



# PAKISTAN

## Strategy Support Program



### Research Competitive Grants Program

## Project Summaries for First Round of Awards

(Awards Announced 6 June 2012)



### The Competitive Grants Program

Fostering innovation within the academic and policy-oriented research communities of Pakistan is vital to sustained economic growth. Under the leadership of Dr. Nadeem ul Haque, Deputy Chairman of the Planning Commission of Pakistan, the IFPRI Pakistan Strategy Support Program administers a research Competitive Grants Program. At its first conference, 26-27 May 2012, projects selected by the program's Research Advisory Committee received awards. Eighteen projects are underway in the areas of Improved Governance, Creative Cities and Regions, Energetic Youth and Communities, and Vibrant Markets. Photo above shows a group of the awardees. At a conference scheduled for 7-11 February 2013, interim reports from the selected projects will be presented and a new set of grants will be awarded.

## Improved Governance

### **Structural Constraints on Public Goods Provision: Evidence from Pakistan**

Dr. Adeel Malik ([adeel.malik@geh.ox.ac.uk](mailto:adeel.malik@geh.ox.ac.uk)), Oxford University, UK (Ph.D. student, Mr. Rinchan Ali Mirza, [ali\\_mirza11@hotmail.com](mailto:ali_mirza11@hotmail.com))

This project will provide an understanding of the institutional context of the system of public service delivery in Pakistan. Specifically, the project will investigate the impact of three main structural constraints in explaining variations in the provision of public goods across districts (and, where possible, Tehsils). These factors are: ethno-linguistic diversity, elite dominance, and the strength of patron-client linkages. Three hypotheses will be tested: Do more ethnically diverse regions receive less public goods?; Is public goods provision lower in regions with historic inequity and a dominant elite?; Are regions that have stronger politician-citizen linkages defined by patrimonial ties associated with lower availability of public goods? The project is primarily empirical using econometric estimation. A key requirement will be construction of suitable measures for the explanatory variables.

### **Estimating the Size and Operations of the Public Sector and its Impact on Wheat Markets in Pakistan: A Post-18th Constitutional Amendment Inquiry**

Dr. Vaqar Ahmed ([vahmed@gmail.com](mailto:vahmed@gmail.com)), Sustainable Development Policy Institute, Islamabad

The Planning Commission of Pakistan has long sought to estimate the manner in which a non-optimal size and scale of public sector operations distorts entrepreneurial incentives and imposes a welfare burden. This study focuses on interventions in the wheat market in this context. The study will examine the various institutions involved in governance of agriculture in Pakistan at the national and sub-national levels, particularly evaluating their procurement powers, budgets, active commodity market operations, and distortive price setting. Economy-wide impacts of the interventions will be quantified using a computable general equilibrium (CGE) simulation model. Focus group discussions and key informant interviews will also be conducted to inform the analysis. In the light of regional and global experiences, the study will recommend how government intervention can be reformed, in a post-18th Amendment context, to reconfigure wheat market operations in a manner that safeguards against economic distortions and future food insecurity.

### **Economic Growth and Protection of Life, Property and Contracts**

Dr. Shabib Haider Syed ([shabibhaidersyed@fccollege.edu.pk](mailto:shabibhaidersyed@fccollege.edu.pk)), Forman Christian College (A Chartered University), Lahore

This project will evaluate the impacts of life and property threats on Pakistan's long-term economic performance. Time-series data will be compiled related to broad categories of life threatening crimes, property threatening crimes and contract intensive money supply (held outside of financial institutions that enhance legal rights and reduce risks). These variables will be included in estimated production functions to assess their effects on levels of output achieved for given levels of capital and labor. The study will evaluate policy implications such as the role of formal and informal institutions in the growth performance of Pakistan and the need for incentives in the economic system to moderate the violence in society.

## **Essays on the Political Economic Consequences of Pakistan's Linguistically Fractured Educational System**

Dr. John Willoughby ([jwillou@american.edu](mailto:jwillou@american.edu)), American University, Washington, DC, USA  
(Ph.D. student, Ms. Zehra Aftab, [aftab.zehra@gmail.com](mailto:aftab.zehra@gmail.com))

This project investigates how the language controversy has impacted the evolution of Pakistan's educational system. After sixty-five years, Pakistan still grapples with the issue of Urdu versus English medium education. The future of its children hangs in the balance. The study hypothesizes that the present educational system has exacerbated social divisions and created different norms amongst different sets of youth. The research will also examine whether or not the distinct education streams that presently exist have made it less likely that adults of different social background interact and work together. Key components of the study are an ethnographic survey in the twin cities of Rawalpindi/Islamabad and a set of experimental games that will evaluate cooperation and the tendency to punish among students in different educational streams. The analysis will provide guidance toward the more inclusive educational system Pakistan needs in the future.

## **An Essay on Consumption Hypotheses**

Mr. Khalid Khan ([khalidkk82@yahoo.com](mailto:khalidkk82@yahoo.com)), Lasbela University of Agriculture, Water and Marine Sciences, Quetta

Consumption expenditure accounts for more than 65 percent of Pakistan's GDP and is a critical determinant of aggregate demand, output and employment. This econometric study will test the fit to Pakistan data of the absolute income hypothesis, relative income hypothesis and permanent income hypothesis as determinants of consumer behavior. These alternative hypotheses offer different perspectives on the marginal propensity to consume. Distinguishing between these alternatives allows clearer understanding of the effects of government tax and debt policies on business cycles and economic welfare.

## **Tax Policy Research to Support a New Framework for Sustained Economic Growth of Pakistan**

Mr. Daniyal Aziz ([dax100@hotmail.com](mailto:dax100@hotmail.com)), Governance Institutes Network International, Islamabad

Pakistan's growth paradigm is outdated but the new Growth Framework developed by the Planning Commission is an important step toward its modernization. Tax policy in Pakistan greatly influences the goals of this framework in a number of ways, but its role is not well understood. In particular, weak local property tax regimes drive land informality which constrains land markets, housing, investment and revenue mobilization, hampering the growth potential of cities. This study will carefully assess, for one urban and one rural Tehsil in Punjab, the tax assessments and revenue collection under the Urban Immovable Property Tax and uniform local rural taxes. A simulation will be conducted on the revenue effects of increases in tax rates. This analysis will be supplemented with key informant interviews to identify weaknesses in local property tax systems and anomalies in informal land markets. Policy recommendations will be drawn from the simulations and interviews to improve the property tax system.

## **Creative Cities and Regions**

### **Agent-Based Modeling Simulations for Solving Pakistan's Urban Challenges**

Dr. Hilton Root ([hroot2@gmu.edu](mailto:hroot2@gmu.edu)), George Mason University, Fairfax, Virginia, USA (Ph.D. student, Mr. Ammar Anees Malik, [amalik8@masonlive.gmu.edu](mailto:amalik8@masonlive.gmu.edu))

In successful modern economies, cities are the engines of growth and melting pots of diversely talented individuals. They offer inclusive environments with openness and access to opportunities, enabling the formation of creative clusters. To the contrary, cities in Pakistan are currently marred by low levels of creativity, lack of community spaces, uncontrolled sprawl, and poor mobility. This study examines the relationship between creativity and land-use. Using social complexity theory, a stylized agent-based model will be created to simulate urban Pakistan from the bottom-up. Drawing key insights from urban creativity literature, the first stage of the process will involve building a theoretical model of creative cluster formation. After gaining sufficient confidence in the model through validation, the next stage will comprise stylizing it on Karachi's unique urban form and function. The final outcome will be a spatially explicit model offering critical insights on potential interventions such as revamping zoning laws to spur the formation of creative clusters through mixed land-use.

### **Batkhela (Malakand) Bazar: A Catalyst for Socio-Economic and Political Change**

Dr. Muhammad Ayub Jan ([ayub@upesh.edu.pk](mailto:ayub@upesh.edu.pk)), University of Peshawar

This project will investigate how small-scale enterprises in the market (bazar) of Batkhela play a significant role in generating economic growth, poverty alleviation and good governance. The Batkhela is a conflict-stricken village transformed into a market town. The study hypothesizes that the upsurge in market activity by small-scale enterprises leads to constructive political developments manifested in increased participation, more widespread interest articulation, and a changed pattern of leadership. The study also will identify ways in which government and non-governmental bodies can help facilitate the growth of the Batkhela market by providing services, such as security, electricity, improved communication links, and financial incentives. The research will be the first ethnographic study of the region that focuses primarily on a market. The analysis will be based on data collected through semi-structured interviews that qualitatively characterize the market dynamics and functions and on a structured survey questionnaire

### **Integrating Rural Urban Linkages for Regional Development in the Province of Sind: A Cluster Based Approach**

Mr. Noman Saeed ([economianics@yahoo.com](mailto:economianics@yahoo.com)), Applied Economics Research Centre, University of Karachi

The inherent benefits of urbanization in Pakistan have been threatened by fast-paced urbanization and an uneven distribution of resources and economic opportunities between the urban megacities, smaller cities and rural areas. This study addresses how the development in medium, small and secondary cities can relieve the pressures from the main cities and how integration of these cities through urban-rural linkages can contribute to regional development. The research draws on Porter's cluster formation approach in which regional competitiveness is defined in terms of linkages, complementarities, and spillovers in technology, skills, customers and information among firms, industries and sectors. The province of Sindh will be divided into four regional clusters of secondary cities and nearby towns and rural areas to assess the competitiveness of each of these clusters and identify factors which propel or hinder its development.

## **Energetic Youth and Communities**

### **An Assessment of Skill Gaps Among University Graduates for Employability and Performance in Industries Situated in the Gujrat-Sialkot-Gujranwala Industrial Cluster**

Dr. Atif Ali Jaffri ([atif.ali@uog.edu.pk](mailto:atif.ali@uog.edu.pk)), University of Gujrat, Hafiz Hayat Campus

Academic degree programs in Pakistan often focus on building the knowledge base of graduates whereas employers complain of skills deficit among university and college graduates. This study extends the limited previous analysis that identifies specific bottlenecks in the production of a skilled labor force. The study focuses on three evaluations: the ranking of skills of graduate employees by employers with reference to their demand for skills; ranking of their skills by students with reference to their formed perceptions about market requirements for employability; and the gap between students' expectations regarding the necessary skills for employment and the skills preferred by employers. The study will be based on surveys conducted among 100 employers in the industrial and service sectors and graduates from ten universities in the Gujrat-Sialkot-Gujranwala industrial cluster. The findings will be drawn upon to suggest revisions of curricula or new programs and specialized courses to rectify the skill gaps identified.

## **Vibrant Markets**

### **The Size and Nature of Informal Entrepreneurship in Pakistan and How to Tackle It**

Dr. Muhammad Shehryar Shahid ([mshehrayr@ucp.edu.pk](mailto:mshehrayr@ucp.edu.pk)), University of Central Punjab, Lahore

Evidence that most business start-ups take place in the informal sector, and that the informal economy represents a hidden entrepreneurial culture, are overwhelming findings of empirical studies. This research extends this evaluation in the Pakistan context by investigating the relationship between entrepreneurship and the informal economy through empirical analysis on small and micro enterprises in the manufacturing, retail and instantly consumable food sectors. The basis of the study will be a firm-level survey conducted in Lahore, complemented by interviews with entrepreneurs and policy decision makers. The main focus of the survey is to estimate the percentage of businesses taking place in the informal sector and to provide the basis for a quantitative evaluation of the factors that motivate participation of Pakistani entrepreneurs in the informal economy. From the analysis, inferences will be drawn concerning what policy approaches, ranging among deterrent, laissez-faire and enabling of start-ups in the informal economy, are most constructive in terms of enhanced economic growth.

### **Allocative Inefficiency, Tenure Systems and Poverty in Irrigated Agriculture in Pakistan**

Dr. Ariel Dinar ([ariel.dinar@ucr.edu](mailto:ariel.dinar@ucr.edu)), University of California-Riverside, USA (Ph.D. student, Mr. Sanval Nasim, [snasi001@ucr.edu](mailto:snasi001@ucr.edu))

This project examines the inefficient allocation of irrigation water in Pakistan which has become the source of numerous obstacles to sustainable growth and poverty reduction. Since Pakistani agriculture is characterized by a diversity of land tenure patterns ranging between ownership versus share-cropping, the allocative inefficiencies related to surface and groundwater utilization will be studied in this context. The study will develop stochastic cost and profit equations for a sample of agricultural producers in Pakistan and estimate technical and input-specific allocative inefficiency using existing survey data. The allocative inefficiency estimates will be used to

quantify the degree of under-use or over-use of water and allocative inefficiency will be compared across land tenure arrangements. Recommendation will be made to achieve more efficient water utilization.

### **Enhancing Water Productivity by Using Feasible Efficient Irrigation Techniques**

Dr. Allah Bakhsh ([bakhsh\\_uaf@yahoo.com](mailto:bakhsh_uaf@yahoo.com)), University of Agriculture, Faisalabad

Water productivity has been proposed as an indicator to assess the performance of different irrigation methods at the farm, field and regional scale. This study hypothesizes that farm-level productivity can be increased by applying water precisely according to the needs of particular crops under specific observed circumstances. Precise water delivery can be achieved using drip, sprinkler, furrow, raised bed, and perforated pipe irrigation in innovative ways. The feasibility of these methods will vary from site to site depending on factors such as the farming conditions, investment costs and the ability of the farmer to adapt and operate these irrigation methods efficiently. The study will utilize a participatory approach by working with farmers to help them adopt appropriate irrigation techniques and to evaluate water productivity from retrofit or new irrigation systems. Production cost and profit analysis will be undertaken for the techniques adopted.

### **Maximizing Farm Income and Other Livelihood Opportunities through Introduction of High Value Minor Crops in District Swat**

Dr. Hassan Sher ([hassan.botony@gmail.com](mailto:hassan.botony@gmail.com)), University of Swat

This study will examine opportunities to maximize farm income through introduction of high value minor crops in the war-stricken district of Swat. The hypothesis is that establishment of *ex-situ* experimental production plots will lead to the development of skills in horticultural production and marketing among people in the valley and help rebuild commercial connections between this region and the rest of Pakistan. The project involves a substantial agricultural extension component with farmers in three villages. It will include a range of interventions such as local awareness campaigns, capacity-building training, community mobilization for conservation of threatened species, and formation of medicinal and aromatic plant producer associations. Additional emphasis will be placed on developing reliable marketing channels. The study will incorporate evaluation of its performance in introducing standardized production technology and appropriate post-harvest management as engines of growth for the local economy.

### **What Determines Farmers' Response towards Adopting New Technology in KP?**

Dr. Shahnaz Akhtar ([drshahnazakhtar@aup.edu.pk](mailto:drshahnazakhtar@aup.edu.pk)), KP Agricultural University, Peshawar

Constraints to the rapid adoption of innovations in agricultural production involve a range of personal, social, cultural and economic factors, as well as characteristics of the innovation itself. This study focuses on the question of what determines farmer's responses towards the adoption of new technology in Khyber Pakhtunkhwa province. The study focuses on three crops: wheat, maize and sugarcane commonly grown by farmers in the agriculture hub of Peshawar, Mardan and Charssadda districts. Focus groups and quantitative surveys will provide the basis for the analysis. Enhanced production may be the apparent decision criteria to adopt a new practice or product. However, when the farmer's objective is profit optimization, the farmer may not respond to a new technology that increases production without insuring increased profit from the marketed surplus. The study will investigate whether this scenario explains the slow adoption of new technologies in KP, or whether other factors amenable to policy interventions discourage adoption of new technologies that would lead to higher farm incomes.

### **Economic Analysis of Challenges in Development of High-Value Agriculture: The Case of Livestock Diseases in Punjab**

Dr. Muhammad Ashfaq ([ashfaq9@hotmail.com](mailto:ashfaq9@hotmail.com)), University of Agriculture, Faisalabad

This study will evaluate the prevalence of key livestock diseases in Faisalabad District and evaluate the effects they have on the livestock productivity and farm incomes. Particular focus will be on the consequences for milk production and farm incomes of parturient hemoglobin urea, mastitis, foot and mouth disease, and ticks infestations. A survey of producers will be undertaken to determine the incidence/morbidity rate and mortality rate of each disease. The data will be analyzed to evaluate the production losses associated with the diseases and the costs of disease prevention. From the analysis of these costs, policy recommendations will be developed on how to effectively control or eradicate these livestock diseases at the regional and farm levels and thus enhance the agricultural economy of the district.

### **DNA Barcoding and Biochemical Profiling of Medicinal Plants of Northern and Desert Areas of Pakistan: Improving Socio-economic Standard of the People of these Regions**

Dr. Amer Jamil ([amerjamil@yahoo.com](mailto:amerjamil@yahoo.com)), University of Agriculture, Faisalabad

Pakistan is blessed with a number of medicinal plants that are being used in folk medicine. However, no systematic documentation has been undertaken that could prove ownership of the plant resources. This project thus focuses on conservation of natural plant resources and endangered species of these regions, and determining their active ingredients by biochemical profiling. DNA barcoding is a mandatory step towards this objective. Field visits will be made to explore the situation, exchange and interact with the area communities, and to collect seeds and other parts of the plants for analyses. Workshops will be conducted to develop awareness of the local people about the potential of the plants and to encourage their cultivation at a commercial level. The study will evaluate policy recommendations for conserving and nurturing these natural resources, providing ownership of the indigenous material to the local people, and, by this means, strengthening the rural economy.

### **Qualitative and Quantitative Analyses of Antibiotics, Heavy Metals, Mycotoxins, and Pesticides Residues in Milk, Eggs and Meat Meant for Human Consumption**

Dr. Muhammad Younus ([younusrana@uvas.edu.pk](mailto:younusrana@uvas.edu.pk)), College of Veterinary and Animal Sciences, Jhang

The use of farm inputs contaminated with aflatoxins, widespread use of antibiotics, fodders heavily sprayed with pesticides and water contaminated with heavy metals create potential health risks for the human consumers of milk, eggs and meat. Almost all of the milk produced in Pakistan is handled in the informal sector where it is sold in retail markets and consumed in the villages and cities through gawallas (milkman) under relatively unhygienic conditions and without any quality standards. Similar conditions occur in the marketing channels for the other animal products. This project will provide a qualitative market description and a quantitative analysis of the levels of heavy metals and mycotoxins contaminating dairy and meat products purchased in retail markets in the urban and peri-urban areas of the city of Jhang. The study will make recommendations on how to maintain national health standards for food from animals that are meant for human consumption.