The Punjab Economic Research Institute is an autonomous body attached with Planning and Development Board, Government of the Punjab, with a mandate to carry out socio-economic research on issues of provincial and national importance and to support planning and development work of Punjab Government.

It is the oldest economic research institute in the country. The Institute was reorganized by the Punjab Government in 1975 in order to reactivate the Board of Economic Inquiry which had an unbroken record of economic research going back to 1919. The Institute became a statutory body in November 1980.

**High Quality, Evidence Based Research**

**www.peri.punjab.gov.pk**

**Vision**

A dynamic and vibrant research institute that provides analytical input for the formulation of forward looking provincial development strategies, and also undertakes high quality, evidence based research to broadly improve public policy making in the province.

**Mission**

To be Punjab’s leading provider of socio-economic insight on evidence based research by adopting proactive and new ideas to assist in policy formulation.
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Sustainable development is the pathway to the future we want for all. It offers a framework to generate economic growth, achieve social justice, exercise environmental stewardship and strengthen governance.

- Ban Ki-moon
Punjab Chief Minister’s Vision for Economic Growth

"Punjab as a secure, economically vibrant, industrialized and knowledge-based province, which is prosperous and where every citizen can expect to lead a fulfilling life”.

Mian Muhammad Shahbaz Sharif
Punjab Economic Research Institute is endeavouring to become a vibrant institute. The Institute is playing a leading role in development process by carrying out evidence based research; establishing databases; and organizing series of seminars and training workshops.

PERI conducts research in almost every field and seeks to expand human knowledge through analysis, innovation and insight. The institute remains fully committed to Government of Punjab’s vision and remains cognizant of the objectives set out in the Punjab Growth Strategy. I would like to extend my best wishes for the Institute.
Message from the Secretary P&DD

The Punjab Economic Research Institute works on socio-economic issues of provincial and national importance to support planning and development work of Punjab Government. The Institute produces high-quality analysis to provide robust evidence for policy making, aiming to achieve research excellence and policy impact.

Iftikhar Ali Sahoo

Message from the Director PERI

The Institute seeks to bring together the complementary expertise of its researchers to investigate the social and economic challenges faced by Pakistani society. It has been a key contributor in the economic and social development through high quality evidence based research, development strategies and policy recommendations. Our latest research strategy has set a course for the Institute which further motivates us to expand our research programme to investigate new topics and challenges confronted by modern societies.

Dr. Mumtaz Anwar Chaudhry
The Punjab Economic Research Institute is a statutory body attached to the Punjab Planning and Development Board with a mandate to carry out socio-economic research on issues of provincial and national importance and supporting the Planning and Development department, on policy formulation. We accomplish our mission through research publications, conferences, seminars and workshops. Highlights of the initiatives to strengthen the Institute during the year 2016 are given below:

- Punjab Economic Forum
- Analysis of ADP 2015-16
- Technical Support for ADP Preparation and Formulation 2016-17
- Technical Support to Line Departments for Operationalization of Punjab Growth Strategy
- Organizing a series of Seminar, Workshops and Trainings for the Capacity Building of government officials, faculties, students, policy makers and practitioners
- Submission and Presentation of Research Papers in National and International Conferences
- Publishing of Policy Briefs and Research Reports covering various sectors of the economy i.e. agriculture, education, health industry, water and power, women development, social welfare, livestock and dairy development, forestry, fisheries and transport, etc.
- Hiring qualified and well educated staff.
- Infrastructure Development
- Building and strengthening a robust, reliable, and secure framework of information technology
- Internship Programs for students
- Research collaborations with LUMS, UMT, Contech School of Public Health, University of Agriculture Faisalabad, Bremen University Germany & Queens Land University Australia


Punjab Economic Research Institute (PERI) and Lahore University of Management Sciences have signed an agreement on 16th December, 2016 to carry out collaborative research to prepare Punjab Economic Report (PER), 2016.

The purpose of this study was to analyze various strategies for reducing the use of plastic bags and suggest appropriate implementation strategies to the Punjab government. In broad terms, three types of approaches have been adopted by different countries for reducing the use of plastic bags. The first approach aims at reducing the use of plastic bags through different regulatory instruments which include the mandatory pricing of plastic bags, explicit levies on each bag, taxes at manufacturing level, discounts on use of own bags, awareness campaigns, vigilance and control over the use of plastic bags and, in some cases, a complete ban on their use. The second approach aims at providing alternatives to plastic bags which are environment-friendly. The third approach deals with more effective collection and recycling of plastic bags. These strategies are adopted by different countries according to the culture and behavior of the people. Most importantly, it is difficult to fully eliminate the use of plastic bags but an effective mix of these strategies will have a significant role in reducing the use of plastic bags.

In the case of Punjab, bans and limitations on size of plastic bags have been ineffective. People are willing to pay for alternatives to plastic bags but before that alternatives to plastic bags such as oxo-biodegradable bags need to be made available in the market. International experience reveals that levies on plastic bags significantly decrease the use of plastic bags, create awareness among people and allow them to re-use these bags. Thus, it is concluded that a policy mix would be effective in order to reduce usage of plastic bags.
2. **Review of Medical Teaching Facilities of all Public and Private Medical Teaching Institutions in Punjab.**

In order to improve the standards of healthcare delivery in the province, there is a need to review the status and functioning of the existing medical teaching system in Punjab. For this purpose, the Punjab Economic Research Institute (PERI) in collaboration with Con-tech School of Public Health conducted a comprehensive study titled "Review of Medical Teaching Facilities of all Public and Private Medical Teaching Institutions in Punjab". This study will provide evidence to the department of Health (DoH) for informed planning and ensure better utilization of teaching resources and improved health standards while addressing the health needs of the people of Punjab.

3. **Measuring the Efficiency of Medical Colleges and Attached Teaching Hospitals in Punjab, An Application of Non-Parametric Approach DEA**

This study incorporated the Data Envelopment Analysis (DEA) to measure the capacity utilization of resources in medical colleges/teaching hospitals in Punjab. This is a cross-sectional study for the academic year 2015, that uses the primary data collected by PERI. The results showed that 78% medical colleges and 44% teaching hospitals in Punjab are operating at their maximum level. The Decision-Making Units (DMUs) in Lahore are relatively more efficient in the management of resources. The results of Tobit regression show that the inefficient units can consider inpatients visits and lab tests to attain the highest efficiency scores.

4. **What Restricts Children’s Education Attainment in Punjab: A Framework of Analysis**

What is the education situation in Punjab? How many children are out-of-school: those who never attended school and those who dropped out-of-school? How many of the in-school children are attending school at the right-age? How many of the in-school children are at risk of dropping out-of-school? How many of the out-of-school children will attend school later? How many of the in-school will graduate with desired learning outcomes? What are the different dimensions and barriers associated with each category of school-age children and their learning outcomes? What is the Government of Punjab doing to bring out-of-school children back to school? Is this effort enough or does the Government need to do more? This research report answers all these questions by developing a new theoretical framework, which is more comprehensive compared to the Global Out-of-School Children Initiative of the UNICEF and UNESCO.

5. **Increase in Local Production Capacity in Punjab.**

The purpose of this research report is to assess the existing production capacity and utilization of different sectors regarding transport infrastructural investment of China Pakistan Economic Corridor (CPEC). Keeping in view, three main sectors; steel, cement and stone crushing, with regards to the infrastructural scenario, are selected to assess the capacity utilization and existing production capacity. The results reveal that Steel, Stone and
Cement sectors are utilizing 35%, 50% and 60% capacity respectively. Conversely, there is un-utilized capacity of 65%, 50% and 40% in steel, stone crushing and cement industries respectively. Furthermore, the factors which may enhance the capacity utilization of these sectors are analyzed. Three recommendations are given in this research report. First, government should ensure the provision of smooth energy supply for enhancing the capacity utilization since energy intensity positively impacts capacity utilization. Second, since additional production capacity is available, there is no need to install further plants before exploiting the current capacity. Third, government needs to establish high tech institutes to supplement its present policy to enhance the impact of employee’s skill and human capital on capacity utilization since employee’s skill and human capital have shown a positive impact on capacity utilization.


Olive production and consumption in Pakistan has increased overtime; however, there is limited information available on its local production status. Several efforts have been made through various projects and government initiatives to popularize the local olive cultivation and production of olive oil and its sub-products. Market information is very scanty. However, very little effort has been made to understand its dynamics and marketing prospects for local and regional markets. As a result there remains a missing link for product development and market integration for local olive production. In order to understand the above-mentioned dynamics, the Pakistan Agricultural Research Council (PARC) and INSTITUTO AGRONOMICO PER L, OLTREMARE FLORENCE, ITALY sponsored this study. The present study will provide detailed information on these aspects and in the development of local olive industry in Pakistan.

There are many issues and key areas regarding its future potential for local and regional markets. Hence, the study has focused on dynamics of the diffusion, supply chain, value chain, consumer preferences, demand and marketing prospects.

7. Assessment of Continuum of Care (Green Book) Inititative in Districts Narowal & Rajanpur

The “Continuum of Care” (green book) was developed through the joint efforts of IRMNCH6N programme and UNICEF in 2014. This book/tool records information related to antenatal, natal and postnatal care. Initially this booklet was introduced in two districts, Narowal and Rajanpur covering all the maternal and newborn related indicators. This study assesses whether the pilot has been successful or not. The broader objective of the study/assessment was to analyze outcome of the Continuum of care – Green book initiative regarding its effectiveness and sustainability in reaching pregnant women and children in the LHW covered population. Its specific objectives are as under:

i. To assess whether the pilot has been successful in reaching out to the pregnant women and their under 5 children in 2 districts in LHW covered area with the continuum of care tool.

ii. To assess whether the pilot has been successful in conducting growth monitoring of under 5 children.

iii. To assess whether the pilot has been successful in improving the referral of women to the health facility for skilled birth attendance.

iv. To assess whether the pilot has been successful in improving the performance of MCH services of LHWs.

v. To identify lessons learned and formulate recommendations on how to scale up the initiative.
1. A Journey from Traditional to Smart Agriculture: Enhancing Agriculture Productivity in Punjab - December 2016

This policy brief discusses the factors responsible for the stuttering growth of Punjab’s agriculture sector in the context of the significance of this sector for the provincial as well as the national economy. It highlights the efforts being made by the Government of Punjab to arrest the decline of the agriculture sector & turn it into a vibrant and a progressive sector with the incorporation of information technology interventions that reach out to farmers and facilitate them.


Planning for an unpredictable future is a challenge that every Pakistani faces. The planning and policy decision is mostly based on the demographic microcosm of every household in the country. Some of the important lessons learnt from the history of population census in Pakistan are with regards to the links between census and National Finance Commission (NFC) award distribution, determination of seats in national and provincial assemblies, political and administrative policy making and job quota. The policy decision on the above mentioned indicators is still taken on the base of 1998 census. The anticipated change in the trend of these indicators is required to hold the census first, and then make the distribution according to new census, and not the 1998 census.


Small Scale Industry (SSI) is a labor-intensive sector of the economy which plays a pivotal role in absorbing the unemployed workforce of the country. The significance of this sector can be gauged from the fact that it absorbs more than 60% employment of manufacturing sector. However, the exports of the small-scale manufacturing have been declining over the years, although the contribution of the sector in the economy is increasing. Keeping this in view, this policy brief reviews the export scenario of Small Scale Industry in Punjab, and analyzes the causes for its decline. It also proposes a policy package to stem the decline in exports of the sector.


Pakistan had recently been exposed to a deep multi-dimensional energy crisis consisting of energy shortages and high energy products prices. This crisis
adversely impacted all sectors of the economy, specifically; the industry and households. We are still facing an energy crisis although it is less severe than it had been a few years back. It is important to fully understand why the energy crisis happened and what the depth of the crisis was. The major reason why we have been exposed to energy crisis so many times in our history is due to our large dependence on imported energy. The extent of this dependence has increased over time. The increasing dependence along with limited natural energy and foreign exchange reserves could expose us to such severe crisis in the future. This policy brief is based on a comprehensive examination of the energy dependence of Pakistan and answers many questions that arise in our mind, like, what energy dependence implies for our economy and for the people in general? Does it mean economic security too? What does it mean for our public finances and external balances? How is it impacting our economic future? Will the CPEC be helpful in reducing our energy dependence? And what are the policy options to reduce our energy dependence?

5. **Rotten kid or forgotten kid? On child disciplining in Punjab - August 2016**

The purpose of this study was to shed light on the factors associated with different child disciplining practices employed by mothers in the province of Punjab using the latest round of the Multiple Indicator Cluster Surveys (MICS). In order to address the issue of endogenous determination of child worth and family size, a workaround was employed to determine whether a family was optimally sized or not based on self-reported data. One of the key findings of this research was that as long as a family is optimally sized, holding all else constant, any change in parity does not affect mothers’ disciplining behavior.

6. **Assessment of Production Capacity in Punjab Under CPEC - July 2016**

China Pakistan Economic Corridor (CPEC) is one of the biggest and most significant projects in the history of Pakistan. The total investment volume of CPEC is about US $46 billion out of which US $9.79 have been allocated to transport related infrastructural projects. Successful implementation of CPEC requires fulfillment of construction and infrastructural needs that depend greatly on three major sectors: cement, stone crushing and steel. Keeping in view the importance of these three sectors, this study endeavors to assess whether these sectors have sufficient capacity to meet the infrastructural investment requirements for CPEC. We use latest CMI 2010-11 data of Punjab province and employ DEA bootstrap technique to measure capacity utilization for three sectors. The results reveal that there is enough unutilized capacity in these sectors to fulfill the rising demand for the completion of CPEC. Some policy implications are also shared based upon the analysis done in this study.

7. **Urbanization in Punjab: Consequences for electricity demand - Jun 2016**

This policy brief analyses Punjab’s urbanization process in the context of electricity sector, highlights the absence of adequate urban policy and recommends possible solutions. The process of urbanization works by expansion of cities
through migration and population growth among many other factors. However, extension of geographical areas is not the only way through which urbanization occurs. Concentration of economic activity, communication networks and political power are also associated with societies that become urbanized. Urbanization in Punjab is going through the same stage from which other parts of world have passed. In the initial stages of this process, as is the case in developing nations, city life provides people with more economic opportunities that cause rural urban migration. The inflow of workers coupled with excess capital in the cities make it possible for the producers to benefit from economies of scales that initiates a process of modernization in the cities. However, in recent times the rapidity and intensity of urbanization in Punjab have led to a situation where this process is symbolizing destruction of ecosystem and downfall of human society instead of economic development.

8. **Enhancing the Horticultural Fruits Production & Exports in Punjab - May 2016**

This study investigates the problems and solutions to enhance export of horticultural fruits from Pakistan. The rich and flat soil of many areas of Punjab is appropriate for the production of several horticultural crops. These friendly agro-climate conditions have endowed Punjab with effective competitive and comparative advantage in the production & export of some horticultural crops. But, due to the non-durability and high preservation costs of these agricultural products, these fruits spoil. Hence, this sector needs strong privilege and marketing infrastructure which are currently absent not only in Punjab but also in Pakistan. Deficiencies in packaging system, classification and transportation of fruits result in Pakistan delivering poor quality fruits in most export markets. Cold storage and packaging houses are lacking and export related inspections are poorly and inappropriately managed. All the airports in Pakistan lack storage facility which is considered essential for fresh fruits exports.

9. **Agriculture Subsidies in Punjab: Eliminating the Middlemen through Forward Contracts – April 2016**

Agriculture subsidies in Punjab are a major drain on the provincial government’s resources. These subsidies are not targeted and are given across the board to both large and small farmers. These small farmers are unable to access the market and hence are unable to sell their produce to the government agencies. Therefore, the support price becomes an untargeted subsidy for the Punjab government.

This policy brief aims to facilitate the Punjab government in finding a way out of the agricultural subsidies quagmire. It proposes a direct contract between the farmers and the private enterprises through derivative instruments such as forward and/or future contracts. If successful, these contracts can eliminate the role of the government in storage, handling and transportation of wheat thereby eliminating the subsidy burden and freeing provincial government resources to be usefully spent elsewhere.


Across the world, the wave of e-government is rising through public organizations and public administration. Yet, the United Nations e-government survey
identifies that absence of access to information and communication technologies (ICT) infrastructure and the provision of education, including ICT literacy hinder the implementation of e-government initiatives. Punjab is one such province which suffers from these problems and the country as a whole needs to improve its e-government ranking. According to World Bank, “E-Government refers to the use of ICT to improve the efficiency, transparency and accountability of government.” It can be seen simply as moving citizen services online, but in its broadest sense it refers to the technology-enabled transformation of government. This reduces costs to the government whilst promoting economic development, increasing transparency in government, and facilitating the advancement of an information society. However, the diffusion of e-government needs to make full use of the available technology for reforming governance. No doubt, the e-government initiatives undertaken till present are steps in the right direction but these have been only incremental rather than transformative. To tackle these downsides, government must formulate a comprehensive policy to upgrade e-government rank of Pakistan.


Economic prosperity is the result of a large number of processes spanning the whole range of human activities and government interventions including expenditures on health care, education, housing, public transport, innovation, environmental improvement, conservation, and social welfare. Traditionally, transport usually interpreted as road construction has been accorded a special place in government expenditures with an explicit claim that investments in this area increase economic success. The objectives underlying road building and improvement are to assist economic growth by reducing transport costs, to improve the environment by removing traffic from unsuitable roads in towns and villages and to enhancing road safety.


“For a society to progress, human rights have to be guaranteed, with the assurance that rights are maintained without gender bias of discrimination. Power differential between men and women continues to play an important role in Pakistan’s society hampering its progress. Recognizing this, Punjab government has taken important steps toward achievement of the goal of full citizenship status including autonomy and self-determination for women, and is continuing to take those steps. This policy brief is divided into three parts; the first part discusses the theoretical underpinnings of women’s empowerment status in Pakistan. The second part deals with the steps taken by Punjab government to help empower women in the province and third is related to the policy imperatives. The initiatives to empower women show the concern of the Punjab government for making women self-reliant. It is appreciated that the present government is taking measures by allocating a major chunk of their development budget towards women empowerment.
1. **Rotten Kid or Forgotten Kid? On Child Disciplining in Punjab**
   
   The purpose of this study was to shed light on the factors associated with different child disciplining practices employed by mothers in the province of Punjab using the latest round of the Multiple Indicator Cluster Surveys (MICS). In order to address the issue of endogenous determination of child worth and family size, a workaround was employed to determine whether a family was optimally sized or not based on self-reported data. One of the key findings of this research is that as long as a family is optimally sized, holding all else constant, any change in parity does not affect mothers’ disciplining behaviour.

2. **Quantifying Economic and Urban Growth of Pakistan: Sub National Analysis using Nighttime Lights Data**
   
   This study analyses nighttime lights data (NLD) in estimating and upgrading the economic statistics of various sub-national units. Combined with regression based statistical methods, it uses intensity of NLD to conduct a spatiotemporal analysis of urban sprawl and associated loss in cropland over a 12 year period for Punjab - the most populous province of Pakistan. It also estimates the elasticity between a luminosity metric (sum of lights – SOL) and the value of large-scale manufacturing for a time-series analysis of regional growth patterns over two decades in Pakistan.

3. **Economics of Irrigation Induced Land Degradation: Issues & Threats for Food Security (Case Study of Punjab, Pakistan)**
   
   This study is focused on land degradation issues due to irrigation induced salinity in a conjunctive water use environment, and its consequent effects on crop productivity, resource use and economic valuation of such degraded land. The study was conducted in selected areas of Punjab province of Pakistan, having irrigation-induced salinity (with saline ground water) and the area having good soils (fresh groundwater for conjunctive use) for its comparison. Production Function approach and its decomposition analysis was used to address the above mentioned objectives of the study.

4. **Willingness to Pay for Clean Water Supply Service: A Case Study of Sialkot**
   
   The study is designed to find the determinants of willingness to pay (WTP) by households for clean water supply in the affected area. A contingent valuation survey approach and a stratified random sampling technique has been applied. Sample size consists of two hundred and sixty nine respondents. A double bound-dichotomous choice questions followed by an open ended question format has been used to elicit WTP and maximum willingness of the respondents for clean water supply. Logit and Multiple Linear Regression Model is used as econometric tool to analyze the data. The results reveal that as the income of the respondent increases, the WTP for clean water supply also increases. Multiple regression reveals a monthly mean WTP of Rs. 234.54 which is greatly affected by age, household income, education and environmental awareness i.e. respondents with higher household income and higher level of education are willing to pay more for a clean water supply.
Preperation & Formulation of Annual Development Plan (ADP) 2016-17

PERI researchers have provided technical assistance to Planning and Development Division in the formulation of ADP 2016-17 and completed the following tasks: analyzed the development schemes, conducted a series of meetings with relevant departments, prioritized development schemes in line with the Punjab Growth Strategy PGS-18, prepared the White Paper 2016-17, prepared documents pertaining to funds allocated to North/South Punjab and also calculated the funds allocations to the Rural/Urban areas, made preparation of Budget Speech 2016-17, translated the document into Urdu language for Newspaper use and prepared Press-Conference notes along with allied tasks. PERI has engaged its Associates/Assistant Research Fellows in all sectors of P & D i.e. Irrigation, Local Government, Agriculture, Urban Development, Health, Public Private Partnership PPP, Infrastructure, Energy, Social sector, Environment etc.

Assessing the Quality of Governance in the Provincial Government of Punjab, 2015-16

Assessment of Quality of Governance of Provincial Government is conducted annually by PILDAT with support and assistance provided by the officers of Planning & Development Department and Punjab Economic Research Institute.
PROJECTS/ ONGOING STUDIES (Selected)

  Punjab Economic Report 2016 will analyze the current status of socio-economic development in the province by studying recent evidences, lessons learned, current challenges and emerging opportunities. This report will provide guidance to the sectoral departments and development partners, and will aid them in developing effective policies and strategies. It is hoped that this joint venture between PERI and LUMS will bring the best policy options for Government of the Punjab and facilitate it in achieving its desired economic goals outlined in Punjab Growth Strategy, 2018.

- Mid Term Evaluation of Population Welfare Department’s project “Expansion of Family Welfare Centers and Introduction of Community Based Family Planning Workers.
  PERI is doing Mid-Term Evaluation of the Population Welfare Department’s Project Titled “Extension of Family Welfare Centres & Introduction of Community Based Family Planning Workers 2014-2018”. The project is established in 22 districts in Punjab and has concrete objectives of service delivery regarding Family Planning and Contraceptives, Maternal and Child Health Care Objective including Nutrition as primary concerns. Its secondary objectives include general medical ailments and their treatments.

- Farm Accounts, Family Budgets of Rural Families and Cost of Production of Major Crops in Punjab: 2015-16.
  The subject study is hallmark of the Institute and contains time series reports/ data of selected respondents (panel data) all over the rural areas of the Punjab. Seventeen (17) districts under different ecological zones are covered in the study. The major indicators of the study are:
  - Demographic (Family size, literacy, etc.)
  - Labour force availability/ utilization/ participation
  - Farm statistics (cropping pattern, land use/ cropping intensity, farm costs, income etc)
  - Family budget / income distribution/ remittances/ saving behavior, etc
  - Cost of production of major crops

- Gram and Moong Price Forecasting in Punjab: A District Level Analysis
  This study attempts to forecast prices of gram and moong so that producer and consumer may gain insight for the future prices and improve their strategic plans to attain price stability. Prices are forecasted using Naïve forecasting model using daily prices data. The estimated results show that the prices of gram and moong will vary in future. The study gives policy recommendations that include district-wise price support to ascertain an area being surplus or deficit; private storage to keep buffer stock; establishing pulse management department; and regional market integration so that government role can be eliminated from the markets.

- Price Forecasting Model for Perishable Commodities: A Case of Tomato Crop in Punjab
  The objective of this paper is to develop a price forecasting model to consider the farm level conditions. It also considers the acreage and yield responses of the farmers. The model includes the impact of all
the factors that can influence tomatoes production and prices. Finally, farmer expectations about prices are taken into account by using rational and adoptive expectations into the model. The model forecasts the prices on monthly or weekly basis depending upon data availability.

- **Benefit Incidence Analysis of Public Spending on Health and Nutrition Programs.**
  Pro-poor spending is one of the important objectives of the government in Punjab Growth Strategy but there is a lack of information regarding the distribution of benefits of free public health services to different population groups. This study has made use of “benefit incidence analysis” technique to measure the distributional benefit of public spending among different income quintile and has tested the hypothesis that public spending on priority health and nutrition services to assess whether they are targeting the most vulnerable poor group or not.

- **Higher Education and Labor market in Punjab: Bridging the Relevance Gap**
  Every year, thousands of fresh graduates enter the job market in search of jobs but are unable to find one. While these high unemployment rates are due to a number of reasons, one major reason is the mismatch between the skills the students graduate with and the skills demanded in the job market. Therfore, the primary objective of this study is to identify the gap between the skills imparted by higher education institutions and the skills that the labour market demands/requires, identifying the magnitude of the gap and analyzing ways to minimize it.

- **Urban Areas of Punjab: Measurement and Growth Analysis.**
  This study aims to quantify the urban areas of Punjab with the help of nighttime lights data. A trend analysis will be done to gauge the direction and intensity of urban growth over the last 2 decades. The study will estimate the effect of urban growth on the cropland so that the process of urbanization can be analyzed in the context of sustainability.

- **Case for Water Metering and Use of Surface Water**
  This study highlights the significance of using a monitoring mechanism in the form of metering to determine how the urban household’s consumption of water changes as its water connection-status changes from un-metered to metered one. For the purpose of the empirical analysis this study will utilize household level data for Punjab’s largest urban area Lahore provided by WASA. The goal of this study is to focus on effective demand management for water conservation by estimating difference in consumption as a consequence of metering volumetric use of water.

- **Infrastructure Scorecard**
  The ‘Infrastructure Scorecard: Construction of Roads, is a step towards evidence based policy to optimize investments in the road sector. The objective of scorecard is to provide policy-makers with district-wise multifarious indices of infrastructure by collecting, organizing and analyzing pertinent data. It will complement planning of development projects by presenting the state of infrastructure of various districts at a glance. Moreover, it will be particularly useful to analyze the persisting regional disparities within the districts of Punjab. The study focuses on five core parameters which are road coverage, sustainability, development projects, quality and user experience, and innovation.
• Imperfect Financial Markets and Analysis of Monetary Policy in New Keynesian Framework: A Case Study of Pakistan

The model is estimated for Pakistan by employing SVAR model considering its compatibility with the presented model. The paper contributes in two important directions. First, parameters are estimated through method of scoring, being consistent with and efficient for over-identified macroeconomic models. Second, the paper investigates the impact of monetary tightening on the macroeconomic dynamics and the response of monetary authority to structural shocks. The results confirm the failure of uncovered interest parity condition and ineffectiveness of monetary policy. Cost push shock is the main source of variations in all macroeconomic indicators.

• Oil Prices, Remittances and Dynamics of Recipient Economy: Pakistan as a Case Study

Remittances are a major source of capital inflow, around twenty-two times greater than foreign direct investment. The response of macroeconomic indicators to shock in remittances need to be understood. The study is significant in present world oil market scenario where Gulf countries are under stress and potentially moving toward downsizing. Pakistan as a source of labor in the region may face downward trend in remittances if the world oil market dynamics do not change. The study has estimated and simulated New Keynesian model where the restrictions are identified following Keating (1990). The model employed here not only incorporates the role of remittances and oil prices explicitly but also relaxes the assumption of perfect capital market. The study suggests to make a shift from a reliance on remittances to some other source like FDI.

The Impact of Malnutrition & Lack of Access to Clean Water on Productivity

This study aims to examine the importance of access to clean water and malnutrition in determining total factor productivity (TFP) for seventeen representative developing countries by employing data for 1995-2015 period. Among common, fixed and random effect models, fixed effect model is chosen as the best candidate model through using appropriate selection criteria. The study finds that both lack of access to clean water and malnutrition have significant, robust and negative impact on TFP whereas trade openness plays a positive role. The findings reconfirm the importance of availability of proper nutrition and clean water to the population at large to ensure sustainable economic growth and development. The study recommends the policy makers of developing countries to prioritize their efforts.

Situation Analysis of Females in Private Sector Manufacturing Industries of Punjab

This study aims to measure job satisfaction scores of females with facilities available to them in factories. This covers both female-specific such as maternity leaves, day-care facilities, pick and drop etc, as well as satisfaction with general facets of their jobs such as job security, growth opportunities and salaries etc. The objective is to make factory environments more female-friendly so that more females are attracted to take up employment in them.
1. Research Paper titled "Sufficiency Analysis of Local Production Capacity in Punjab for the Requirement of CPEC" by Dr. Mumtaz Anwar Chaudhry, Director PERI and Hafiz Ghulam Mujaddad, Associate Research Fellow, Accepted & presented in PIDE Conference, Islamabad on 13th December, 2016.

2. Research Paper titled "Effect of Agglomeration on Socio-Economic Outcomes: A District level Panel Study Of Punjab" by Dr. Shahid Adil, Senior Research Economist and Annus Azhar, Associate Research Fellow, Accepted & presented in PIDE Conference, Islamabad PIDE Conference, Islamabad 13th December, 2016.


DAILY TIMES e-paper has published Mr. Amir Shahzad Sivia, Associate Research Fellow, article "Micro-finance Loans in Punjab" on 17 November, 2016.
PERI Research Report
Launching Ceremony

- **Plastic Bag Menace - Alternatives and Social Responsivness: A Case Study of Lahore, Punjab**
  PERI launched a report on "Plastic Bag Menace - Alternatives and Social Responsiveness: A Case Study of Lahore, Punjab" and presented it to Secretary Environment on 30th December 2016.

- **Market Analysis of Value Chain and Olive Oil Consumption In Pakistan**
  Punjab Economic Research Institute (PERI) in collaboration with Italian Government & Pakistan Agriculture Research Council (PARC) launched a study report titled "Market Analysis for Value Chain & Olive Oil Consumption in Pakistan" at Planning & Development Department held on May 25, 2016.

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Research Collaboration / Networking

The institute has collaborated with various public and private sector universities i.e. LUMS, UMT, Bahria University, Lahore, and University of Agriculture, Faisalabad for research activities.

- The Memorandum of Understanding is signed between Punjab Economic Research Institute (PERI) and Centre for Water Informatics and Technology, School of Science and Engineering, Lahore University of Management Sciences (WIT-LUMS) to facilitate institutional co-operation on research in the fields of mutual interest to both parties.
- Punjab Economic Research Institute (PERI) signed an MOU with Conotech School of Public Health to carry out social and economic policy research and evaluation.
- PERI is establishing collaboration with Bremen University Germany and University of Queens Land Australia.
Delegation form Bremen University, Germany visited PERI for Research Collaboration.

Establishment of Data Base

The institute has established “Data Base” which contains data of PERI’s Research Reports and Bureau of Statistic’s reference books. In order to enhance the IT operations, PERI has setup a share server.

Seminars / Consultative Session


A Consultative Session on preparation of Punjab Economic Report, 2016 was held in P&D Department on 13-01-2017 in which many renowned policy makers, economists and practitioners participated and provided important recommendations for preparation of PER, 2016.

Sharing Experience of Changa Pani Project

PERI organized a seminar on “Sharing Experience of Changa Pani Project” by Mr. Nazir Watoo held on August 01, 2016 at PERI.

Human Capital Invesment and Economic Growth in Punjab

PERI organized a seminar on “Human Capital Investment and Economic Growth in Punjab”. Punjab Growth Strategy (PGS-2018) recognizes human capital enhancement as a critical path to provide better opportunities and access to quality employment. In this regard, Punjab Economic Research Institute (PERI) organized a seminar on 25th April, 2016 on the topic of “Human Capital Investment and Economic Growth in Punjab”.

Agriculture Price Policy: Building Equity, Efficiency and Food Security

The Punjab Economic Research Institute organized a seminar on “Agriculture Price Policy: Building Equity,
Efficiency and Food Security” on Monday, January 04, 2016 at Planning and Development Department, Government of the Punjab. The spokesperson of the seminar was Dr. Asif Saeed Khan, University of Auckland, New Zealand. He gave the detailed presentation on the topic. Academicians, researchers, planners, policy makers, managers and development practitioners attended the seminar. The seminar was chaired by Muhammad Jahanzeb Khan, Chairman, P&D Board who addressed the seminar; and emphasized on agriculture policies and problems of food insecurity. Dr. Murtaaz Anwar, Director, PERI, highlighted that PERI has been crucial in providing a platform to policy makers for policy making and developing papers pertaining to agriculture and other sectors of the economy of Punjab.

PERI Training Workshops Series

PERI has chalked out a comprehensive training series program on various themes, like Project Preparation and Management, Economic and Financial Analysis, Monitoring and Evaluation/RBM/Risk Management, Logical Framework Analysis for Development Sector, etc.

Data Analysis for Evidence-Based Policy Making

PERI organized a one-day training workshop on “Data Analysis for Evidence-Based Policy Making”. The participants included researchers, faculty members from renowned universities, planning officers from government institutes, and students. Dated: December 29, 2016
Expansion of Family Welfare Center & Introduction of Community Based Family Planning Workers (2014-15)

PERI organized one-day training/briefing session of field staff for the Mid Term Third Party Evaluation of the ADP Scheme “Expansion of Family Welfare Centre & Introduction of Community Based Family Planning Workers (2014-18)” held on 10th December, 2016.

Review of Medical Teaching Facilities of All Public and Private Medical Teaching Institutions In Punjab

PERI organized a training workshop for the study titled “Review of Medical Teaching Facilities of all Public and Private Medical Teaching Institutions in Punjab” held on Jun 03, 2016.

ADP Formulation Process, Monitoring and Evaluation of Development Projects, PC-I Preparation and Growth Strategy

PERI organized a Capacity Building Workshop on ADP Formulation Process, Monitoring and Evaluation of development projects, PC-I Preparation and Growth Strategy held on April 23, 2016. In the first session, Mr. Javed Latif, Sr. Chief Coordination walked the participants through the ADP Formulation Process. Subsequently, Dr. Sajjad Mubin, DG M&E gave a presentation on Monitoring and Evaluation of public sector development projects. Mr. Khalid Sultan shed light on Project Planning and Design process. The workshop ended with a comprehensive overview and discussion on Punjab Growth Strategy by Dr. Amanullah, Joint Chief Economist of P&D.

Impact Assessment of Continuum of Care (GREEN BOOK) Initiative

PERI organized a training for the data collection of study “Impact Assessment of Continuum of Care (Green Book) Initiative” on Friday, January 08, 2016 at Falettis Hotel, Egerton Road, Lahore.
Trainings/Workshops Attended by PERI Researchers

- Mr. Khawar Ata, Research Economist, conducted three days’ workshop on “Preparation of Questionnaire and Handling of Primary Data” for the faculty of Economics of Lahore College for Women University, Lahore on December 14-16, 2016.
- Arsalan Akram Malik (Associate Research Fellow), Hafiz Ghulam Mujaddad (Associate Research Fellow), Muhammad Imran (Associate Research Fellow), Khawaja Hassan Mahmood (Assistant Research Fellow) and Annus Azhar (Assistant Research Fellow) attended 7th 03-Days Workshop on “Punjab Planning Manual” for Officers of Punjab Government by P&D, SNG & MPDD from November 15 – 17, 2016.
- PERI’s Associate Research Fellows and Assistant Research Fellows attended a seminar on ‘Innovative Construction Techniques’ organized by P&D Department and The Urban Unit in Flatties hotel held on November 07, 2016.
- Arsalan Akram Malik (Associate Research Fellow), Hafiz Ghulam Mujaddad (Associate Research Fellow),
Mr. Aamir Shahzad (Associate Research Fellow), Ms. Asima Ihsan (Associate Research Fellow), Ms. Wajiha Samreen (Assistant Research Fellow) and Ms. Hira Jahangir (Assistant Research Fellow) attended the 3rd three days training Workshop on "Punjab Planning Manual 2016" at Management and Professional Development Department (MPDD) held on October 19-21, 2016.

- Mr. Annus Azhar (Assistant Research Fellow) participated in Punjab Consultation Workshop titled "Government of Pakistan & UNICEF Country Program 2018-2022" at Pearl Continental Hotel held on October 11, 2016.

- Mr. Annus Azhar (Assistant Research Fellow) attended Awareness raising workshop on Sustainable Development Goals (SDGs) & Multidimensional Poverty Index (MPI) at P & D Department held on October 28, 2016.

- Dr. Avais Tahir (Chief of Research) attended the training workshop on “Public Sector Project Management” at Lahore University of Management Sciences (LUMS) held on August 29-Sept 01, 2016.

- Mr. Aamir Shahzad (Associate Research Fellow) attended the training workshop on "Econometric Modeling and Applications for Economics and Finance", held at International Islamic University (IIU), Islamabad held on August 22-26, 2016.

- Mr. Aamir Shahzad (Associate Research Fellow) attended the training workshop titled “Be a Skilled Researcher”, held at COMSATS Institute of Information Technology (CIIT), Lahore held on August 11-12, 2016.

- Ms. Shameen Elahi (Assistant Research Fellow) attended the capacity building workshop on Punjab Social Protection Policy at Avari Hotel Lahore held on April 07, 2016.

- Mr. Aamir Imtiaz (Sr. Research Assistant) attended the training on “Economic Account for Agriculture”, at Punjab Bureau of Statistics held on March 08, 2016.
Sports Day at PERI
A sports day was organized by PERI Sports Committee on 23rd November 2016. It was an exciting day for PERI staff. PERI staff participated in different types of sports activities/games and a cricket match between PERI and Minhaj University team.

Internship Program
The institute offered internship to three students of various universities i.e. GC University Lahore, FC College University and UCP, Lahore.

HUMAN RESOURCE HIRING
The Institute has inducted capable staff which included:

- Research Fellow
  - Associate Research Fellow
  - Assistant Research Fellow
  - Staff Sociologist
  - Senior Research Assistant
- Research Assistant
- Deputy Director (Procurement)
- Accounts Officer
- Computer Programmer

PERI organized a training workshop for the study titled “Review of Medical Teaching Facilities at Medical Teaching Institutions in Punjab” held on 10th December, 2016.

PERI organized a training for the data collection of study “Impact Assessment of Continuation of Community Based Family Planning Workers (2014-18)” held on 10th December, 2016.

Dr. Avais Tahir (Chief of Research) attended the training workshop on “Public Sector Project Appraisal” held on October 28, 2016.

Mr. Annus Azhar (Assistant Research Fellow) attended Awareness raising workshop on Sustainable Development Goals held on October 11, 2016.

Mr. Annus Azhar (Assistant Research Fellow) participated in Punjab Consultation Workshop titled “Government of Pakistan & UNICEF Country Program 2018-2022” at Pearl Continental Hotel held on October 17-21, 2016. The training imparted valuable knowledge on the subject.

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GALLERY
Punjab has important strategic endowments and development potential but faces significant economic, governance and security challenges in achieving durable development outcomes.

Any economic development, policy-making, and planning process needs a systematic and high quality research programme with dedicated capacity. It needs to include statistical data analysis with the ability to synthesize independent expert advice and research.

In this regard, PERI has been mandated to conduct research on important socio-economic issues as may be desired or authorized by the Punjab Government; to produce research reports/papers, discussion papers and policy briefs; to compile and publish results of the research conducted; to advise and make recommendations to Punjab Government with regard to various economic policies; to advice on research techniques and methodology in economics and social disciplines; to extend cooperation to national and international organizations in the field of economic research and training; and to arrange and promote seminars/conferences on various socio-economic problems.