

THE LAHORE JOURNAL OF ECONOMICS

Lahore School of Economics

Papers presented at The Twelfth Annual Conference on
Management of the Pakistan Economy

Technology, Entrepreneurship and Productivity Growth:

Where Pakistan Stands and Where it Must Go

30th to 31st March, 2016

Overview

Bilal U. Haq

Why Scientific Research is Imperative for
Entrepreneurship and Sustainable Development in
Pakistan

Irfan ul Haque

The Productivity Growth–Technology–
Entrepreneurship Nexus: Implications for Pakistan

Rashid Amjad and Namra Awais

Pakistan's Productivity Performance and TFP Trends,
1980–2015: Cause for Real Concern

Matthew McCartney

Costs, Capabilities, Conflict and Cash: The Problem of
Technology and Sustainable Economic Growth in
Pakistan

Maha Khan and Uzma Afzal

The Diversification and Sophistication of Pakistan's
Exports: The Need for Structural Transformation

Waqar Wadho and Azam Chaudhry

Innovation in the Textiles Sector: A Firm-Level
Analysis of Technological and Nontechnological
Innovation

Rajah Rasiah and Nazia Nazeer

Comparing Industrialization in Pakistan and the East
Asian Economies

Mahmoor Asif and Anum Ellahi

Correlates of Entrepreneurship in Pakistan: The
Regional Dimension

Theresa Thompson Chaudhry and Mahvish Faran

Same Jeans, Same Stitch? A Comparison of Denim
Production Across Three Factories in Punjab,
Pakistan

Tariq Raza

Measuring Technology Differences Across Football
Manufacturers in Sialkot

Saba Firdousi

Technology in the Sialkot Gloves Manufacturing
Sector

Naved Hamid and Faizan Khalid

Entrepreneurship and Innovation in the Digital
Economy

Saeed Ahmed and Mahmood ul Hasan Khan

Promotion of Innovation and S&T: The Role of
Finance

Farah Said

Access to Finance and Agency: An Overview of the
Constraints to Female-Run Enterprises

Nazia Nazeer and Rajah Rasiah

Explaining Pakistan's Premature
Deindustrialization

*Musleh Ud Din, Inayat Ullah Mangla, Muhammad
Jamil*

Public Policy, Innovation and Economic Growth:
An Economic and Technological Perspective on
Pakistan's Telecom Industry

Mahvish Faran and Azam Chaudhry

Innovation and Technological Upgrading in
Lahore: Results From the LCCI Business
Confidence Survey 2016

Sikander Rahim

Science and Technology for Raising Income: The
Choice of Activities, the State and the Private Sector

Shaukat Hameed Khan

Productivity Growth and Entrepreneurship in
Pakistan: The Role of Public Policy in Promoting
Technology Management

THE LAHORE JOURNAL OF ECONOMICS

Editors

Dr. Azam Chaudhry, Editor
Dr. Theresa Thompson Chaudhry, Editor
Ms. Nina Gera, Associate Editor
Ms. Ayesha Khanum, Assistant Editor

Editorial Advisory Board

- | | | |
|---|---|--|
| Ranil Abayasekara
<i>University of Peradeniya</i> | Ahmed M. Khalid
<i>Bond University</i> | Baoyun Qiao
<i>Central University of Finance and Economics, China</i> |
| Sirimal Abeyratne
<i>University of Colombo</i> | Amir Jahan Khan
<i>Coventry University</i> | Simon Quinn
<i>University of Oxford</i> |
| Julio Aguirre
<i>Universidad del Pacifico</i> | Saleem Khan
<i>Bloomsburg University</i> | Atonu Rabbani
<i>University of Dhaka</i> |
| Rashid Amjad
<i>Lahore School of Economics</i> | Shahrukh Rafi Khan
<i>Mount Holyoke College</i> | Dhushyanth Raju
<i>World Bank</i> |
| Mathew Andrews
<i>Harvard University</i> | Amit Khandelwal
<i>Columbia University</i> | Rajah Rasiah
<i>University of Malaya</i> |
| Mohammad Arzaghi
<i>American University of Sharjah</i> | Rocco Macchiavello
<i>University of Warwick</i> | Syed Kumail Abbas Rizvi
<i>Lahore School of Economics</i> |
| David Atkin
<i>MIT</i> | Minhaj Mahmud
<i>BRAC University</i> | Anwar Shah
<i>Southwestern University of Finance and Economics, China</i> |
| Shahid Amjad Chaudhry
<i>Lahore School of Economics</i> | Adeel Malik
<i>University of Oxford</i> | Chad Syverson
<i>University of Chicago</i> |
| Matthias Cinyabuguma
<i>World Bank</i> | Inayat Ullah Mangla
<i>Western Michigan University</i> | Gwendolyn A. Tedeschi
<i>Manhattan College</i> |
| Sean Corcoran
<i>New York University</i> | Ghazala Mansuri
<i>World Bank</i> | Kensuke Teshima
<i>Instituto Tecnológico Autónomo de México</i> |
| Giovanna d'Adda
<i>Politecnico di Milano, University of Birmingham</i> | Matthew McCartney
<i>University of Oxford</i> | Jamshed Y. Uppal
<i>Catholic University of America</i> |
| Phillip Garner
<i>Dixie State University</i> | Nawazish Mirza
<i>Lahore School of Economics</i> | Eric Verhoogen
<i>Columbia University</i> |
| Javier Arze del Granado
<i>International Monetary Fund</i> | Ahmed Mushfiq Mobarak
<i>Yale University</i> | Kate Vyborny
<i>Duke University</i> |
| Ramani Gunatilaka
<i>University of Colombo</i> | John Morrow
<i>University of Essex</i> | Waqar Ahmed Wadho
<i>Lahore School of Economics</i> |
| Aamir Rafique Hashmi
<i>National University of Singapore</i> | Kamal Munir
<i>University of Cambridge</i> | Jan Weiss
<i>Jönköping International Business School</i> |
| S. Ajaz Hussain
<i>University of Toronto</i> | Khalid Nadvi
<i>University of Manchester</i> | Christopher Woodruff
<i>University of Warwick</i> |
| Kazi Iqbal
<i>Bangladesh Institute of Development Studies</i> | Zareen Naqvi
<i>British Columbia Institute of Technology</i> | Bushra Yasmin
<i>Fatima Jinnah Women University</i> |
| Sanjay Jain
<i>University of Cambridge</i> | Ashish Narain
<i>World Bank</i> | Sohail Zafar
<i>Lahore School of Economics</i> |
| Michal Jerzmanowski
<i>Clemson University</i> | Robert Neild
<i>University of Cambridge</i> | |
| Ahmed Kamaly
<i>The American University in Cairo</i> | Roshan Perera
<i>Central Bank of Sri Lanka</i> | |

Editorial Staff: Tele. No: 0092 - 42 - 36560969
Telefax: 0092 - 42 - 36560905
E-mail: nina@lahoreschool.edu.pk, nina_lse@yahoo.com
Publisher: Lahore School of Economics, Lahore, Pakistan.

Correspondence relating to subscriptions and changes of address should be sent to *The Lahore Journal of Economics*, 104 -C-2, Gulberg-III, Lahore - 54660 - Pakistan.

Instructions to authors can be found at the end of this issue. No responsibility for the views expressed by authors and reviewers in *The Lahore Journal of Economics* is assumed by the Editors, the Associate Editor and the Publisher.

Copyright by: **Lahore School of Economics**

21 2016

THE LAHORE JOURNAL OF ECONOMICS

Contents

Vol. 21, SE, 2016

Overview	i
Why Scientific Research is Imperative for Entrepreneurship and Sustainable Development in Pakistan <i>Bilal U. Haq</i>	1
The Productivity Growth–Technology–Entrepreneurship Nexus: Implications for Pakistan <i>Irfan ul Haque</i>	15
Pakistan’s Productivity Performance and TFP Trends, 1980–2015: Cause for Real Concern <i>Rashid Amjad and Namra Awais</i>	33
Costs, Capabilities, Conflict and Cash: The Problem of Technology and Sustainable Economic Growth in Pakistan <i>Matthew McCartney</i>	65
The Diversification and Sophistication of Pakistan’s Exports: The Need for Structural Transformation <i>Maha Khan and Uzma Afzal</i>	99
Innovation in the Textiles Sector: A Firm-Level Analysis of Technological and Nontechnological Innovation <i>Waqar Wadho and Azam Chaudhry</i>	129
Comparing Industrialization in Pakistan and the East Asian Economies <i>Rajah Rasiah and Nazia Nazeer</i>	167
Correlates of Entrepreneurship in Pakistan: The Regional Dimension <i>Mahnoor Asif and Anum Ellahi</i>	193

Same Jeans, Same Stitch? A Comparison of Denim Production Across Three Factories in Punjab, Pakistan <i>Theresa Thompson Chaudhry and Mahvish Faran</i>	211
Measuring Technology Differences Across Football Manufacturers in Sialkot <i>Tariq Raza</i>	237
Technology in the Sialkot Gloves Manufacturing Sector <i>Saba Firdousi</i>	253
Entrepreneurship and Innovation in the Digital Economy <i>Naved Hamid and Faizan Khalid</i>	273
Promotion of Innovation and S&T: The Role of Finance <i>Saeed Ahmed and Mahmood ul Hasan Khan</i>	313
Access to Finance and Agency: An Overview of the Constraints to Female-Run Enterprises <i>Farah Said</i>	331
Explaining Pakistan's Premature Deindustrialization <i>Nazia Nazeer and Rajah Rasiah</i>	351
Public Policy, Innovation and Economic Growth: An Economic and Technological Perspective on Pakistan's Telecom Industry <i>Musleh Ud Din, Inayat Ullah Mangla, Muhammad Jamil</i>	369
Innovation and Technological Upgrading in Lahore: Results From the LCCI Business Confidence Survey 2016 <i>Mahvish Faran and Azam Chaudhry</i>	393
Science and Technology for Raising Income: The Choice of Activities, the State and the Private Sector <i>Sikander Rahim</i>	419
Productivity Growth and Entrepreneurship in Pakistan: The Role of Public Policy in Promoting Technology Management <i>Shaukat Hameed Khan</i>	429

Notes for Authors

1. Manuscripts will be accepted for consideration on the understanding that they are original contributions to the existing knowledge in the fields of Economics, Banking, Current Affairs, Finance, Political Economy, Sociology, and Economic History.
2. Electronic copies of research articles, research notes, and book reviews – in English only – should be **submitted as an email attachment to: nina@lahoreschool.edu.pk and nina_lse@yahoo.com. Upon receipt, a confirmation email will be sent to the corresponding author containing a serial number identifying the article.**
3. The first page of the manuscript should have the title of the paper, the names(s) of author(s), and a footnote giving the current affiliation of the author(s) and any acknowledgments
4. **Articles submitted to the *Lahore Journal of Economics* must also include: (a) a brief abstract of about 100 words that summarizes the contents, (b) keywords and (c) Journal of Economic Literature (JEL) Classification Codes.**
5. The *Lahore Journal of Economics* will publish empirical papers only if the data used in the analyses are clearly and precisely documented and are readily available to the journal reviewers for purposes of replication. **At the time of submission of papers that have empirical work, authors must provide to the *Lahore Journal of Economics*, the data in Microsoft EXCEL format required for the replication of results.**
6. Detailed derivations of any main mathematical results reported in the text should be submitted separately along with the articles.
7. Each manuscript should be typed and should carry a margin of an inch and a half on the left-hand side and an inch on the right hand side of the typed page.
8. The graphic format for each mathematical formula, diagram, figure or chart should be in text mode for further editing.
9. Tables for the main text and each of its appendices should be numbered sequentially and separately. The title of each table should clearly describe the contents. The source of the table should be given in a footnote immediately below the line at the bottom of the table.
10. Footnotes should be numbered sequentially.

11. All references used in the text should be listed in alphabetical order of the authors' surnames at the end of the text. References in the text should include the name(s) of author(s) with the year of publication in parentheses, and all references should conform to the style of the Journal. Further information on questions of style may be obtained from the Associate Editor, *The Lahore Journal of Economics*, Lahore – Pakistan.
12. Book Reviews should give a description of the contents and a critical evaluation of the book. It should not exceed 5 or 6 typewritten pages.
13. Each author will receive two complimentary copies of *The Lahore Journal of Economics*.

THE LAHORE JOURNAL OF ECONOMICS

Lahore School of Economics

104-C-2, GULBERG III LAHORE, PAKISTAN. TEL: 35870704

SUBSCRIPTION FOR PUBLICATIONS

1. Kindly enter a subscription for the following publication of the Lahore School of Economics:

Publication	Yearly subscription (within Pakistan)	Yearly subscription (outside Pakistan)	Period (No. of years)	Total Payment
1. The Lahore Journal of Economics	Rs. 600.00	US \$ 50

2. The subscription is to be in the following name and address:

Name: -----

Address: -----

Telephone: -----

3. A crossed cheque/demand draft for the sum of Pakistan Rupees/US \$_____ is enclosed made out in the name of The Lahore School of Economics to cover the above subscription.
4. Please address your order to: Nina Gera, Publications, Lahore School of Economics, 104-C-2, Gulberg III, Lahore 54660, Pakistan.

Signature: -----

Name: -----

Date: -----

The Lahore School of Economics

The Lahore School of Economics (established 1993) is one of Pakistan's leading centres of learning for teaching and research in economics, finance and business administration. The Lahore School of Economics' objectives include: (i) The training of young Pakistanis as professional economists, finance managers, accountants, financial analysts, bankers and business executives, and (ii) Undertaking research in economics, management, finance and banking to further deepen understanding of major economic facts, issues and policies.

The Lahore School was granted a Charter in January, 1997 by an Act of the Provincial Assembly of the Punjab: The Lahore School of Economics Act 1997 (Act II of 1997). The Charter vests the powers of an independent degree granting institution to The Lahore School.

The Lahore School has both undergraduate and graduate programs in economics, business information systems and finance. Its postgraduate program leading to the MPhil and PhD degree is administered through the Lahore School's Centre for Research in Economics and Business (CREB). The student body and faculty comprise both national and expatriate Pakistanis and The Lahore School encourages expatriate Pakistanis to join as students or as faculty.

The Lahore School's publication program comprises The Lahore Journal of Economics (a bi-annual publication), Lahore Journal of Policy Studies, a Seminar Paper Series and a Text Book Series. The Program encourages both in-house and external contributors.

For further information, please call (Pakistan 92-42-) 35870704 or 36560969 or visit the Web page: www.lahoreschoolofeconomics.edu.pk
