

FOREWORD

The Centre for Research in Economics and Business (CREB) was established in 2007, as an independent research centre at the Lahore School of Economics, Pakistan. CREB aims to produce high quality research with meaningful policy impact, build capabilities of early career researchers and engage with academics, practitioners and policy makers on issues of importance for Pakistan's economic development. It strives to continuously improve the quality of its research by developing links with international researchers and encouraging publications in top ranked international journals. CREB organizes international conferences and publishes working papers and policy briefs to promote discussion on policy issues and disseminate research. It hosts visiting international scholars undertaking research on Pakistan, facilitates research by the Lahore School faculty, and coordinates the postgraduate program leading to the MPhil and PhD degrees at the Lahore School.

In the short period since its inception, CREB has built an excellent reputation for the quality of its research. Our faculty and researchers have received funding support from regional partners and international agencies such as British Academy UK, International Growth Centre (IGC), National Science Foundation, USA, Private Enterprise Development in Low-Income Countries (PEDL), Open Society Foundation (OSF) and South Asia Network of Economic Institutes (SANEI).

Our staff members are highly skilled in applied research and have been actively involved in projects that help build strong policies. They focus on three main fields of research: one, modeling political economy; two, exploring the social sector, with an emphasis on education, health, microfinance and community driven development; and three, investigating industrial innovation and agglomeration.

The aim of the CREB Research News is to provide a perspective regarding the scope and depth of research being carried out at CREB. We invite you to visit our website www.creb.org.pk and browse through our ongoing and completed research.

Naved Hamid
Director
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Contents

EDITOR'S NOTE

RESEARCH

CREB PUBLICATIONS

CREB TEAM RESEARCH

MORE FROM CREB

COMPLETED MPhil THESES

Editor's Note

This issue of the CREB Research Newsletter is the ninth in a series of research newsletters from CREB. It provides information on current and completed research projects at CREB. It also has a record of conferences and workshops attended by CREB staff, CREB publications and journal articles by the CREB team members and MPhil theses completed for the period March 2018 and February 2019.

For more information please visit:
<http://creb.org.pk/>

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Research Projects

I. Ongoing Projects

A. Externally Funded

1. Barriers to Upgrading in the Sialkot Football Sector

Azam Chaudhry and Shamyra Chaudry (Lahore School), David Atkin (MIT), Amit K. Khandelwal 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.

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

Hamna Ahmed (Lahore School), 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, all rounds of reporting and incentives for recipient organizations have been completed. The endline survey of the project is scheduled to take place between April –July 2019.

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 winter 2019.

3. Microcredit and Microsaving for Microenterprises in Pakistan: Finding from framed field experiments in Pakistan

Marcel Fafchamps (Stanford), Simon Quinn (Oxford), Giovanna d’Adda (University of Milan) are working with Naved Hamid, Farah Said and Uzma Afzal (University of Nottingham)

This study used 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 take-up 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*: <http://onlinelibrary.wiley.com/doi/10.1111/eoj.12512/abstract> and working paper available here: http://ibread.org/bread/system/files/bread_wpapers/449.pdf).

Resisting
temptation to
spend:
Microcredit and
Microsaving for
Microenterprise
in Pakistan

4. Impact assessment of startup loans to female run micro-enterprises

Azam Chaudhry, Naved Hamid, Farah Said (Lahore School), Giovanna d’Adda (University of Milan) and Mahreen Mahmud, (CSAE, University of Oxford)

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

What
constraints
female
enterprise –
Finance or
family?

female 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.

5. Pressures from peers and spouses and self-control problems as constraints to microenterprise growth: Experimental evidence from Pakistan

Marcel Fafchamps (Stanford), Giovanna d'Adda (University of Milan) Farah Said and Uzma Afzal (University of Nottingham)

They are working on a research that assesses the role of self-control problems and peer pressures on take-up and use of a financial product by female micro-entrepreneurs in Pakistan by combining laboratory and field experiments. The project received *International Growth Centre (IGC)* funding in March 2015 and experimental sessions were carried out in Chakwal in April-May 2015. A second round of experiments was conducted in April 2017.

Results indicate that female involvement in household decision making is decreasing in the

importance of the decision, a. Authors find no evidence that women have pent up demand for agency. Instead, women are less willing to pay for agency

when facing an unknown man. This evidence suggests that women in the study population have internalized gender norms, and that these norms regulate interactions between genders most

Indoctrination, fear and lack of agency: constraints on women outside the home

strongly outside of the household. (Working paper available here: <https://www.nber.org/papers/w24977>).

6. Overcoming Constraints to Female Labor Force Entry

Hamna Ahmed, Farah Said and Zunia Saif Tirmazee (Lahore School)

The pilot of the study has been funded by the *Private Enterprise Development in Low-Income Countries (PEDL)* Exploratory grant, 2017. While the full scale up is funded by the joint *IZA/DFID Growth and Labour Markets in Low Income Countries Programme (GLM/LIC)*. 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.

7. Barriers to Product Upgradation in the Sialkot Surgical Goods Sector

Azam Chaudhry and Shamyra Chaudry (Lahore School), David Atkin (MIT), Amit K. Khandelwal 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). They are conducting such an evaluation in the surgical-goods industry in Sialkot and plan to offer matching grants for innovations that increase exports.

8. Access to solar electricity in rural Sindh: Role of payment schedule and planning

Farah Said (Lahore School), Jacopo Bonan (Fondazione Eni Enrico Mattei), Giovanna d'Adda (University of Milan), Massimo Tavon, (Politecnico di Milano) and Mahreen Mahmud (University of Oxford)

This research is funded by the *International Growth Centre (IGC)*. Almost 70 million people in Pakistan (35% of the population) do not have access to electricity, as they live in areas, mostly rural, not reached by the grid. Over 75 million (38%), while on-grid, receive low quality energy and experience outages for more than 12 hours per day (IFC, 2015). In spite of the significant benefits of access to electricity, the long-run feasibility of grid expansion for the provision of quality electricity to remote areas is often a concern.

The study is a collaboration with a for-profit company supplying sustainable and efficient solar energy solutions (e.g. lights, fans, mobile chargers, TV) to small businesses in off-grid areas of rural Sindh, to evaluate one market solution to increase access to energy. The product is innovative, as it alleviates credit constraints to adoption and has strong enforcement features: customers access energy through a pay-as-you-go monthly payment scheme and are disconnected when the credit expires. The study will investigate key determinants of the sustainability of the business model and of product take-up, by looking at the trade-off between discipline and flexibility in repayment schedule. The experiment will be able to explore

behavioural underpinnings of two repayment schemes, by testing soft ways to increase the salience of repayment.

9. Behavioural insights for evidence-based policy making - impact of poverty on individual preferences

Farah Said (Lahore School), Sonia Balhotra (University of Essex), Utteeyo DasGupta (Wagner College & Fordham University) and Joseph Vecci (University of Gothenburg)

This research is funded by the *University of Essex*. Depression is often associated with significant

economic costs. For instance, depression is considered to

reduce productivity by decreasing the motivation in performing everyday tasks or creating pessimistic views on returns on effort (de Quidt & Haushofer, 2016). However, economics literature does not provide us with any evidence quantify these effects. This research aims to use lab-in-the-field experiments to identify such behavioural effects of depression on economic decisions. Among preferences that we expect are modified by depression are risk-aversion, decisiveness, altruism, trust and effort.

10. Constraints to Female Entrepreneurship in Pakistan

Farah Said (Lahore School), Giovanna d'Adda (University of Milan), Mahreen

Mahmud (University of Oxford) and Diego Ubfal (Bocconi)

This research is funded by the *International Growth Centre (IGC)* and will be conducted in collaboration with National Rural Support Programme (NRSP). Evidence on the impact of microfinance loans on business outcomes shows that the effects are moderately positive, but not transformational, especially for women (Banerjee, 2013; Banerjee, Karlan, & Zinman, 2015). This is confirmed even when access to finance is coupled with business training (Gine and Mansuri, 2016, Berge, Bjorvatn and Tungodden, 2014), suggesting that other factors, beyond credit and knowledge constraints, reduce women's ability to start or grow a business. Psychological and social factors, limiting female autonomous decision making and control over resources, have been cited as important obstacles to the impact of microfinance and business training programs (Jakiela and Ozer 2016, Field, Jayachandran and Pande, 2010, Field et al. 2015, De mel, Mckenzie and Woodruff 2014). Psychological factors include self-control problems, feeling incapable of

Exploring the role of goals and aspirations in female enterprise

resisting demands from peers and family members and low perceived self-efficacy. Social factors may include intra-household

constraints on women's ability to work outside the home or interact with non-household members and lack of bargaining power. The study involves a RCT in Punjab,

Pakistan to test for these two explanations directly through two interventions, one targeting women’s aspirations, and the other focusing on their ability to achieve objectives. This study will determine which of these psychological elements, combined with microcredit loans, can lead to enterprise creation and improve business outcomes.

11. Reducing non-payment for Electricity

Farah Said (Lahore School), Jacopo Bonan (Fondazione Eni Enrico Mattei), Giovanna d'Adda (University of Milan), Massimo Tavoni, (Politecnico di Milano) and Mahreen Mahmud (University of Oxford)

This research is funded by the *International Growth Centre (IGC)*. The proposed research tests the effectiveness of behavioral interventions in fostering

Nudging timely payments

regular bill payment through a randomised field experiment (RCT) to be conducted in Karachi, Pakistan. The experimental design was defined in partnership with K-Electric (henceforth, KE), a private, vertically integrated electric-energy corporation serving around 23 million residential, industrial and commercial customers in Karachi. In spite of the company’s efforts to reduce losses from non-payment of bills, recovery rates still range between 70 and 90%. Energy provision by KE follows a policy of selective loadshedding at the feeder level, with the number of hours of outages increasing in the level of losses. Under this policy, the individual decision to pay in full

and on time generates a positive externality, in terms of quality of energy provision, on clients living in the same neighbourhood. Our proposed interventions will make use of the tools commonly used in tax evasion and energy efficiency studies, i.e. communication to customers in the form of letters, to deliver information on the selective loadshedding policy and to make explicit the link between individual repayment decision and neighborhood level quality of energy provision. This will contribute to an exciting recent literature that combines laboratory and field experiments to study how real world outcomes can be explained by underlying preferences and norms.

12. Electricity reliability and small business performance

Farah Said (Lahore School), Jacopo Bonan (Fondazione Eni Enrico Mattei), Giovanna d'Adda (University of Milan) and Massimo Tavoni, (Politecnico di Milano)

This research is funded by the *International Growth Centre (IGC)* and *Private Enterprise Development in Low-Income Countries (PEDL)*. Micro-

Improving business outcomes using electricity quality

business activities represent a major source of employment in developing countries. These businesses are subject to several constraints that prevent them from growing and increasing productivity. Compared to constraints such as human capital or access to credit, relatively little attention has been dedicated

to infrastructural constraints to small business development. This study will fill this gap by using a wealth of administrative data, and a large survey to rigorously evaluate the effects of energy quality on small firms. The proposed research will be conducted in collaboration with K-Electric. We will exploit discontinuities in the assignment of various feeder catchment areas to load shedding schedules, as well as a panel of electricity consumption, payment and loss rates, to recover causal effects of load shedding on the outcomes of small business customers of KE.

13. Innovation and Firm Growth in the Pakistani Textile Sector: Do Young and Innovative Firms Grow Faster?

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

This research is funded by the *Oxford GCRF Research England Fund*. The ability to innovate is crucial in facilitating small firms to grow into large firms and for Pakistan to achieve rapid and sustainable productivity-led economic growth. The textile sector has long been the mainstay of Pakistan's industrial base but in recent years it has failed to match countries like Sri Lanka and Bangladesh whose rapid textile export growth has pulled hundreds of thousands of young women into paid employment outside the household so contributing to wider social changes. There is evidence from mainly developed countries that such job creation is attributed to a very small

number of newly established, fast-growing and innovative small firms.

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 research team also plans to develop the institutional capacity of an innovation and technology centre at a leading Pakistani university and also at multiple government departments.

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.

14. Social mobilization, poverty dynamics, political participation, patronage and women empowerment

Waqar Wadho (Lahore School), 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. Researchers are interested in evaluating the impact of community driven development (CDD) on poverty, political participation and women empowerment.

B. Internally Funded

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

Theresa Chaudhry and Azam Chaudhry (Lahore School) are 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.

16. Business Confidence Surveys of the Business Community in Lahore

In March 2015, the Lahore Chamber of Commerce & Industry (LCCI) and the Lahore School of Economics signed a Memorandum of Understanding, which established a link between academia and the business community. As part of this collaboration, the Innovation and Technology Centre of the Lahore School (headed by Azam Chaudhry and Theresa Thompson Chaudhry) and the LCCI are conducting three annual business confidence surveys (starting in 2015) to understand the perceptions of the business community regarding the prevailing economic conditions and the level of innovation being done. The results of each business confidence survey are summarized in a yearly business confidence report.

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

Azam Chaudhry and Rehana Naz (Lahore School) are 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.

C. Lahore School Research Development Fund (LSRDFs)

18. The Role of Information in the utilization of health micro insurance

The Principal Investigator is Sadia Hussain and Co-Principal Investigator is Hamna Ahmad (Lahore School). This project aims to identify the constraints faced by the Kashf clients in using the health microinsurance program. We split the study into two phases: Firstly, we identify whether information is a perceived constraints by the Kashf clients in using the health insurance program. Secondly, we address the information constraint through a designed intervention.

19. Overcoming Constraints to Giving

The Principal Investigator is Hamna Ahmad (Lahore School) and Co-Principal Investigator is Sadia Hussain (Lahore School) and Kate Vyborny (Duke University). This experimental study aims to see the impact of information on donor behavior. We aim to test the effect of providing school-specific information about academic performance on three aspects of donor behaviour: their perceptions of quality, choice of charities, and amounts of donation. We study if this effect varies depending on the school's infrastructure needs. Further, we propose to study the impact of information on donor behaviour at both the extensive as well as the intensive margin of giving. This will entail measuring how many respondents donate as well as how much they donate. In particular, we will gather data on (i). Whether a respondent donates or not? (ii) Which school they donate to? and (iii) amount of donation.

20. The Role of Non-Cognitive Skills in improving Academic Performance

The Principal Investigator is Maryyam Haroon and Co-Principal Investigators are Farah Said and Azka Sarosh Mir (Lahore School). Improving educational achievement is an important concern for policy makers and academics. Despite significant progress towards increase in enrolment at all levels of education, only half of the students who appear for exams secure passing marks at undergraduate level. Recent developments in behavioral economics suggests that low

cost behavioral and psychological interventions that focus on development of soft skills can achieve the desired improvement in learning outcomes within existing educational systems without requiring the usual costly structural changes.

21. Political consequences of reliable electricity: results from a RDD in Pakistan

The Principal Investigator is Farah Said (Lahore School) and Co-Principal Investigators are Jacopo Bonan (Fondazione Eni Enrico Mattei), Giovanna d'Adda (University of Milan) and Luke Sonnet (University of California, Los Angeles). They propose to leverage an existing relationship with the large utility in Pakistan, and a wealth of administrative and electoral data to estimate correlational and causal relationships between political preferences and energy quality. Their main focus of this proposal is to study the causal effect of load shedding on political support for incumbents and challengers across parties.

II. Completed Projects

1. Innovation in the Pakistani Textile Sector

Waqar Wadho and Azam Chaudhry (Lahore School)

The project has been developed under the *International Growth Centre (IGC)*. Innovation and competitiveness are considered to be the backbone of private sector led economic growth and its sustainability. However, in Pakistan, very

little is known about the nature and the extent of innovation as well as its determinants and obstacles. In the absence of such evidence, policies can be misdirected and ineffective. In this project, the researchers surveyed a sample of 500 textile firms in Punjab and Sindh. The survey measured both the technological (product and process) and the non-technological (organizational and marketing) aspects of innovation where an innovation is the introduction of a new or significantly improved product, process, organizational method, or marketing method by an enterprise. Through this survey, the researchers measure 'innovation' in at least four different ways: (1) Innovation rate (based on the response of enterprise if they had innovated during 2011-13, which is further be divided into four types of innovation; i.e. product, process, organizational and marketing), (2) Innovation input (given by the ratio of R&D expenditure to sales), (3) Innovation output (given by the ratio of new products sales to total sales), and (4) Innovation efficiency (given by the ratio of new product sales to R&D expenditure).

Through this study, the researchers answers the following research questions:

- How innovative is the textiles sector of Pakistan (measured in four different ways as described above)?
- What are the correlates (both in terms of promoting and hampering) of innovation? (such as firm type and size, market structure, product market i.e. local or international, government regulations and

facilitations, sources and type of cooperation, management patterns, skill profile, ICT, access to finance and source of finances, information on technology and markets, and demand for innovations etc).

2. Analysis of Technology in the Sialkot Soccer Ball industry

Azam Chaudhry and Shamyala Chaudry (Lahore School), David Atkin (MIT), Amit K. Khandelwal 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. The Sialkot soccer ball cluster is made up of a large number of manufactures who export approximately 60 million hand-stitched soccer balls each year, accounting for about 70 percent of global production. But over the last few years, the amount of soccer balls produced in Sialkot has fallen. This project aims to better understand the technologies within the industry and determine the characteristics of the firms that are able to identify and implement new technologies.

The research team developed a cost saving technology in 2012 which it has given to a number of soccer ball manufacturers in Pakistan in order to determine the factors affecting technology adoption in firms and technology spillovers between firms. The research team has also looked at how misaligned incentives between firms and employees can affect technology adoption. The preliminary data analysis was

presented at the IGC Growth Week in September 2012 and September 2013 in London. The researchers have presented this work in seminars and conferences at University of Berkley, Yale University, Columbia University, Harvard University and University of Oxford. It has also been presented at the Government of Punjab in 2015. After these presentations the Secretary Finance and the Secretary Industries, Punjab Government used the project's findings to propose and initiate an Innovation Development Fund (IDF). Currently, the Punjab Government has initiated this fund and the Lahore School is represented on its executive board. The findings of this project have been published in Atkin, A., Chaudhry, A., Chaudry, S., Khandelwal, A. K and Verhoogan, E. "Organizational Barriers to Technology Adoption: Evidence from Soccer-Ball Producers in Pakistan". *Quarterly Journal of Economics* (2017); Atkin, A., Chaudhry, A., Chaudry, S., Khandelwal, A. K., Raza., T and Verhoogan, E. "On the Origins and Development of Pakistan's Soccer-Ball Cluster". *World Bank Economic Review* (2016); Atkin, A., Chaudhry, A., Chaudry, S., Khandelwal, A. K and Verhoogan, E. "Markup and Cost Dispersion across Firms: Direct Evidence from Producer Surveys in Pakistan". *American Economic Review, Papers and Proceedings* (2015).

3. Economic Geography and Misallocation in Pakistan's Manufacturing Hub

Theresa Chaudhry (Lahore School), with Muhammad Haseeb (University of Warwick) and Maryiam Haroon (Lahore

School) looked at whether localization of industries can reduce economic distortions and dispersion in total factor productivity (TFP) among firms in Punjab using the Punjab Census of Manufacturing Industries (2005-06). This project was completed in 2016.

They considered two types of misallocation: i) dispersion in the distribution of output-based TFP (TFPQ), in particular, the survival of low productivity firms in the left tail; and ii) dispersion in revenue-based TFP (TFPR), indicative of allocative inefficiency. On one hand, we find that the distribution of TFPQ is less dispersed in more agglomerated areas (measured by the localization quotient, local productive concentration, and average firm size) and that average TFPQ is positively related to localization. On the other hand, we do not find evidence that agglomeration improves allocative efficiency measured as deviations in TFPR from the sector average, concluding rather that greater localization of small firms is associated with firms being more output and capital constrained. Findings of this project are published in Chaudhry, T., Haseeb, M. and Haroon, M. "Economic Geography and misallocation in Pakistan's manufacturing hub" *The Annals of Regional Science* (2017).

4. Understanding and Addressing Rural Poverty in Pakistan: Oxford University– Lahore School Collaboration

Marcel Fafchamps, Simon Quinn (University of Oxford), Kate Vyborny (Duke University), Naved Hamid, Azam Chaudhry, Theresa Chaudhry, Hamna Ahmed, Asha

Gul, Uzma Afzal and Farah Said (Lahore School) and Muhammad Haseeb (University of Warwick).

With funding from the *British Academy* and the *Lahore School of Economics*, researchers at Oxford and CREB have completed the 3-year collaborative program on the Economics of Rural Poverty in Punjab. The collaboration has led to several joint academic projects between the two institutions. The collaboration has now far exceeded the scope originally planned, leading to new joint projects that have continued beyond the end of the grant. This project was completed in 2014.

The collaborative work includes research on the following topics:

a. Patron-Client Relationships and Rural Development in Pakistan

How do social networks and local "patrons" affect household wellbeing and access to public services? Patron-client relationships, or vertical social relationships in which individual powerful "patrons" have multifaceted relationships with "clients", are said to be key features of both markets and politics in many developing country settings, including rural Pakistan. But how do these relationships work in practice and how do they affect the delivery of government goods and services?

These questions were explored by Azam Chaudhry (Lahore School), Muhammad Haseeb (Lahore School/University of Warwick) and Kate Vyborny (Duke University/Lahore School) initially with data collected from the Lahore School's Privatization in Education Initiative (PERI)

survey and then with the new survey under this project. The researchers have developed several research papers analyzing these data, which examine questions including how local context affects the patron-client relationship, how political connections affect targeting of government programs, and whether different types of program design make programs for the poor more robust to the influence of patronage. The researchers have presented this work in Lahore at the Lahore Economic Development Research Seminar Series (LEDRS) and at International Food Policy Research Institute (IFPRI), AIMS-Manila and Duke University as well as at seminars and conferences in Oxford, Ottawa and Paris and will submit papers for publication soon.

b. Learning about Flood Risk: Evidence from a Field Experiment in Pakistan

Farah Said, Uzma Afzal (Lahore School) and Ginger Turner (The Wharton School) investigated how individuals learn about flood risk through the experience and observation of flood events. The study tested the theory that individual risk perceptions and preferences could change with disaster experience, even when controlling for variation in initial asset constraints and losses. The aim was to improve on previous studies by matching game choices with survey data that included questions on expectations, asset, information sets, and timing by complementing surveys with experimental design.

A main contribution of this study was to improve the identification of individual loss measures, to test whether variation in flood damages at an individual level can explain

differences in observed risk aversion changes. This research was particularly innovative in the Pakistan context, where there has been little work to date on behavioral economics. Findings on behavioral changes have been published in Turner, G., Said, F. and Afzal, U. "Microinsurance Demand after a Rare Event: Evidence from a field experiment in Pakistan". *The Geneva Papers on Risk and Insurance – Issues and Practice* 39, 201 – 223, (2014); Turner, G., Said, F., Afzal, U., Campbell, K. "The Effect of Early Flood Warnings on Mitigation and Recovery during the 2010 Pakistan Floods". A. Singh and Z. Zommers (Eds.), *Preventing Disaster: Early Warning Systems for Climate Change*. London: Springer (2014); Said, F., Turner, G. and Afzal, U. "Attitudes Towards Risk in the Wake of a Rare Event: Evidence from Pakistan", *CREB Working Paper No. 02-14*, (2014) and Said, F.; Turner, G. and Afzal, U. "Risk Taking and Risk Learning after a Rare Event: Evidence from a Field Experiment in Pakistan", *Journal of Economic Behavior & Organization* 118, 167 – 183, (2015).

c. Evaluating the Impact of Punjab's Girls Stipend Program

The government of Punjab, starting in 2004, offered a conditional cash transfer (CCT) of Rs 200 per month, to girls in class 6 to 8 with minimum 80 percent attendance, in order to increase the educational attainment of girls in districts with less than 40 percent literacy. The program was later extended up to grade 10.

Using two rounds of data collected, a 2009 survey of urban and rural households in Punjab (supported by NSF and the Lahore School of Economics) and a 2013 survey of

only rural households (supported by the *British Academy* and the *Lahore School of Economics*), Amar Shuja and Theresa Chaudhry (Lahore School) are analyzing the impacts of this CCT on enrollment and marriage outcomes by means of triple difference-in-differences approaches, comparing eligible girls to their non-eligible elder sisters younger siblings in both stipend and non-stipend districts.

5. Caste, Social Exclusion and Education in Rural Punjab: World Bank and CREB joint Research Initiative

Tayyaba Tamim (Lahore School) and Rehan Jamil (World Bank)

This funded research was in collaboration with the *World Bank* and *Lahore School of Economics*. They used a multiple case study design and mixed methods approach to capture in-depth processes by which caste-based social exclusion shapes the educational opportunity for the marginalized castes in rural Punjab. Three villages were selected from the PERI 2011 data based on geographical spread (North, south and Centre of Punjab), caste and religious complexity and lowest school enrollment. Each village was taken as a case. Amartya Sen's capability approach to human development was used to evaluate educational opportunity in the space of capabilities and opportunities, in combination with forms of social exclusion identified by (Whitley, 2005), while Pierre Bourdieu's social critical theory provided the analytical toolkit. Data from 105 interviews with low and high caste parents of (10 -16 year old children) and school

heads along with questionnaires, revealed that the caste-based social exclusion stemming from socioeconomic dimension refracted into active and passive forms of institutional exclusionary processes at macro and micro levels, across temporal, spatial and social planes on the one hand; and unfavorable inclusion of the low castes in their own groups, on the other hand; forcing the poorest and most excluded castes to self-deselect themselves from accessing educational opportunity. This project was completed in 2013.

The results of the study were published as: CREB working paper "Caste, Social Exclusion, and Opportunities for Education in Rural Punjab", *CREB Working Paper No. 01-15*, (2015) and in an international journal Tamim, T. and Tariq, H. "The Intersection of caste, social exclusion and educational opportunity in rural Punjab", *International Journal of Educational Development*, 43, 51-62 (2015). Two other papers from the same study are in the pipe line: 'Factors affecting low - caste parents' choices for schooling their children: case study of a village in southern Punjab'; 'Caste, social capital and education in rural Punjab'.

6. Public Vs Private Schooling Choice at the Household Level

Masooma Habib, Hamna Ahmad and Sahar Amjad (Lahore School)

With a grant from *Open Society Institute (OSI) Privatization in Education Initiative (PERI)*, researchers undertook a study titled *Determinants of School Choice – Evidence from Punjab, Pakistan*. The study addressed the following overarching question: Why

do parents choose low cost private schools when free public schools are available? The main emphasis of the study in answering this question was on the role of parents' perceptions in school choice while controlling for a range of child, household and school specific characteristics. The study was based on a sample of 1024 rural households in 64 clusters spanning over 8 tehsils and 7 districts of the Punjab. This project was completed in 2012.

Findings of the study have been published in Ahmed, H., Amjad, S., Habib, M & Shah., S. A. "Determinants of School Choice: Evidence from Rural Punjab, Pakistan", *CREB Working Paper No. 01-13*, (2013) and Ahmed, H., Amjad, S., & Habib, M. "Private Schooling: Determinants and Implications for Social Justice in Rural Punjab, Pakistan". I. Macpherson, S. Robertson, & G. Walford (Eds.), *Education, Privatisation and Social Justice: Case studies from Africa, South Asia and South East Asia*, Oxford: Symposium Books Ltd (2014).

7. Financial Crisis and Migrant Remittances: Effects on Growth and Poverty in Selected South Asian Countries

Azam Chaudhry, Naved Hamid and Mahreen Mahmud (Lahore School)

With a grant from *South Asia Network for Economic Institutes (SANEI)*, researchers from the Lahore School of Economics empirically investigated the effects of the global financial crisis on remittance growth and national income in Bangladesh, Sri

Lanka and Pakistan. This project was completed in 2011.

Findings of the study have been published in Mahmud, M., and Hamid, N. "Migrant Remittances to South Asia: Determinants and Effect on Growth". In M. K. Mujeri, and M. Wahiduddin (Eds.), *Adjusting to Global Economic Volatility. The Case of South Asia*. New Delhi: Academic Foundation (2014).

Other Research related activities at CREB

Working Papers

- **Intrahousehold Consumption Allocation and Demand for Agency: A Triple Experimental Investigation.** NBER Working Paper No. 24977, 2018
Uzma Afzal, Giovanna D'Adda, Marcel Fafchamps and Farah Said
- **Do young and innovative firms grow faster? Evidence from the Pakistani textiles sector.** United Nations University (UNU-Merit) Working paper 2019-02
Waqar Wadho, Micheline Goedhuys and Azam Chaudhry

CREB publishes a Working Paper series, which is based on rigorous analytical and empirical research studies.

- **CREB Working Paper No. 02-18**
Spousal and Nonspousal Trust and Reciprocity: Evidence from a Field Experiment.
Marjan Nasir and Shemiah Parshad

Journal Articles

1. **Two Sides of the Same Rupee? Comparing Demand for Microcredit and Microsaving in a Framed Field Experiment in Rural Pakistan.** Uzma Afzal, Giovanna d'Adda, Marcel Fafchamps, Simon Quinn and Farah Said
Economic Journal, Vol 614(128) 2018

2. **Government size and economic growth in an endogenous growth model with rent-seeking.** Waqar Wadho and Umair Ayaz, *Economics & Politics*, Vol 30(1) 2018
3. **Innovation and Firm Performance in Developing Countries: The case of Pakistani Textiles and Apparel Manufacturers.** Waqar Wadho and Azam Chaudhry, *Research Policy*, Vol 47(7) 2018
4. **Is Pakistan Ready to Embrace Fintech Innovation?** Syed Kumail Abbas Rizvi, Bushra Naqvi and Fatima Tanveer
Lahore Journal of Economics, Vol 23:2, Winter 2018
5. **Young innovative companies and employment creation, evidence from the Pakistani textiles sector.** Waqar Wadho, Micheline Goedhuys and Azam Chaudhry, *World Development*, Vol 117, 2019
6. **Public Spending and Economic Growth in the presence of Rent seeking: A Theoretical Analysis.** Shaheen Naseer, *The Pakistan Development Review*, Vol 58(2), 2019
7. **The Role of Bundling in promoting Sustainability of Health Insurance: Evidence from Pakistan.** Sadia Hussain and Hamna Ahmad, *The Geneva Papers* (forthcoming)

Research Conference and Seminars

A. Lahore School

International Conference on the Management of the Pakistan Economy

The Centre annually organizes the Lahore School's International Conference on Management of the Pakistan's Economy. The proceedings of the Conference are published in the Lahore Journal of Economics. We have had fourteen conferences so far. This year's conference is titled **"Economic Challenges in a Changing National and Global Environment"**. Previous conferences have focused on a range of themes covering topics in growth, trade, and development.

First International Conference on Applied Development Economics

The Centre organized the Lahore School of Economics First International Conference on Applied Development Economics which was held from 12th – 13th September, 2018. In the last three years, we have had two international conferences with a focus on microfinance and we now wanted to make it an annual event and broaden its scope. The aim of the conference was to expose researchers and policy makers in Pakistan to on-going research on key issues of relevance to economic development and poverty alleviation in Pakistan and contribute to improving research capabilities of young researchers in the country. The Conference highlighted frontier research that is being conducted in Pakistan with the aim of

economic development and poverty alleviation. Dr. Imran Rasul, Professor of Economics at the University College London delivered the Plenary Address. Farah Said, Hamna Ahmed and Zunia Tirmazee from CREB, Lahore School also presented their work at this conference.

CREB Research Seminar

The center has started the CREB Research Seminar series in 2015. The CREB Research Seminar has been initiated to disseminate ongoing research by CREB staff and other researchers. The objective of the seminar is twofold. One, to make young researchers aware of the research being done by others and two, to encourage young researchers to question and critically discuss each other's research in a supportive environment. We have had 6 seminars since April 2018 and research presentations have been made by Dr. Sheheryar Banuri (University of East Anglia), Dr. Rashid Memon (Lahore University of Management Sciences), Dr. Mahreen Mahmud (CSAE, University of Oxford), Dr. Hina Khalid (Information Technology University), Dr. Hamna Ahmed (CREB), Dr. Kate Vyborny (Duke University) Sultan Mehmood (University of Paris-Dauphine) and Dr. Sohail Anwar Choudhry (Punjab Social Protection Authority).

B. External

"Stimulating Firm Productivity and Growth" Seminar at the State Bank of Pakistan, Karachi, March 2018

Farah Said (CREB, Lahore School) presented at a seminar on "Stimulating Firm Productivity and Growth" on March 6,

2018. The seminar was jointly organized by International Growth Centre (IGC), Consortium for Development Research (CDPR), State Bank of Pakistan and Institute for Business Administration Karachi (IBA) at the State Bank of Pakistan, Karachi. Seminar attendees included researchers at the State Bank, IBA, LUMS, Federal Board of Revenue, Sindh Board of Investment and K-Electric, among others. Ms. Said presented preliminary results from a behavioral intervention designed to increase access to solar electricity in off-grid areas of Sindh and the design of an intervention to reduce non-payment of electricity bills.

CSAE Conference, Oxford, March 2018

Researchers from CREB, Lahore School presented papers at the international conference on Economic Development in Africa organized by The Centre for the Study of African Economies (CSAE), University of Oxford. The conference was held at Saint Catherine's College, Oxford, on 18-20 March 2018. Hamna Ahmed presented her paper "Group Decision-Making: Evidence from a framed field experiment with community organisations in Pakistan" and Farah Said presented her work on "Microfinance for Startups: Experimental Evidence from Pakistan", co-authored with Azam Chaudhry (Lahore School), Mahreen Mahmud (University of Oxford), Giovanna d'Adda (University of Milan). An international platform, the CSAE Conference offered a unique opportunity to bring together academics working on key issues of great relevance to developing economies of the world. This year's conference featured keynote lectures by Rachel Glennerster (JPal and DFID) and Michel Kremer (Harvard).

Annual Royal Economic Society Conference (RES), Sussex, March 2018

Farah Said (CREB, Lahore School) presented her work "Microfinance for Startups: Experimental Evidence from Pakistan", co-authored with Dr Azam Chaudhry (Lahore School), Mahreen Mahmud (Oxford), Giovanna d'Adda (University of Milan) at the 'Royal Economic Society' Conference on 26-28 March 2018 at the University of Sussex, UK. The prestigious annual RES conference has been inviting economists from different backgrounds and specialties since 2001. This year, the conference was organized by a renowned team of economists at the University of Sussex this year and hosted talks by Maristella Botticini (Bocconi), Dave Donaldson (MIT) and Andrew Chesher (UCL and Cemmap).

2nd GW Student Research Conference in Economics, Washington DC, April 2018

Maryyam Haroon (CREB, Lahore School) participated in the 2nd GW Student Research Conference in Economics 2018 hosted by GW Student Association for Graduate Economists, The George Washington University held on 21st April 2018 in Washington DC, USA. GW Student Research Conference in Economics aims to bring together graduate economics students from greater DC area and beyond to promote the high standard theoretical and cutting edge empirical research in the fields of economics and development with a focus on presenting valuable suggestions for policy makers across the globe. Maryyam presented her work titled "Does Spatial Proximity Matter? Understanding The Costs and Benefits of Agglomeration" coauthored

with Dr. Azam Chaudhry in the session focusing on Institutions and Economic Outcomes. She also got the opportunity of acting as a discussant for one of the paper titled "Dishonest Politicians and Public Good Provision" for the case of Bangladesh.

Empirical Study of Gender (EGEN) Pakistan workshop, Lahore, July 2018

Researchers from CREB, Lahore School presented their papers at the Empirical Study of Gender (EGEN) Pakistan workshop held at Centre for Economic Research in Pakistan (CERP), Pakistan on 23 July, 2018. The EGEN Conference intended to bring together a group of researchers working on gender issues in Pakistan. Farah Said presented the design on her on-going work with Hamna Ahmed, Mahreen Mahmud and Zunia Tirmazee on Constraints to Female Labor Force Entry in Lahore. Zunia Tirmazee presented the design of her paper titled 'Experimental Investigation of Gender Discrimination in Lahore' co-authored by Kate Vyborny.

The Academy of Management, Annual Meeting at Chicago, USA and the European Economic Association Annual Meeting at Cologne, Germany, August 2018

Shaheen Naseer (CREB, Lahore School) presented her paper titled "Public Bureaucracy and Identity of Bureaucrat", co-authored by Klaus Heine at The Academy of Management, Annual Meeting. The Academy of Management is the preeminent professional association for management and organization scholars. This took place in Chicago, USA from 10th to 14th August,

2018. She presented the same paper at the European Economic Association, Annual Meeting which was held in Cologne, Germany from 27 to 31 August 2018.

4th IZA (Institute of Labour Economics) GLM-LIC (Growth and Labour Markets in Low Income Countries) Research Conference, Ann Arbor, September 2018

Hamna Ahmed and Zunia Tirmazee (CREB, Lahore School) presented their work on "Overcoming constraints to female labour force entry" at the 4th IZA (Institute of Labour Economics) GLM-LIC (Growth and Labour Markets in Low Income Countries) Research Conference which took place at the University of Michigan, Ann Arbor from September 28 to 29, 2018. The conference was attended by researchers from leading universities and research institutes who presented their latest research findings related to labour markets in low-income countries. The keynote lecture focused on the impact of labour market interventions on social norms of female employment, and was given by Professor Erica Field (Duke University and IZA). Researchers tackled a variety of topics ranging from intergenerational mobility to evaluating the impact of different active market policies as well as covered several issues related to empowerment of women in developing countries.

The Advances with Field Experiments Conference, Chicago, October 2018

Hamna Ahmed (CREB, Lahore School) presented the design of an upcoming field experiment, titled "Institutional Capacity as an Organizational Challenge: A Field

Experiment in Pakistan” at The Advances with Field Experiments 2018 conference organized by John List, Kenneth C. Griffin Department of Economics, University of Chicago and Robert Metcalfe, Boston University. The conference, held in Boston University from 5-6 October 2018, gathered a group of academics to present the best and most innovative new work using field experiments to address a broad range of topics in economics. Keynote speakers for the conference included Amy Finkelstein, Massachusetts Institute of Technology, Roland Fryer, Harvard University and Catherine Wolfram, Berkeley Haas School of Business.

Workshop on The Frontiers of Research in Private Enterprise Development in Low-Income Countries, Abu Dhabi, November 2018

Maryiam Haroon (CREB, Lahore School) participated in the Workshop on The Frontiers of Research in Private Enterprise Development in Low-Income Countries from November 13-15, 2018 jointly organized by NYU - Abu Dhabi and the Private Enterprise Development in Low-Income Countries (PEDL). The workshop included presentations from leading researchers in the field, highlighting open questions and opportunities for possible contributions. The objective of the workshop was to foster new ideas and to develop projects, grant proposals and collaborations between pre-dissertation PhD candidates from top institutions in US, Europe, Africa and South Asia. Participants were grouped according to their interest and work together under the supervision of workshop leaders to develop, present, and receive feedback on projects

leading to grant proposals fundable by PEDL or other funding calls.

American Economic Association (AEA) Annual Meeting, Atlanta, January 2019

Farah Said (CREB, Lahore School) attended the American Economic Association (AEA) Annual Meeting held 4-6 January, 2019 in Atlanta, USA. The annual meeting, held in conjunction with the American Social Science Association (ASSA), comprises of over 500 paper and panel sessions allowing esteemed economists from around the world to present their work. The conference was an excellent opportunity to present cutting-edge research conducted at the Lahore School and receive feedback on on-going work. Farah presented her paper “When nudge comes to shove: Demand for commitment in microfinance contracts”, co-authored with Uzma Afzal (University of Nottingham), Giovanna d’Adda (University of Milan), Marcel Fafchamps (Stanford University) and Simon Quinn (University of Oxford). Shaheen Naseer (CREB, Lahore School) presented her paper in the poster session of the AEA Meeting titled "Inertia and Public Bureaucracy: The Imprint of Bureaucrat”, co-authored by Klaus Heine. She shared that the poster session provided the unique opportunity to give a discussion/presentation of her work for the entire three days of the conference at the AEA.

International Conference on Economic Development in South Asia, Kalutara, January 2019

Hamna Ahmed (CREB, Lahore School) attended the international conference on

Economic Development in South Asia held 7-8 January, 2019 in Kalutara, Sri Lanka. The conference was organised by The Institute of Policy Studies of Sri Lanka (IPS) in collaboration with the South Asia Research Network (SARN) of the Centre for Global Business (CGB), and Centre for Development Economics and Sustainability (CDES), Monash University Australia. The conference provided an opportunity for researchers and policy makers from the South Asia region and Monash University, Australia to interact with each other and deepen collaborative links on major development challenges facing South Asia. Ms Ahmed presented her paper titled "Group Decision-Making: Evidence from a framed field experiment with community organisations in Pakistan".

South Asian Economics Students Meet, Colombo, January 2019

Maryiam Haroon (CREB, Lahore School) represented the Lahore School of Economics along with other faculty members from LUMS at the 15th South Asian Economics Students' Meet (SAESM) held from 21st to 23rd January 2019 in Colombo, Sri Lanka.

Summer Courses attended

Summer School 2018 at Paris School of Economics

CREB/Lahore School of Economics PhD students; Farah Said, Maryiam Haroon and Zunia Saif Tirmazee Paris in Summer 2018 from 18th June to 29th June, 2018 to attend a two week Summer School Program organized by the Paris School of Economics. The students enrolled in courses on Microeconometrics, and Migration and International Trade (in week 1) and Experimental Economics - Empirical tools and methods to investigate economic behavior (in Week 2). The summer school was an excellent opportunity for the Lahore School PhD students to benefit from research - oriented teaching by leading experts in their fields. The PSE Summer School was aimed at professionals, researchers, as well as graduate students in Economics and provided students an enriching experience to learn from top academics and professionals and network with students and faculty from their own fields of interest. The summer school was well attended by participants from top-ranked universities in Europe, USA and the UK.

MPhil Economic Theses

- 1. Does the Distribution of Bargaining Power Across Parents Affect Children's Well-being? Experimental Evidence***
Aqsa Amjad (Supervisor Rabia Arif)

In this study, we investigate bargaining power under risk and uncertainty/ambiguity 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 comparison purposes and to estimate the impact of women's bargaining power on 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 ambiguity 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, especially for daughters and child health improves specially for sons, but surprisingly, child schooling diminishes with the increase in women's bargaining power for both sons and daughters. Also we found that self-reported data doesn't reveal the true dynamics in the household because huge differences are found when same questions regarding HH decisions were asked separately from spouses.

- 2. Impact of Temporary External Migration & Remittances on Child Health Outcomes in Punjab***

Mydda Aslam (Supervisor Theresa Thompson Chaudhry)

Temporary migration in developing countries like Pakistan is generally in response to the income constraint faced by the households. In an attempt to relax the resource constraint, migrants tend to remit back to their families of origin. This study attempts to look at the impact of temporary external migration and remittances on the health outcomes of children as measured by height-for-age z scores (HAZ) and weight-for-age z scores (WAZ) in Punjab. The data has been taken from Multiple Indicator Cluster Survey (MICS) 2011, Bureau of Emigration and Overseas Employment and State Bank of Pakistan. Our results suggest significant and positive impact of external migration and remittances on both the indicators of child health outcomes (Height for Age z-scores and Weight for Age z-scores). Further this study confirms the presence of increased bargaining power of women in households headed by females where there is an increased spousal control over the allocation of resources. In Pakistan, mostly the households are headed by male members and their absence due to migration gives the female spouse a greater command over decision making process resulting in a greater share of resources being spent on girls relative to boys.

3. *The effects of screening peer monitoring, group pressure and social ties on microfinance borrowing groups' repayment behavior*

*Shafaq Junaid Aslam (Supervisor
Theresa Thompson Chaudhry)*

In this paper, we have conducted a survey of 225 urban borrowing groups at Akhuwat (interest free microfinance bank) in Lahore, Pakistan. We have looked at the effects of screening, monitoring, group pressure and social ties on borrowing groups' repayment behavior. Our dependent variable delinquency looks at the number of days delayed from each due date, it is a count variable and thus requires count data model with clustered standard errors. We have used control function approach to compute first stage results as average loan amount is endogenous. However, endogeneity of average loan amount was not supported by results. Thus, we treated it as exogenous in all our specifications and while computing Incidence Rate Ratio. From the paper, we have found out that monitoring reduces delinquency while social ties, screening, peer monitoring and group pressure have no significant impact on delinquency. While female are less delinquent than males. Moreover, when we include social ties interaction with female groups, we find out that social ties increase delinquency. While after including the interaction for group pressure and female groups, delinquency rates are reduced.

4. *Impact of physical distance on health facility choice: evidence from Kashf's health micro insurance program*

Dareen Latif (Supervisor Hamna Ahmad)

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? 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.

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

Aimal Tanvir Malik (Supervisor Rabia Arif)

In a developing country, household's economic conditions make parents treat their sons and daughters differently. Culture of son preference is prevalent in Pakistan where social and economic utility from having a son overpowers the utility from having a daughter. This study highlights factors in Pakistan impacting mother's empowerment, emphasizing on how child's gender and birth-order helps to determine the mother's status within a household. The results of the study show that son's birth-order (both higher or lower) is not an important factor for improving mother's empowerment in Pakistan. In contrast, the results show that having a son alone, helps significantly in improving mother's overall empowerment. In order to eradicate gender discrimination, one needs to implement policies which help in improving the economic benefits of having a daughter. This can be done by enhancing woman's access to healthcare, eliminating gender-driven gap in the field of education, providing social safety nets for women in particular; which not only helps them in easing the burden of poverty but will further provide aid in empowering them.

6. *Investment in early childhood health and its implications for human capital accumulation and economic growth*

Muhammad Naveed (Supervisor Waqar Wadho)

This study models the role of early childhood health investments in economic growth through human capital formation in an overlapping generation model. We solve the model under three different modes of health financing: initially when all the health investments are privately made by individuals. Then we solve the model under public health financing system where government levies income tax to provide full public health care to everyone; however the total tax income may not necessarily be spent on public health care as there is the possibility of leakage from tax collected. Furthermore, we solve the model under partial public health financing where government provides partial public health subsidy by taxing everyone. We find that if leakage is higher than a certain threshold level then it leads to lower growth equilibrium in public health financing case. In the case of partial health financing we find that private health investments decrease with leakage and with the level of public health subsidy. For any positive leakage, health investments as well as human capital is higher in private case than in partial public health financing. This suggests that private health financing is the first-best option in the presence of leakage from tax income and reducing bureaucratic inefficiencies and leakage by improving institutional structure is the key to achieve better growth outcomes in public health care systems.

7. Gender differences in willingness to compete

Muhammad Ahmed Nazif (Supervisor Farah Said)

This thesis investigates the gender difference in competitiveness using a sample of undergraduate and graduate students in a private, higher education institution in Pakistan. The study uses standard 'tournament' style incentivized experiments to measure participants' willingness to compete. We find that there is no difference in willingness to compete by gender when participants are incentivized to improve upon their own past performance or when they are competing with someone of the same gender. However, we do find a difference in the willingness to compete among male and female participants when they compete with others whose gender they do not know. These results can provide insights on the correlation between competitiveness of students and their labor market outcomes later in life. Results also indicate the type of competition that can potentially improve productivity of both men and women.

8. Macroeconomic and Spatial

Determinants of Remittances: A Cross Country Analysis

Gul Noor Ismail (Supervisor Rabia Ikram)

The volume of official world remittances and the rate of international migration have increased since 1970. Using bilateral remittances data from the top fifteen remittance recipient countries from 2010-

2014, this study will examine numerous factors affecting remittances. By incorporating panel data techniques such as Pooled OLS, Fixed Effects Model, Random Effects Model and Mundlak approach in our study, we can overcome the problems of unobserved heterogeneity and simultaneous bias which exist between remittances and the stock of migrants. The main contribution of the study is that it identifies one of the most important factors affecting remittances, i.e., genetic distance. We find that several factors have an important impact on the magnitude of remittances such as GDP per capita of the host and home countries, exchange rates, common colony, common language, migrants stock and genetic distance. Geographical and religious distances however do not appear to play an important role. We also find that the significance of our core variable, i.e., genetic distance is robust to the changes in the specification of the estimation methods and to the changes in the way of quantifying remittances and genetic distance.

9. The Impact of School Facilities on Drop outs in Pakistan

Mahniya Zafar (Supervisor Farah Said)

Investment in human capital has the potential to promote economic growth and alleviate poverty. Unfortunately, Pakistan's performance on this front has been poor with 19% of the primary school age children being out of school and one out of every three children out-of-school having dropped out. This study aims to explore the impact of attributes of school facilities on primary school dropouts in Pakistan. I use

the Annual Status of Education Report (ASER) data set from 2013, 2014 and 2015 to study the impact of school facilities (both public and private schools) on proportion of dropouts in a village. I also draw a statistical comparison of the impact of school facilities on primary and secondary level dropouts. Better school facilities, specifically the educational qualification of private schools teachers, significantly reduce the proportion of dropouts in a village. However, once the student proceeds to the secondary level, the effect of school and teacher quality indicators diminish. These results indicate the need for policy makers and educators to emphasize on better teacher quality to retain students in primary school.

10. Endogenous time preferences and Environmental quality: Multiple equilibria and Fiscal implications

Mehreen Zahid (Supervisor Rehana Naz and Azam Chaudhry)

This thesis analyzes a model of growth with endogenous time preferences. Economic growth is determined by factors like consumption, income, savings etc., and this thesis will include environmental quality as a factor in the production function. The analysis will focus on how incorporating endogenous discounting into individual preferences affects economic growth. I hypothesize the presence of multiple equilibria, one low growth and one high growth. Also the requisite stability analysis will be done to look at stable equilibria along the balanced growth path. Furthermore, I will analyze how fiscal policy can be used to affect the growth rate in the economy.