers: **Sadia Hussain (Lahore School of Economics), Kate Vyborny and Ignacio Rodriguez)** 2020-present.

This study in collaboration with researchers from Duke University, studies the political economy of government procurement of wheat in Pakistan, where the government buys between a fifth and

a third of wheat on the market. We make use of the geographical variation in wheat procured over time set by successive central governments in Pakistan

- 12. *Community Driven Development in Rural Pakistan: Impact evaluation of the SUCCESS program. Randomized Controlled Trials (RCTs) 2016-2022***
Researchers: Waqar Wadho (Lahore School of Economics) Andreas Landmann (Paris School of Economics), Fazal Saadi (RSPN), and Abdur Rehman Cheema (RSPN)

- 13. *Analyzing the Extent and Nature of Bureaucratic Corruption in Pakistan (2018-19)***
Researchers: Waqar Wadho (Lahore School of Economics) and Shaheen Rana (Lahore School of Economics)

- 14. *Spatial Proximity, Knowledge Networks and Firm Performance: The Case of Sialkot Surgical Instrument Manufacturers***
Researchers: Maryiam Haroon (Lahore School of Economics) and Waqar Wadho (Lahore School of Economics)

- 15. *Why are Cousin Marriages so common in Pakistan? Examining the Effects of Cultural Norms, Dowry, and Economic Development as Potential Drivers***
Researchers: Mary Shenk, Saman Naz, and Theresa Chaudhry (Lahore School of Economics)

- 16. *Social Networks and Search Frictions in the Day Labor Market: Search and Matching Frictions in Casual Day Laborers***
Researchers: Maryiam Haroon (Lahore School of Economics) with Christina Brown (University of California Berkeley)

A large majority of households living in extreme poverty receive income from casual day labour, which is characterised as short jobs for typically 1-5 days, in construction, agriculture or manual labour. In Pakistan, the situation is even starker as over 85% of construction work and agricultural labour depends on casual labour markets. Such short jobs are typically found through social connections or by going to a “labour stand”, an intersection point where low skilled labourers are matched with employers looking to hire for a day or two. While spot markets like these are generally thought of to be the free market ideal, these markets appear to be rife with failures including information asymmetries, wage rigidity and large search costs for employees and employers. In developing economies, the stronger presence of such informational labour market frictions often increases dependence on social relationships with evidence suggesting that 72% of workers are hired through social networks in South and South-East Asia. To understand this process, Day Labour project seeks to understand the role social networks and search frictions play in the context of casual labourers in Pakistan. The project is implementing a Randomized Control Trial (RCT), by partnering with an existing construction firm in Lahore by varying different aspects of the hiring process to better understand the market for casual day labourers.

17. *Emigration of Potential Family Caregiver and its Impact on the Child's Wellbeing in Punjab, Pakistan*

Researchers: Rabia Arif (Lahore School of Economics), Theresa Thompson Chaudhry (Lahore School of Economics) and Azam Amjad Chaudhry (Lahore School of Economics)

We investigate the impact of the migration of a household member who was a potential caregiver on two measures of children's wellbeing, health and schooling outcomes, in Pakistan. We use microlevel longitudinal representative data of more than 600,000 children from multiple rounds of the UN's Multiple Indicator Cluster Survey (MICS) dataset from 2008-2018 for Punjab Province. We implement a new instrumental variable for the endogeneity of the migration decision, comprising a triple interaction of night-time light intensity of the major destination countries, historic migration rates at the district level, and the number of adult males in a household. The absence of the migrating member of the household negatively (positively) affects younger (older) children: the nutritional status of children under age five is harmed, while children aged 5-17 are more likely to be enrolled in school. These results are robust to the inclusion of controls such as mother and child characteristics, household characteristics, and location, time and year fixed effects. The negative impact on nutritional status for children under five years is smaller for boys in urban areas, in richer households, and in households with more educated mothers. The positive impact of migration on schooling outcomes is driven by girls, families in rural areas, and wealthier households.

18. *Empowered Mothers & Co-resident Paternal Grandmothers: Two Fundamental Intra-Household Solutions to the Deteriorating Child's Health Outcomes in Punjab, Pakistan*

Researchers: Rabia Arif (Lahore School of Economics), Theresa Thompson Chaudhry (Lahore School of Economics) and Azam Amjad Chaudhry (Lahore School of Economics)

In this chapter, we propose two solutions integrated with-in the family unit, to one of the major problems faced by the children in Pakistan i.e., malnutrition. In a micro level study, we show that the accrued benefits associated with an empowered mother and co-resident grandmother are reflected in the child's health outcomes measured by two key anthropometric indicators, height for age Z-scores (HAZ) and weight for age Z-scores (WAZ) of age group 5 years and less. To measure each of the respective causal impacts, we employ two approaches using two separate datasets due to different nature of information required for the estimations of each respective research question. First, using a cross-sectional Pakistan Demographic and Health Survey (PDHS) for the survey year 2018, we estimate the impact of empowered mother (measured by two indices constructed separately, first by adding directly and second using Principal Component Analysis (PCA) on the questions that gauge to both intrinsic and extrinsic dimensions of female choices) on the child health outcomes using an instrumental variable approach to correct for the endogeneity problem in the OLS specification. Second, we use the fuzzy regression discontinuity design (FRDD) to measure the causal impact of co-resident grandmother on the health outcomes of the children using multiple rounds of Multiple Indicator Cluster Survey (MICS, survey years 2008,2011,2014 and 2018). The difference between the actual ages of the grandmother from The Potential Retirement Eligibility criteria (PREC) has been used to measure the exogenous availability of the grandmother in a household. Last, we explore heterogeneity in each of the average results stated above based upon the gender, wealth and location of the household. The results show that on average the health outcomes for children in households significantly improve as the other's empowerment index

increases as well as improve significantly due to the presence of grandmothers in a household. Although the results for mother's empowerment are largely driven by girls. We see that the significant benefits on health outcomes due to the presence of grandmothers are purely driven by boys in rural areas belonging to poor families.

19. *Gender Norms vs. Altruism: The Impact of Consanguineous Marriage on Children's Education*

Researchers: Rabia Arif (Lahore School of Economics), Theresa Thompson Chaudhry (Lahore School of Economics) and Azam Amjad Chaudhry (Lahore School of Economics)

Cousin marriage is an important social institution in many parts of Asia and Africa, yet few studies have looked beyond the health consequences to its role in shaping intra-household dynamics. In this study, we use a unique survey of households in Pakistan to examine the role of parental consanguinity on the educational investments and attainment of their children, and how those effects differ by gender. We find that, for the children of parents who are first cousins, the number of years of education completed and rates of school progression are lower and the number of days of school missed are higher, while enrollment rates and educational expenditures are roughly the same as children of parents who not related or are related more distantly. The results are stronger for daughters than for sons.

20. *Does the Gender of Dominant Parent Affects well-being of Child? Experimental Evidence*

Researchers: Rabia Arif (Lahore School of Economics), Theresa Thompson Chaudhry (Lahore School of Economics) and Azam Amjad Chaudhry (Lahore School of Economics)

In this study, we investigate decision power under risk and uncertainty among 70 rural couples of Okara, Punjab, Pakistan. We use risk and uncertainty experiments conducted individually and jointly with spouses to estimate their bargaining power. Survey data has also been collected for the comparison purposes and to estimate the impact of women's bargaining power on different child outcomes. The results reveal that in the context of rural Okara, it is the husband who has the higher bargaining power as compared to his wife and risk and uncertainty aversion has a high negative impact on the bargaining power of women. Our results reveal that as women bargaining power gets higher child labor reduces specially for daughters and child health improves specially for sons, but surprisingly, child schooling reduces with the increase in women's bargaining power for both sons and daughters. Also we found that self-reported data is not reliable enough because huge differences found when same question regarding HH asked separately from spouses.

21. *Impact of Women's Retirement on their Daughter in Law's Employment*

Researchers: Rabia Arif (Lahore School of Economics), Theresa Thompson Chaudhry (Lahore School of Economics) and Azam Amjad Chaudhry (Lahore School of Economics).

Using a fuzzy regression discontinuity design and a cross-pooled MICS data set for the years; 2011 and 2014, this research measures the impact of mother-in-law's retirement on their respective daughter in law's employment decision using retirement age as a cutoff. Female labor force participation has remained low in developing countries mainly due to the presence of young children in the house. This study argues that presence of grandmothers, to a large extent can play a vital role in eliminating this pressure but also can add to the constraints faced by the women and hence affecting the labor force participation negatively. Numerous researches done on developed

countries highlight that the decision regarding formal or informal childcare depends on the availability and costs of the formal institutions. However, all these researches report a positive impact of childcare on female's labor force participation. This study extends this analysis to a case of developing country Pakistan, where the household dynamics and constraints faced by the households are quite different from that of developed world to see whether the impact remains the same or not. The results reveal that a retired mother-in-law has a significant negative affect on their daughter in law's employment especially for the women living in rural areas, lesser educated and belonging to a lower wealth quantile. These insights are useful for policy makers as the results indicate the need for an affordable formal child-care institution for working mothers as well as provide health care services to senior citizens to some extent as these two groups are the main reason why females have to opt out of labor force in order to take care of them.

22. *Fertility and the Female Decision to be Self-Employed – Testing for Bidirectional Causation in Punjab, Pakistan*

Researchers: Rabia Arif (Lahore School of Economics) and Ayesha Mir

Numerous studies, mostly from the developed countries, report a positive correlation between the number of children or fertility decisions and the choice of becoming self-employed amongst women. However, the direction of this relationship has remained ambiguous. Contingent upon the direction of causation between children and women self-employment, policies directed towards achieving a certain goal, such as facilitating women in maintaining an appropriate balance between family and work, may have varying ramifications on female self-employment. Using cross-pooled MICS data for the years; 2011 and 2014, this study aims at testing two competing hypotheses; first whether having more children influence women to prefer self-employment? Second, is it employment-specific attributes associated with self-employed females that impact their decision to reproduce? The paper contributes to the literature by testing for bidirectional causation between female self-employment and children using an instrumental variable approach for bringing exogenous variation in fertility and female self-employment decisions, respectively. Using this approach and controlling for various individual, household, and regional characteristics, the findings of this study reveal that the direction of causality runs from being self-employed to giving birth to children (fertility) in a positive manner, mostly driven by educated, middle-aged women dwelling in urban areas. There is no significant impact found of fertility on female self-employment decisions. Being self-employed is likely to lower the opportunity costs of raising (more) children, that is, forgone income and depreciation of skills, would be more prominent in dependent employment. This supports the argument that occupation specific characteristics, such as self-employment being self-run, flexible in terms of scheduling working hours and leisure time in between, routine-friendly, and exhibitive of lower incompatibility between mother and worker roles, bring a considerable degree of ease for women in raising more children. Thus, considering there is a higher degree of compatibility attached to self-employment as well as in expectations of raising a suitable heir of their family business, self-employed women in Pakistan may prefer having an additional child – a finding that has a tad bit of empirical evidence in the past literature.

23. *Proposed Methodology for Strategic Trade Policy to Achieve High Value Added Exports: A Case of Pakistan's Textile Sector*

Researchers: Rabia Arif (Lahore School of Economics) and Nida Jamil (Lahore School of Economics)

This paper proposes a new methodology through which a list of specific intermediate inputs can be generated for a strategic reduction in tariff rates to climb up the export value chain. This methodology can be extended across all the manufacturing sectors in countries where the technology is constrained and the economy relies on great chunk of imported goods. We argue that by reducing the tariffs on selective range of inputs; low priced, high quality intermediate inputs can be made available to the local manufacturer that will lead to better quality exports of the final product. We take a conservative approach to propose a sequence of tariff reduction on intermediate inputs based upon its importance ranging from a scale of being extremely important to less important, ultimately to promote high value added exports. We do so, by comparing the average quality of each respective intermediate input available to the local manufacturer with the quality of the same intermediate input imported from abroad to strategically propose the final list of intermediate inputs that should be considered for tariff reduction (at HS-6 Digit Code). Next, a cross country comparison of tariff rates between Pakistan, India and Sri Lanka is done to show where the potential of tariff reductions exist for Pakistan. Finally, this list at HS-6 digit code is extended at HS-8 digit code to further precisely identify the inputs. We present the case of Pakistan's textile sector, and apply this methodology as an illustration to identify a list of intermediate inputs for strategic reductions in tariffs.

24. *Low priced Intermediate input and Export Boost, Proposing A Strategic Trade Policy to Achieve High Value-Added Exports: A Case of Pakistan's Textile Sector*

Researchers: Rabia Arif (Lahore School of Economics), Nida Jamil (Lahore School of Economics) and Azam Chaudhry (Lahore School of Economics)

We explore the relationship between low price intermediate inputs and export performance indicators using a panel data of 166 countries from the year 2000-2015. Using tariff rates as an instrument, we show that export performance indicators improve with a decrease in input prices. We propose a new methodology based upon a conservative approach to propose a sequence of tariff reduction on intermediate inputs based upon its importance ranging from a scale of being extremely important to less important to promote high-value added exports where the technology is constrained and the economy relies on great chunk of imported goods. We reason that reducing the tariffs on selective range of inputs; low priced, high quality intermediate inputs if provided to the local manufacturer will lead to better quality exports of the final product, by comparing the average quality of each respective intermediate input available to the local manufacturer with the quality of the same imported intermediate input to propose the final list that should be considered for tariff reduction (at HS-6 Digit Code). Last, a cross country comparison of tariff rates between Pakistan, India and Sri Lanka is done to show where the potential of tariff reductions exists for Pakistan.

25. *The Effects of External Migration on Enrolments, Accumulated Schooling, and Dropouts in Punjab*

Researchers: Rabia Arif (Lahore School of Economics) and Azam Chaudhry (Lahore School of Economics)

In developing countries, external migration tends to ease household income constraints because of the external remittances that are generated. Using data on the Punjab, this working paper attempts to determine whether the external migration of individuals in a household has a positive

effect on children's schooling outcomes as measured by school enrolments, the accumulated level of schooling, number of days spent in school, and dropouts. We use historic migration rates to instrument for migration in an analysis of school outcomes for children aged 5–17, 5–11, and 12–17 to determine which group is most affected by external migration. The results show that external migration has a significantly positive impact on the school enrolments of younger children, whereas the accumulated level of schooling among older children increases significantly if there is an external migrant in their households.

26. *Determining the Extent of Gender Discrimination in Education Sector: A case of Pakistan*

Researchers: Rabia Arif (Lahore School of Economics) and Maham Khalid

Gender bias in developing countries may restrict educational opportunities for girls in comparison to boys. This paper attempts to measure the gender disparity in education amongst children from 5 years to 18 years of age across Pakistan. Using the data from PSLM 2010-2011 and applying Oaxaca decomposition with probit estimation we measure the gender gap. The results interestingly show that although a strong bias exists against females in overall enrollment rates, but as we explore further, we see that males drop out of private schools more as compared to females and the accumulated level of schooling of the male adults is also lower than that of females. We find that much of these differences are not due to the endowment effects. Large negative deviation for males may be attributed to the unobservable pressure and society's norms regarding the role of males that affect them in an adverse manner.

27. *Impact of Temporary External Migration & Remittances on Child Health Outcomes in Punjab, Pakistan*

Researchers: Mydda Aslam and Rabia Arif (Lahore School of Economics)

Primary motive of temporary migration in developing countries like Pakistan is generally in response to the income constraint faced by the households. Therefore, to relax the resource constraint, migrants tend to remit back to their families in home countries. This study attempts to look at the impact of temporary external migration and remittances on child health outcomes as measured by height-for-age (HAZ) & weight-for-age z scores (WAZ) in Punjab, Pakistan. Further, we test for the presence of intra household resource allocation bias where boys get preferential treatment in term of health care as compared to girls. Using historic migration rates and number of banks in each district to instrument for external migration and remittances from overseas, respectively, we employ an Instrumental Variable Approach estimated through Two Stage Least Square and Treatment Effect Model. Our results suggest significant positive impact of external migration and remittances on both the indicators of child health outcomes. Further this study confirms the presence of increased bargaining power of women in households headed by females resulting in a greater share of resources being spent on girls relative to boys.

28. *Measuring Mother's Empowerment Through Culture of Son Preference in Pakistan*

Researchers: Aimal Tanvir and Rabia Arif

This study highlights whether giving birth to a son plays a role in determining mother's empowerment in Pakistan and in particular, if the birth-order of the son has any additional impact in uplifting the mother's status within a household, using the Pakistan Demographic and Health

Survey (PDHS) 2012-13. In Pakistan, the household's economic conditions make parents treat their sons and daughters differently and ultimately, giving preference to sons over daughters, in terms of education, health and nutrition, as the social and economic utility of a son, overpowers that of a daughter. In the presence of this culture of son preference, if women then give birth to a son or a number of sons, then it should help empower them. The results of the study show having a son significantly helps in empowering mothers in Pakistan. In contrast, the son's birth-order (both higher and lower) is not an important factor for improving mother's empowerment. Mother's empowerment is mainly driven by the number of sons, and age of the son, and these results are more pronounced in rural areas of Pakistan, and for mothers belonging to poor households.

29. *The Impact of Consanguineous Marriage on Children's Education*

Researchers: Theresa Chaudhry (Lahore School of Economics) and Rabia Arif (Lahore School of Economics).

Cousin marriage is an important social institution in many parts of Asia and Africa, yet few studies have looked beyond the health consequences to its role in shaping intra-household dynamics. In this study, we use a unique survey of households in Pakistan to examine the role of parental consanguinity on the educational investments and attainment of their children, and how those effects differ by gender. We find that, for the children of parents who are first cousins, the number of years of education completed and rates of school progression are lower and the number of days of school missed are higher, while enrollment rates and educational expenditures are roughly the same as children of parents who not related or are related more distantly. The results are stronger for daughters than for sons.

30. *Measuring Actual TFP Growth: Stripping away Omitted Price Bias and Demand Shocks*

Researchers: Nida Jamil (Lahore School of Economics), Theresa Chaudhry (Lahore School of Economics) and Azam Chaudhry (Lahore School of Economics)

31. *ITT Estimates of Impact of Ramadan Exposure on Mothers and Children*

Researchers: Theresa Thompson Chaudhry (Lahore School of Economics)

32. *The Impact of Prenatal Exposure to Fasting on Child Health Outcomes*

Researchers: Theresa Thompson Chaudhry (Lahore School of Economics) and Azka Sarosh Mir (Lahore School of Economics)

The study's results indicate that prenatal exposure to fasting during the first two trimesters has negative implications for children's height-for-age. In addition, children who were prenatally exposed to fasting in the second and third trimesters were, on average, thinner than nonexposed children. We find no evidence of selection bias arising from the decision to selectively time a pregnancy to avoid Ramadan – a major concern of our study.

33. *Innovation and Firm Performance in Developing Countries: The Case of Pakistani Textile and Apparel Manufacturers*

Researchers: Waqar Wadho (Lahore School of Economics), Azam Chaudhry (Lahore School of Economics) and Matthew McCartney (University of Oxford)

The researchers are conducting a firm-level survey of Pakistani textile manufacturers that builds on a similar survey that the researchers conducted in 2015 to construct a unique panel dataset to test the hypothesis that innovation is conducive to employment generation and sales growth, and that this is especially the case for smaller and younger companies. The firm level innovation study involves gathering primary data from 377 textiles manufacturers located in 12 different districts of the Punjab and Sindh provinces through an in person survey based questionnaire. The respondents of the survey will be the top managers of firms. This data then will be combined with the earlier survey in 2015 to generate a panel of 6 years and 377 manufacturers.

The institutional level development strategy will focus on engaging with the Punjab and Sindh bureaus of statistics to collect data and conduct training with their staff on survey design and implementation as well as providing them with a multidimensional view of innovation and development. We also plan to develop the capacity of the Lahore School's Innovation and Technology Centre by training a core group of junior researchers (with a focus on female researchers) with a focus on survey instrument, questionnaire design, data collection and on data reporting.

The research team also plans to organize seminars in Pakistan and Oxford to disseminate and discuss the findings with various stakeholders including manufacturers and their associations/chambers, bureaus of statistics, policy makers and academics.

34. *The BOP Crisis in Pakistan, Stabilization versus Growth*

Researchers: Moazam Mahmood (Lahore School of Economics) and Shamyla Chaudry (Lahore School of Economics)

Pakistan's BOP crisis, have increased in their frequency, duration and intensity, as preceding analyses of the current crisis have noted. This project will attempt to systematize some of the behavioural relationships that can be observed to hold over the past thirty years, and the efficacy of policy impact on them. It has been observed that there are large capital outflows. These comprise of the primary income account balance on the current account and domestic outflows from the capital account.

As a result, the researchers propose that the following relationship exists between these variables. As exchange rate goes down the capital outflows will increase unless the interest rate are increased. If interest rates are held constant with devaluation, it leads to capital outflows. Thus, one proposal that is likely to work is controls of capital as it stabilizes the economy and does not dampen growth.

35. *Natural Resource Endowments, Endogenous Technology and Economic Growth: A Dynamic Analysis*

Researchers: Rehana Naz (Lahore School of Economics) and Shaheen Naseer (Lahore School of Economics)

This study presents an endogenous growth model driven by natural re-source capital, where natural resource capital can be allocated across two sectors: the production of the final consumption good and the production of technological capital. In our model, technical progress is endogenous which

is stemming from the contribution of natural resource capital in the technology sector of the economy. The paper analyzes growth of an economy where the dynamics of natural resource accumulation drives the evolution of economy over time. We allow for endogenous technical change using a natural resource augmenting production technology that enriches the transitional dynamics of the economy.

36. *Impact of Physical Distance on Health Facility Choice: Evidence from Kashf's Health Microinsurance Program*

Researchers: Hamna Ahmad (Lahore School of Economics) and Dareen Latif (Lahore School of Economics)

Health micro insurance offers a promising mechanism to protect the poor against risk and vulnerability. We study the impact of physical distance to hospitals on utilization of health services in the context of the Kashf Health Micro Insurance (HMI) Program in Punjab, Pakistan. We address three main research questions; first, what is the impact of physical distance on choice of health facility? Second, is the burden of physical distance greater for women? Third, whether the spread positive information influencing perceptions of quality could be a possible mechanism through which, the burden of distance may be reduced? We employ a Probit model with administrative data on hospitalization claims made between 2014 to 2017. Our findings show that as distance to panel facilities increases, individuals are more willing to make out of pocket expenditures at nearby non panel hospitals. Therefore, distance impedes individuals from making panel claims. Moreover, this negative impact of distance is more pronounced for women. Furthermore, we find that positive information influencing these perceptions regarding better quality of treatment at panel facilities helps in raising the incentive for individuals, especially women, to use panel facilities for treatment.

37. *Procedural Justice, Hierarchical Level, Organizational Identity and Turnover Intention: Mediation–Moderation Framework*

Researchers: Shaheen Naseer (Lahore School of Economics) and Pieter Desmet (Erasmus University Rotterdam)

The study investigated the relationship between procedural justice and turnover intention using a perception-based survey of 344 bureaucrats in Pakistan. It was found that relationship between procedural justice and turnover intention is stronger for people higher in hierarchy because they identify more with the organisation. Moreover, people lower in hierarchy seem to have more tolerance for unfairness because they connect unjust climate with other external circumstances instead of internal factors in organisation. On the other hand, employees higher in the hierarchy link up injustice directly to the organisation and have little tolerance for unfairness because they identify more with the organisation and they feel more disgruntled about unfairness in organisation. It may also be the case that their unhappiness is not because they personally feel bad about the decision but they feel bad about the overall justice environment of the organisation due to their strong identity with the organisation.

The study uses a mediation-moderation framework to investigate how procedural justice impacts turnover intentions of bureaucrats when hierarchical level is taken as moderating and organizational identity as mediating factor in the model. It is hypothesized that procedural justice

is a significant determinant of turnover intentions of bureaucrats in the higher levels of hierarchy as compared with bureaucrats in the lower level of hierarchy. This is because bureaucrats in superior positions identify more strongly with the organizational goals of the bureaucracy as compared with junior bureaucrats.

38. *Bureaucratic Identity and Impact of Public Policy*

Researcher: Shaheen Naseer (Lahore School of Economics)

The project starts with a theoretical framework to explain policy drift, when identity moderates the principle-agent relation between the legislator and the bureaucratic organization. The model points to the subtle interaction between different administrative levels of bureaucracy and how this interaction shapes the structure and size of budgetary allocations. Conceptually we enrich the public choice tradition of modeling bureaucracies by insights which fall broadly into the study of organizational behavior. The second part of the project aims at giving an explanation of how bureaucracies and their specific mode of operation become persistent over very long time-frames. We showcase and exemplify the triggers of bureaucratic rigidity with the help of the Pakistani bureaucracy, which has not essentially changed over the last 150 years. We also provide an account of how certain practices during the colonial era of the Indian subcontinent led to unintended consequences in the form of bureaucratic power, corruption and control over economic policies after changes in the external environment (post-independence). Third part of the project aims at a fresh view on the role of bureaucracy as a key player in budgetary processes. We show that organizational and institutional constraints embedded in initial policy choices fundamentally alter subsequent policy choices of bureaucrats. In particular, we develop a theoretical framework that synthesizes insights from the theory of organizational imprinting with the opportunistic budget-maximization behavior of bureaucrats.

39. *Unpacking the Systemic Corruption: Case Study of Pakistan*

Researchers: Shaheen Naseer (Lahore School of Economics) and Waqar Wadho (Lahore School of Economics)

Pakistan is ranked among the most corrupt countries in the world with a ranking of 118 out of 180 countries. In this project we argue that there is a need to extend research on corruption so as to use other approaches to better understand and predict behavior and constraints of bureaucrats. The central aim of this project is to investigate the persistence of corruption in bureaucracy based on primary data of bureaucrats collected through the indirect survey techniques.

To address the research questions, the researchers will conduct in-person survey of 300 public officials from various departments and tiers of government. In order to enhance the credibility of our empirical conclusions, the researchers aim to employ indirect survey techniques to investigate our research questions. Among these techniques, list and endorsement experiments have become increasingly popular as survey methodology to overcome this measurement problem (see, for instance, Blair and Imai 2012). They will use both list experiment and endorsement experiment to understand the extent of corruption and whether it is better represented by the lens of principal-agent theory, collective action problem, or both.

40. *Barriers to Upgrading in the Sialkot Football Sector*

Researchers: Azam Chaudhry (Lahore School of Economics), Shamyla Chaudry (Lahore School of Economics), David Atkin (MIT), Amit Khandelwal (Columbia University) and Eric Verhoogen (Columbia University)

The project has been developed under the *International Growth Centre (IGC)* and the *Private Enterprise in Developing Countries (PEDL)* initiative. In this project, the researchers investigate the extent to which high costs of high-quality inputs are a barrier to upgrading in the football sector. One of the primary inputs into football production is an artificial leather called rexine. They propose an experiment to offer subsidies for high-quality rexine to a random subset of firms and examine if this subsidy spurs upgrading. They will look at two related but distinct dimensions of behavioural responses by firms. First, since high-quality inputs are likely to be complements in production, the subsidy may induce firms to purchase complementary high-quality inputs and produce higher-quality footballs, using their existing technologies and production processes. Second, the subsidy may potentially stimulate learning and spur technological improvements in the production process, if for instance innovation has a higher return in high-quality segments of the industry or if producing higher-quality balls leads firms to transact with more knowledgeable buyers.

41. *Social Mobilization, Poverty Dynamics, Political Participation, Patronage, and Women Empowerment*

Researchers: Waqar Wadho (Lahore School of Economics), Andreas Landmann (Paris School of Economics) and Abdur Rahman Cheema (NRSPN).

This project is a Randomized Controlled Trial (RCT) with 2300 households in rural Sindh, funded by the European Union and implemented by National Rural Support Program Network. The project is already rolled out and we are expecting to have more than one research paper from this intervention.

42. *Institutional Capacity as an Organizational Challenge: A Field Experiment in Pakistan*

Researchers: Hamna Ahmed (Lahore School of Economics), Kate Vyborny (Duke University), Simon Quinn (University of Oxford) and Asha Gul (University of New South Wales)

This project is a novel field experiment involving a large donor organization and over 800 recipient community organizations across Pakistan. The project involves two components: The first component aims to study whether community organizations can be incentivized to improve their performance through: (i) systematic self-assessment and reporting of defined Key Performance Indicators (KPIs), and (ii) A transparent non-financial rewards scheme based on these KPIs. *Pakistan Poverty Alleviation Fund (PPAF)* and *International Growth Centre (IGC)* have funded this component of the project. Initiated in 2014, four rounds of reporting and incentives for recipient organizations have been completed to date.

The second component of the project will explore (i) how each part of a large, complex organization (the donor) responds to new information on performance (of recipient community organizations) on KPIs; (ii) How the responses of both donor and recipients to new information and incentives relate to organizational characteristics of theoretical importance, including divergence of preferences between members of the organization; communication costs between parts of the organization; and

decentralization of decision-making authority. This part will build on an existing initial stage of the research carried out in component 1 of the project. *National Science Foundation (NSF)* is providing support that will allow the continuation and strengthening of Component 1 and expansion of the scope of the study to cover component 2. A first pilot of this component was carried out in February 2018. The full experiment will be carried out in summer while the endline survey for the study is scheduled for fall of this year.

43. *Microcredit and Microsaving for Microenterprises in Pakistan: Finding from Framed Field Experiments in Pakistan*

Researchers: Marcel Fafchamps (Stanford University), Simon Quinn (University of Oxford), Giovanna d'Adda (University of Milan) are working with Naved Hamid (Lahore School of Economics), Farah Said, and Uzma Afzal.

The researchers have designed a Randomized Control Trial in 4 districts of Punjab to compare the effectiveness of micro-savings and micro-loans as means for households to manage risk and liquidity. The study was being conducted in collaboration with the National Rural Support Programme (NRSP) funded by the *Department for International Development (DfID)* and *Economic and Social Research Council (ESRC)*. The study explores the role of commitment and reminders in product takeup and repayment.

This project builds on existing research and pilots funded by the *International Growth Centre (IGC)* with a sample of microfinance clients of NRSP. Results indicate that for microfinance clients, savings and credit products are often substitutes, satisfying the same underlying demand for a regular schedule of deposits and a lump-sum withdrawal (Published in *Economic Journal*)

44. *Impact Assessment of Startup Loans to Female Run Micro-Enterprises*

Researchers: Farah Said, Giovanna d'Adda (University of Milan), Mahreen Mahmud, (CSAE, University of Oxford), Azam Chaudhry (Lahore School of Economics), Naved Hamid (Lahore School of Economics),

This study is a Randomized Control Trial to evaluate the socio-economic and welfare impacts of micro-loans to female micro-entrepreneurs. This study looks at whether access to finance leads to women setting up their business and attempts to measure household dynamics faced by borrowers that may act as a constraint on the decision to set up a business. This study was conducted in collaboration with Kashf and the fieldwork completed in October 2016. The project was funded by the *International Growth Centre (IGC)*.

There was a positive, but transitory, impact of the microfinance product on the likelihood of setting up a business but no improvement in household asset holdings or in women's independence when making ordinary household decisions. To provide measures of social and household dynamics these borrowers operate in, this study also made use of lab-in-the-field experiments at the time of the first follow up survey in 2015, with 267 randomly selected RCT participants and male members of their households.

Experimental results show that in pairs where women were entrepreneurs, men and women did not hide experiment money from each other. However, husbands of housewives chose to keep more for themselves when this allocation could be kept hidden from their partners. In literature, this is taken as

evidence of ‘hiding’ of resources from the spouse. In addition, men and self-employed women exhibit entitlement over their earnings, whereas housewives do not. These results point towards possibly adversarial dynamics in households where the woman is not working.

45. *Overcoming Constraints to Female Labor Force Entry*

Researchers: Hamna Ahmed (Lahore School of Economics), Farah Said, and Zunia Saif Tirmazee (Lahore School of Economics)

The project has been funded by the *Private Enterprise Development in Low-Income Countries (PEDL)* Exploratory grant, 2017 This study is a randomised controlled trial to test the impact of two low-cost interventions to overcome psychological and information constraints to female labor force participation (FLFP). The research questions that this project aims to address are, (i) does motivating female students and (ii) does providing information about the job market, promote female labor force entry.

The project focusses on female students, in their final year undergraduate degree, and enrolled in women only Public colleges in urban Lahore, the second largest metropolitan city in Pakistan, comprising of approximately 11 million people. While socioeconomic background, information on available jobs and job skills are significant determinants of entry into the labor market (Humphrey et al 2009; Jenson, 2012); studies have shown only modest impacts of job search assistance and skills training on employment and wages (McKenzie 2017). Further, skills training programmes in particular often suffer from low enrolment (Cheema et al., 2012, 2015) and high cost (Adhoho et al., 2014); suggesting it is time to think of new interventions that can complement traditional skills training programmes to promote employment. One possibility for these results may be presence of psychological barriers and low motivation as binding constraints to FLFP which this project aims to address.

46. *Barriers to Product Upgradation in the Sialkot Surgical Goods Sector*

Researchers: Azam Chaudhry (Lahore School of Economics), Shamyla Chaudry (Lahore School of Economics), David Atkin (MIT), Amit Khandelwal (Columbia University) and Eric Verhoogen (Columbia University)

The project has been developed under the *International Growth Centre (IGC)* and the *Private Enterprise in Developing Countries (PEDL)* initiative. In this project, they investigate the extent to which fixed costs of innovation are a barrier to upgrading in the surgical-goods sector in Sialkot. If there are externalities in the process of innovation, there may be an important role for governments in subsidizing the costs of innovation. A leading policy idea is to provide matching grants, in which governments provide supplemental funding for projects chosen by individual firms. However, there has never been a rigorous randomized evaluation of such a program (Campos et al, 2012). The research team is conducting such an evaluation in the surgical-goods industry in Sialkot and plan to offer matching grants for innovations that increase exports.

47. *The Role of Information in Utilization of Health Microinsurance*

Researchers: Sadia Hussain (Lahore School of Economics), Hamna Ahmad (Lahore School of Economics) and Muhammad Ahmad Nazeef (Lahore School of Economics)

We propose a randomized controlled trial (RCT) to (i) test the causal impact of providing information about program use and quality of local hospitals on utilization of health services in Punjab, Pakistan (ii) investigate whether, the impact of providing information on program use, more effective when seeded through social networks of clients. We will work with Kashf Foundation, a large microfinance institution in the country working solely with female borrowers from low to middle income groups. Kashf rolled out a large scale health microinsurance program in 2014. However, only 2.3 percent of the client-base used the program between 2014 and 2017. The primary objective of the study is to explore effectiveness of information dissemination in program use. Essentially we divide the clients into three categories: treated, spillover and pure control. Enrollees in the first treatment arm will receive information about the insurance program, its cost structure, services that it provides names of panel hospital, distance to the nearest hospitals and process of reimbursement. In the second treatment group, clients will be given contact details of a borrower who successfully used the health microinsurance program in the past and lives in close geographical proximity of the client. We also account for information spillovers across social networks by comparing program use across clients who were not assigned to the second treatment arm. Enrollees in the placebo group will not receive anything. This design will allow us to test for (i) the impact of information about the program (ii) the role of diffusion channels in determining impact of information on program use. The project fits the thematic focus of the Research Development Fund to improve the effectiveness of social sector delivery in Pakistan. The findings from this study will facilitate policymakers with regards to efficacy of providing health programs in Pakistan.

48. *Measuring Actual TFP Growth: Stripping away Omitted Price Bias and Demand Shocks*
Researcher: Nida Jamil

We address two important sources of bias that remain unaddressed in most analyses of firm-level productivity and trade policy, i.e., omitted price bias and demand shocks. Using unique firm-level data containing disaggregated price and physical output measures at the product level, we avoid the omitted price bias typically encountered when using sectoral deflators. Besides being a primary determinant of firm survival, our precise controls for demand shocks also help account for quality differences between firms. We then test the methodology developed by De Loecker (2011) for use on firm revenue data and find that its accuracy is dependent on the precision of the price deflator. Results from Pakistan suggest that the impact of a 10% reduction in tariffs on firm-level productivity falls from 0.81% to 0.23% after eliminating all biases. The net impact of trade liberalization has been a mere 2.2%, with the biggest gains in the least protected segments.

49. *Measuring the TFP and product quality impact of the FTA: A analysis of the Pakistani firms gaining market access to China*
Researcher: Nida Jamil

We study the impact of the Free Trade Agreement on firm level productivity and quality. Much of the literature present in the trade-productivity dimension focuses on the impact of lower input tariffs and as a result on the impact of the availability of cheaper and newer intermediate inputs for production. The other side of the FTA, i.e., lower output tariffs and as a result, the impact of an increase in market access on the firm level productivity is an under researched area. Moreover,

the impact of getting more market access in a developed economy (China in our case) on the productivity of firms in a developing country (Pakistan in our case) is even more limited.

Our results show that the FTA did induce firms to start exporting to China, but the net gains were small. The firms exporting to China had a moderate increase in firm productivity and quality, but they are still smaller than the gains found in literature for other developing countries. While the net gains from the FTA are small, we do however find evidence of productivity and quality gains induced from the exporting firms to the non-exporters located in the close proximity. Particularly, being located near a high productivity upstream exporter is beneficial for a non-exporter in our case.

Overall, the results point out towards a limited benefit that exporting firms got from the FTA. Competition from the ASEAN countries and higher concessions given to them can be one of the possible explanations for this.

50. *Measuring changes in product mix and markups as a result of the FTA: An analysis of the Pakistani firms in response to gaining market access to China*
Researcher: Nida Jamil

In this study we identify the sources of productivity gains for the textile firms in Pakistan under the FTA between Pakistan and China. We study how firms adjust their input usage, particularly if they make any capital investments or not. We also study how firms change their product mix in response to the FTA. Finally, we study how firms' adjustment of markups, prices, and marginal cost in response to the FTA.

Results show that firms exporting to China did increase their scale (hire more materials and labor) but did not increase capital investment. Hence, we do not find any evidence of increase in investment or upgrading technology in this context. Moreover, firms which experienced productivity gains reduced the number of product varieties being manufactured. In addition to lowering their product offerings the Pakistani exporters to China were not able to decrease their marginal cost or markups. Overall, the Pakistani exporters experienced limited productivity and quality gains from the FTA. They concentrated on fewer products, reduced their product scope, and increased their scale in competition with other countries in the Chinese market.

51. *Applied Industrial Organization in Pakistan*
Researcher: Maryiam Haroon (Lahore School of Economics)

The research focuses on understanding the underlying drivers of firm productivity growth, diversification, innovation and attracting more contracts. The first part of this research focuses on the impact of spatial proximity on firm's performance. These benefits are commonly analyzed in terms of various forms of externalities, such as localization and urbanization affecting productivity in nearby firms. The second part of this research project will explore firms extensive margin of adjustment. Most of the existing research linked to industry dynamics has addressed this issue by relating resource reallocation to firm's entry and exit decision. This literature assumes firm producing a single product and abstracts from the reallocation of output within multiproduct firms through changes in product mix in response to changes in the economic environment. It also treats

entry of new firms and addition of new product equivalently. The recent literature has challenged this view and adds a new dimension of extensive margin of firm adjustment, which reallocates resources within surviving firms as they add or drop products. The final component of this research will look at the issue of subcontracting. Subcontracting is considered as an important competitive strategy to achieve flexible production that allows firms to avoid rigidities associated with vertically integrated production structures. It offers potential advantages in terms of wage and cost savings and enables firms to specialize in operations with competitive edge (Abraham and Taylor, 1996). Recent empirical studies provide evidence of the relationship between improved firm performance and subcontracting (Girma and Görg, 2004). Subcontracting arrangement is also considered as one of the important source of knowledge transfer and facilitates building of expert-knowledge (Deardorff and Djankov, 2000).

52. *Essay on Identifying Constraints to Female Labor Force Entry*

Researcher: Zunia Saif Tirmazee

Higher education (HE) is a critical part of the development of specialized skills and knowledge, contributing to skilled employment and growth. What is also noteworthy is that as opposed to the previous decades lately the girls' enrollment in tertiary education has risen substantially.

At the same time the urban female labor force participation (FLFP) in Pakistan has been chronically low: urban FLFP stands at a mere 11.4% (Pakistan Jobs Diagnostic, 2017) which is less than half compared to that of Bangladesh. Moreover, the unemployment rate amongst girls having an education of intermediate and above is 20% compared to 5% amongst boys (Labor Force Survey, 2011). This is despite the fact that almost half the students at intermediate, graduate and post-graduate level in urban Pakistan are women.

Given this backdrop an in depth analysis of factors both from the demand and the supply side of labor markets is required to see what constrains the educated women from entering the labor force. In this respect my focus in this thesis is specifically limited to the gender wage gap and the employers' preferences from the demand side and the career aspirations of young female graduates from the supply side as potential constraints to female labor force entry.

53. *Analysis of Growth in Pakistani Exports*

Researchers: Azam Chaudhry (Lahore School of Economics), Theresa Chaudhry (Lahore School of Economics), Aimal Tanvir (Lahore School of Economics)

As Pakistan entered IMF Program in 2019, one of the key conditions it followed was the devaluation of the Pakistani Rupee, by almost 30%. This dramatic fall in the value of the rupee was expected to stimulate exports. The Innovation and Technology Centre of the Lahore School of Economics conducted a novel survey of exporters to analyze current export trends as well as reasons for the relatively stagnant exports. This survey was conducted with exporters in key geographic and industrial areas and gives a unique picture of exports in Pakistan for policy makers and academics.

54. *A General Equilibrium Macroeconomics Model for the Pakistan Economy*

Researchers: Moazam Mahmood (Lahore School of Economics), Azam Chaudhry (Lahore School of Economics) and Aimal Tanvir (Lahore School of Economics)

The Pakistani economy has struggled to gain momentum over the last decade and economic policy makers have failed to understand the impact of key decisions (such as the multiple IMF stabilization programs) on economic outcomes. One major reason for this is the lack of a formal model of the Pakistani economy to project key economic variables over time. ITC researchers have developed a macroeconomic model for Pakistan's economy. The researchers have worked in collaboration to present a policy simulation tool which helps to provide estimates for macroeconomic aggregates using values for key policy variables. The model is both a policy simulation tool and both a didactic tool taught at the undergraduate level and will further be taught at the graduate level. The model can be used to simulate key macroeconomic variables such as: (i) aggregate demand, (ii) long-run growth rates, (iii) labor market outcomes, (iv) income distribution, (v) price levels, (vi) interest rates and (vii) exchange rates.

55. *Developing an Optimal Industrial Strategy in the Context of the China Pakistan Economic Corridor (CPEC)*

Researchers: Theresa Chaudhry (Lahore School of Economics) and Azam Chaudhry (Lahore School of Economics).

A research team at the ITC is developing the elements of an optimal industrial strategy for Pakistan. With industrial growth and exports stagnating in Pakistan, there is an urgent need to develop a coordinated industrial strategy. The researchers are working with Lahore School researchers and policy makers to develop an industrial strategy which has the following elements: (i) deciding on which sectors (and subsectors) to invest resources into, (ii) deciding the optimal location for planned industrial zones and special economic zones, (iii) determining the optimal location of industries in the context of CPEC, (iv) developing a coordinated trade strategy that helps promote higher value added exports and (v) determining the financing needs of the SMEs which make up most of the industrial clusters in Pakistan.

56. *Business Confidence Surveys of the Business Community in Lahore*

Researchers: Azam Chaudhry (Lahore School of Economics), Saman Khan (Lahore School of Economics) and Theresa Chaudhry (Lahore School of Economics).

The Pakistani business sector is characterized by low productivity and low growth which in turn has had a major impact on export growth, economic growth and household incomes. While there has been research conducted on specific firm-level issues the business community, there has been very little work done on understanding the level of business confidence. In 2015, the ITC conducted its first annual business confidence survey to understand the perceptions of the business community regarding the prevailing economic conditions and the level of innovation being done. The results of this survey were summarized in the ITC's first Business Confidence Report. The ITC has continued to take the lead in understanding business confidence by conducting yearly surveys and publishing yearly business confidence reports.

57. *A Partial Lagrangian Approach to Solving Dynamic Models of Economic Growth*

Researchers: Azam Chaudhry (Lahore School of Economics) and Rehana Naz (Lahore School of Economics)

The research team is developing a new approach termed as a discount free or partial Lagrangian method for construction of first integrals for dynamical systems of ordinary differential equations (ODEs). It is shown how one can utilize the Legendre transformation in a more general setting to provide the equivalence between a current value Hamiltonian and a partial or discount free Lagrangian when it exists. As a consequence, they develop a discount factor free Lagrangian framework to deduce reductions and closed-form solutions via first integrals for ODEs arising from economics by proving three important propositions. The approach is algorithmic and applies to many state variables of the Lagrangian. In order to show its effectiveness, they apply the method to models, one linear and two nonlinear, with one state variable. They obtain new exact solutions for the last model. The discount free Lagrangian naturally arises in economic growth theory and many other economic models when the control variables can be eliminated at the outset which is not always possible in optimal control theory applications of economics.

Research Publications

Ahmed, H., Mahmud, M., Said, F., & Tirmazee, Z. S. (2022). Encouraging Female Graduates to Enter the Labor Force: Evidence from a Role Model Intervention in Pakistan. *Economic Development and Cultural Change*. <https://doi.org/10.1086/721615>

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Arif, R., & Khalid, M. (2022). Determining the Extent of Gender Discrimination in Educational Attainment: A Case of Pakistan. *Pakistan Social Sciences Review*, 6(2), 1041-1056.

Arif, R., & Tanvir, A. (2022). Measuring Mother's Empowerment through the Culture of Son's Preference in Pakistan. *Journal of Research and Reviews in Social Sciences Pakistan*, Vol 5 (2), 2022 pp 1884-1917.

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- Waheed, H., and Ahmed, A. 2022. The Role of Government Policy in Breaking the Cycle of Intergenerational Violence. *Violence Against Women*.

Reports

Following are the projects conducted by ITC in 2022:

a) Business Confidence Survey 2022-2023:

The Innovation and Technology Centre (ITC) of the Lahore School of Economics is conducting its eighth Business Confidence Survey on businesses across all four provinces in Pakistan with a special emphasis on exporting and importing firms in Pakistan. The survey started in November and is still ongoing.

Authors: Dr. Azam Chaudhry & Saman Khan

b) Business Confidence Report of Pakistan 2022 (Key Findings)

The Innovation and Technology Centre (ITC) of the Lahore School of Economics conducted its seventh business confidence survey from firms all across Pakistan in the year 2022 to understand the perception of the Pakistani businesses about the performance of the Pakistan's Economy.

The data was collected from 228 firms from 3 sectors i.e. Manufacturing, Services and Retail operating across all 4 provinces of Pakistan from February, 2022 to May, 2022. The firms were also characterized in terms of exporters and importers in order to see the behavior of firms in each category.

This year's survey analysed at the most concerning global issues such environmental factors, percentage of female workforce in firms, change in output per worker, management structure of firm along with financial performance of firms, change in. Investments level, Bank borrowings and Employment Levels, important steps to boosts detartrating exports etc.

Although this years' survey proved to be better a year in terms of financial performance, exports and other factors as compared to the previous year but some important issues such environmental concerns and gender equality in workplace were badly ignored by firms operating in Pakistan.

Authors: Dr. Azam Chaudhry & Saman Khan

c) Business Confidence among Exporting and Importing Firms of Pakistan-2022

The Innovation and Technology Centre (ITC) of the Lahore School conducted its seventh annual business confidence survey in from January 2022 to end of April, 2022. This years' survey had a separate detailed section for exporting and importing firms to explain the unprecedented trade deficit, so that policy makers could determine what factors have led to the fall in exports and what measures do we need to tackle the deterioration in Pakistan's trade balance. The survey was conducted selecting a variety of firms across three important sectors viz. the manufacturing sector, the services sector and the retail sector. The data was comprised of 227 firms from all four provinces of Pakistan, with 52 exporting and 111 importing firms. The survey was conducted from mid-January, 2022 till end of April, 2022.

Contrary to last years, this years' survey found that exports have increased in 2021 as compared to 2020 and a larger percentage of firms had positive expectations about further increase in the level of export sales in 2022. It was found that a majority of exporting companies were exporting a significant percentage of their output abroad and thus their export volume was increasing both in current Pakistani rupee and current US \$ terms. Thus, the exporting companies experienced an increase in the average price of the exported products both in current Pakistani rupee and current US \$ terms. Also, exporting companies were using imported raw material and machines to produce their exporting product thus improving the quality of the exported products.

When asked about the factors that could boost exports, a significant proportion of firms reported government subsidies, promoting exports of higher value-added goods, upgrading technology and uninterrupted supply of electricity and gas as the most important factors.

Authors: Dr. Azam Chaudhry & Saman Khan

Link to the Report: <http://itc.lahoreschool.edu.pk/>

d) Innovation in Automobiles-2022

The Innovation and Technology Centre (ITC) of the Lahore School of Economics started conducting annual surveys to observe the growing trends in the field of innovation and technology upgradation in various sectors. The purpose of these surveys is to observe the extent, quality and impact of innovation activities on the performance and profitability of the innovating firms. The surveys also look at the barriers faced by the innovating firms.

Looking at the results of innovation, most of automobile firms revealed that their quality of output improved, they didn't have to retrain their employees to adopt new technology, their revenues increased, their cost of production decreased, they didn't have face resistance from their employees while introducing innovations and lastly the prices of their product remained mostly unchanged as the result of innovation.

The two greatest barriers faced while trying to perform innovation were lack of financing and lack of innovation opportunities. It can be concluded that more incentives for innovations could be given by providing more sources of funding for the innovating firms in the form of aid from the government and with the assistance of financial institutions.

Authors: Dr. Azam Chaudhry & Saman Khan

Link to the Report:

https://itc.lahoreschool.edu.pk/downloads/06_innovation%20Report%202022%20V2.pdf

e) Innovation in the Exporting and Importing & Non-Exporting in the Automobiles sector firms- 2022

The Innovation and Technology Centre (ITC) of the Lahore School of Economics conducted a survey in 2018/2019 to observe the growing trends in innovation and technology upgradation in the exporting and non-exporting firms from the textile and readymade garment sectors in Lahore. The purpose of this survey was to observe the extent, quality and impact of innovation activities on the performance and profitability of the innovating exporting and non-exporting firms. The survey also looked at the barriers faced by the innovating exporting and non-

exporting firms in this sector. The data consisted of 125 firms involved in manufacturing readymade garments and other textiles, including 87 exporting and 38 non-exporting firms, collected during the period of September 2018 to December 2018. In the surveyed exporting firms, 40% of those firms were selling 100% of their output abroad, with majority of them exporting to Europe followed by worldwide.

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Authors: Dr. Azam Chaudhry & Saman Khan

Link to the Report:

https://itc.lahoreschool.edu.pk/downloads/07_Innovation%20Report%202022%20V1.pdf

4. The Modelling Lab at the Innovation and Technology Centre (General Equilibrium Macroeconomic Model for the Pakistan Economy)

Intro to the Modelling Lab

The Modelling Lab Team at the Lahore School's Innovation and Technology Centre has developed a General Equilibrium Macro (GEM) model for the Pakistan economy over the past two years, for policy simulations and teaching. The Lahore School now does quarterly updates for Pakistan and is also headed towards global macroeconomic modeling estimations, starting with the European Union.

1. State of Pakistan Economy Report No. 02-2022:

GDP Growth

The Lahore School of Economics macro model for the Pakistan economy projects that GDP growth over the fiscal year July 2022 – June 23, (FY2023), will be 0.82 percent. This projection for the annual growth rate of GDP for FY2023, has been weakened by two quarters of falling GDP growth.

Our projection of GDP growth is comparable to the IMF and World Bank's estimate of GDP growth of 2 percent for FY2023.

Our model's estimates show that the flood damage to lives, livelihoods and incomes, over just the first quarter (Q1) of the fiscal year, from July to September 2022, have taken a devastating toll.

Inflation for the Fiscal year 2023

Inflation for FY 2023 is estimated by our model at 26.1%, as shown in Table 2. This is year on year, for FY 2023, compared to FY 2022.

Our estimate of inflation at 26.1% for FY 2023, is quite comparable to GOP's estimate of 27%.

Our model estimates inflation as being driven by four factors. An output gap. The budget deficit. Depreciation of the exchange rate. And global commodity prices.

For FY 2023, the overwhelming driver of inflation has been the huge depreciation of the exchange rate. By some 32% as observed over Q1 and Q2 of FY 2023. Contributing to near two thirds of the inflation rate. Note that after Q2, the exchange rate is assumed to have reached its equilibrium value, and therefore is not estimated to depreciate any further over Q3 and Q4.

GOP Emergency Economic Policy over FY 2023

GOP faces a near flattened growth rate of 0.8% over FY 2023. Its forex reserves have dwindled to approximate \$3 billion, giving half a month's worth of imports.

With the extension of the IMF's EFF to calendar year 2023, covering virtually all of FY 2023, its fiscal stance is extremely limited by the terms of the agreement with the IMF.

That does leave it monetary policy to generate growth and support welfare. Monetary policy is primarily occupied with controlling inflation raging at 26% per annum. Largely using the interest rate peaking at 17% per annum.

However, we have shown here that two thirds of this inflation rate is being contributed to by the massive depreciation of the exchange rate.

Further, research at the Lahore School shows that depreciation of the exchange rate sets in place depreciatory expectations, leading to increase capital outflows, (Mahmood and Chaudry, Lahore Journal of Economics, 2020). Which of course Pakistan's weak Current and Capital Accounts can ill afford. Nor can a weak investment rate of 16% of GDP.

Therefore, on all these counts, GOP needs to arrest the depreciation of the exchange rate urgently.

State of the Pakistan Economy

Quarter Two Based Estimates of Annual Growth in Pakistan

Fiscal Year 2023

GDP Growth for Fiscal Year 2023

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Our estimate of inflation at 26.1% for FY 2023, is quite comparable to GOP's estimate of 27%.

Authors: Dr. Moazam Mahmood, Dr. Azam Chaudhry, Aimal Tanvir Malik & Seemab Sajid

2. State of Pakistan Economy Report No. 01-2022:

GDP Growth

The Lahore School of Economics macro model for the Pakistan economy estimates that GDP growth over the fiscal year July 2021 – June 22, (FY2022), has been 5.05 percent. The Covid 19 pandemic, intermittent lockdowns and openings, and hysteresis, have given way to growth.

Our estimate is comparable to GOP's estimate for FY2022, of 5.79 percent. While noting the IMF's estimate of 4 percent.

Our model also uniquely estimates a supply shock, positive or negative. Which then feeds into a demand shock. To give a final change in GDP for FY2022.

Both the unique estimation of the supply cum demand shock, accounts for the difference between GOP's estimate of GDP growth for FY2022 of 5.79 percent, and our estimate of 5.05%.

GOP's Economic Policy Stance over FY 2022

With the Covid-19 pandemic and shutdowns of FY2021, GOP had two policy objectives. To generate growth. And to curb inflation raging at 12%-14%.

As inflation has continued to trend upwards over FY2022, from 8% to 14%, GOP has had to raise the interest rate. From 7% to 7.25% in a small rise of 25 basis points. Then a much higher 150 basis points rise to 8.75%. Tapering to a 100 basis points rise to 9.75%. With a final massive 250 basis points rise to 13.75%. Which has brought the real interest rate effectively to zero. Equaling the inflation rate. But raising the cost of investment.

The second tradeoff is for the policy instrument of the exchange rate. The exchange rate has to be appreciated or kept constant to curb importing inflation. But the exchange rate needs to be depreciated to improve the current account balance. Raising exports, and lowering imports.

GOP's policy choice here has been more fraught. It has continued to free the exchange rate, allowing it to depreciate from Rs 157 to the USD in June 2021, to Rs 201 by June 2022.

This has had the punitive outcome of leaving inflation stubbornly high, and trending higher. Nor has inflation been countered sufficiently by the raising of the interest rate.

Authors: Dr. Moazam Mahmood, Dr. Azam Chaudhry, Aimal Tanvir Malik & Seemab Sajid

Link to the Article: <https://www.brecorder.com/news/amp/40183983>

5. Details of Publications

Some of ITC's publications from the years 2020 to 2022 include:

i) Emigration's Heterogeneous Impact on Children's Wellbeing in Punjab, Pakistan

Arif, R., Chaudhry, T.T & Chaudhry, A. (2023). "Emigration's Heterogeneous Impact on Children's Wellbeing in Punjab, Pakistan", *Child Indicators Research*.

ii) Experimental Evidence on Group-based Attendance Bonuses in Team Production

Abstract

We test the effectiveness of a group-based attendance bonus in a field experiment in a factory in Pakistan, where workers manufacture electric fans in stages using batch-production methods. We find that the group-based attendance bonus increased by more than a quarter the average number of days that the team's attendance target was met. This effect was larger for junior and mid-level workers as compared to senior workers. We find that the bonus incentivized better coordination among workers, especially in the latter part of the month, rather than through higher average attendance. Our experiment's results suggest that temporary incentive programmes may help

workers in the transition period to new ways of organizing production and may prove to be a valuable tool for change management. Group-based bonuses offer an alternative to individual or tournament-based incentives based on one's own or relative performance, which may have deleterious effects on intrinsic motivation and pro-social behaviour.

Chaudhry, T., Tirmazee, Z., & Ayaz, U. (2022). “[Experimental Evidence on Group-based Attendance Bonuses in Team Production](https://doi.org/10.1177/09731741221129350)”. *Journal of South Asian Development*, 0(0). <https://doi.org/10.1177/09731741221129350>

iii) Impact of prenatal exposure to Ramadan on disability in Pakistan among adults age 18–64

Abstract

Temporary disruptions to eating and sleeping patterns due to exposure to Ramadan during pregnancy have been shown to increase the probability of disability and chronic health problems later in life. This study aims to analyze the intent-to-treat effect of prenatal exposure to Ramadan (the Islamic month of fasting) on individual disabilities for individuals age 18 to 64 across three provinces encompassing 94% of Pakistan's population.

Chaudhry, Theresa Thompson. (2022). "[Impact of prenatal exposure to Ramadan on disability in Pakistan among adults age 18–64](#)", Journal: Dialogues in Health; Publisher: Elsevier

iv) Trading textiles along the new silk route: The impact on Pakistani firms of gaining market access to China

Abstract

In this study, we analyze the impact of the lower Chinese tariffs on Pakistani textile manufacturers that resulted from the Pakistan-China Free Trade Agreement (FTA). As a result of lower Chinese tariffs, Pakistani textile manufacturers increased exports though the number of firms exporting to China changed marginally and only in the spinning sector did exports substantially rise. Using a variety of recently developed methodologies, our results indicate that the productivity of textile manufacturers rose 3-8 percent and product quality rose 1-2 percent. Firms reduced product offerings in response to tariff drops. In contrast to a number of previous studies where exporting was accompanied by investment or R&D, exporters to China increased material and labor inputs but not capital. Non-exporters' productivity and quality also rose, indicating the presence of spillovers. Testing this, we find that these spillovers occurred for non-exporters downstream from higher productivity exporters in close geographic proximity.

Chaudhry, A., Chaudhry, T.T., & Jamil, N. (2022). “[Trading Textiles along the New Silk Route: the impact on Pakistani firms of gaining market access to China](#), ” *Journal of Development Economics*, Volume 158.

v) Innovation strategies and productivity growth in developing countries: Firm-level evidence from Pakistani manufacturers

Abstract

We examine the determinants of product, process, and organizational innovations, and their impact on firm labor productivity using data from a unique innovation survey of firms in Pakistan. We

find significant heterogeneity in the impact of different innovations on labor productivity: Organizational innovation has the largest effect followed by process innovation. But unlike much of the literature, we found a negative impact of product innovation suggesting a disruption effect of new products. We find a strong impact of engaging in knowledge creation on product and process innovation. We also find that external knowledge networks and innovation cooperation play no significant role in firms' decision to engage in innovation and its intensity, however, vertical linkages with suppliers (clients) promote product (process) innovations. Foreign competition has a negative effect on product innovation and a positive effect on organizational innovation. Exposure to foreign markets both in term of exporting and quality standard certification leads to better innovation performance.

Chaudhry, A., & Wadho, W. (2022). "[Innovation strategies and productivity growth in developing countries: Firm-level evidence from Pakistani manufacturers.](#)" *Journal of Asian Economics*, Volume 81.

vi) Home-Based Enterprises: Experimental Evidence on Female Preferences from Pakistan **Abstract**

Enterprises run by women in developing countries are largely home based and belong to small-business networks, which may explain these businesses' small size, low profitability, and short life. Using data from Pakistan, we confirm that the majority of female-owned microenterprises are home based and find that these home businesses are likely to close within 2 years. Our incentivized tasks elicit household preferences for business location and advice-taking from women and male decision makers. Both men and women are willing to sacrifice almost 60% of median profits for running businesses from home. Women avoid taking outside advice, even when it increases task earnings. Women's preferences are correlated with business experience but not with agency within the household, mobility, and household responsibilities.

Chaudhry, A., d'Adda, G., Said, F., & Mahmood, M. (forthcoming), "[Home-based Enterprises: Experimental Evidence on Female Preferences from Pakistan.](#)" *Economic Development and Cultural Change*.

vii) Impact of Remittances on Child Health Outcomes in Punjab, Pakistan

Abstract:

Primary motive of temporary migration in developing countries like Pakistan is generally in response to the income constraint faced by the households. Therefore, to relax the resource constraint, migrants tend to remit back to their families in home countries. This study attempts to look at the impact of remittances on child health outcomes as measured by height-for-age Z-scores (HAZ) & weight-for-age Z-scores (WAZ) in Punjab, Pakistan using a cross-sectional data set from the Multiple Indicator Cluster Survey (MICS). We use an instrumental Variable Approach to correct for the endogenous decision to remit. Two Stage Least Square with an instrument that comprise of an interaction of number of banks in each district with the number of adult males in a household to create household level variation in the instrument has been used to estimate the causal relation between remittances and child's health outcomes. Our results suggest significant positive impact of remittances on both indicators of child health outcomes. Further this study confirms that gains for girls are greater relative to boys.

R Arif, M Aslam (2022), [Impact of Remittances on Child Health Outcomes in Punjab, Pakistan](#), *Journal of Development and Social Sciences*.

viii) Determining the Extent of Gender Discrimination in Educational Attainment: A Case of Pakistan

Abstract

Gender bias in developing countries may restrict educational opportunities for girls in comparison to boys. This paper attempts to measure the gender disparity in education amongst children from 5 years to 18 years of age across Pakistan. Using the Cross-sectional data from PSLM and applying Oaxaca decomposition with probit estimation we measure the gender gap through explained and unexplained variation on three aspects of education; first, the overall school enrollments across Pakistan, second the differences in the school enrollments based upon the type of school i.e. public vs. private schools for the three levels of education: primary, middle/secondary and higher secondary. Third, we determine whether gender discrimination exists in the accumulated schooling decision for the age group of 18 to 30 years. The results interestingly show that although a strong bias exists against females in overall enrollment rates, but as we explore further we see that males drop out of private schools more as compared to females and the accumulated level of schooling of the male adults is also lower than that of females. We find that much of these differences are not due to the endowment effects. Large negative deviation for males may be attributed to the unobservable pressure and society's norms regarding the role of males that affect them in an adverse manner.

R Arif, M Khalid, (2022). "[Determining the Extent of Gender Discrimination in Educational Attainment: A Case of Pakistan](#)" *Pakistan Social Sciences Review*.

ix) Measuring Mother's Empowerment Through Culture of Son Preference in Pakistan

Abstract

This paper highlights whether giving birth to a son plays a role in determining mother's empowerment in Pakistan and in particular, if the birth-order of the son has any additional impact in uplifting the mother's status within a household, using the Pakistan Demographic and Health Survey (PDHS) 2012-13. In Pakistan, the household's economic conditions make parents treat their sons and daughters differently and ultimately, giving preference to sons over daughters, in terms of education, health and nutrition, as the social and economic utility of a son, overpowers that of a daughter. In the presence of this culture of son preference, if women then give birth to a son or a number of sons, then it should help empower them. The results of the study show having a son significantly helps in empowering mothers in Pakistan. In contrast, the son's birth-order (both higher or lower) is not an important factor for improving mother's empowerment. Mother's empowerment is mainly driven by the number of sons, and age of the son, and these results are more pronounced in rural areas of Pakistan, and for mothers belonging to poor households

Arif & Tanvir. (2022). "[MEASURING MOTHER'S EMPOWERMENT THROUGH THE CULTURE OF SON'S PREFERENCE IN PAKISTAN](#)" *Journal of Research and Reviews in Social Sciences Pakistan*, Vol 5 (2), 2022 pp 1884-1917.

x) The Macro Determinants of the Drop in Pakistan's Long Run GDP Growth

Abstract

This paper attempts to address the long-run determinants of trend GDP growth in Pakistan for years 1973 till 2017. The theoretical framework chosen has been the Keynesian general equilibrium framework of aggregate demand, decomposed into the macro aggregates of consumption, investment, government expenditures, exports and imports (Keynes, 1937). The analytical strategy we have used is to establish first whether there has been a discrete drop in GDP growth at any particular break date. Establishing a break date allows us to define two periods of GDP growth, a higher growth period, followed by a lower growth period. The determinants of GDP growth can then be established, by looking for correlated changes in their behavior between the two time periods. Our findings suggest that high GDP growth in the first phase, pre-1992, is explained by high investment growth. Paired with a Marginal Propensity to Consume in this phase which is low. Making this high GDP growth phase investment led. Low GDP growth in the second phase, post-1992, is now explained by low investment growth. Paired with a Marginal Propensity to Consume, in this phase which is higher. Making this phase consumption-led.

Moazam, Rabia & Mahmood, M. (2022), [“The Macro Determinants of the Drop in Pakistan's Long Run GDP Growth”](#), Pakistan Business Review, Volume 24, Issue 2.

University Collaborations

Bates College, Bocconi University, University of Bonn, University of California Berkeley, University of Cambridge, University of Chicago, Duke University, Erasmus University Rotterdam, University of Essex, University of Exeter, University of Gottingen, Harvard Kennedy School, Massachusetts Institute of Technology, University of Michigan, Montpellier Business School, New Economics School, University of New South Wales, University of North Carolina, University of Nottingham, University of Oxford, Paris School of Economics, Politecnico di Milano, Sorbonne Universite, Stanford University, Toulouse University, United Nations University (UNU-Merit), University of Warwick, Washington University in St. Louis and University of Wisconsin