



Development Policy of Cross - Border Electronic e-Commerce Under the Contextual Influences of Employment and GDP Growth in Pakistan

Rubina Allahrakha^{1*}, Mahwish Zafar², Saif ur Rahman³

Abstract

This research study explores the transformative potential of cross-border e-commerce as a catalyst for revitalizing the struggling economy of Pakistan. A comprehensive review engages key stockholder, including government officials, e-commerce platforms, exporters, and consumers, through interviews and focus group discussions. The study assess the economic impact on cross-border e-commerce as a dependent variable employment, and GDP growth, as are independent variables utilizing data from government agencies and e-commerce platforms. Integrating qualitative and quantitative findings, the study will provide a comprehensive understanding of how cross-border e-commerce can stimulate employment and GDP growth in Pakistan. The research outcomes will be evidence-based policy recommendations tailored to the country's economic landscape, addressing regulatory challenges, infrastructure limitations, and technological integration. The outcomes of this study not only contribute to academic discourse but also offer actionable insights for policymakers, businesses, and researchers seeking to leverage cross-border e-commerce for sustainable economic development in developing countries like Pakistan.

Keywords: Economic Growth, e-commerce, Employment

1. Introduction & Background

IT driven globalization of economy has totally changed the consumer's demand and consumption patterns. It has witnessed exponential growth to the tune of 4 trillion US dollar in 2020, (Wang et al., 2021) in online retail sales, 1/3rd being cross-border e-commerce (CBEC) (Cho and Lee, 2017). E. Technology dependent CBEC is pivotal in economic and trade integration in the times of super-specialization (Jiang and Ma, 2021). European Union (EU) registered 15% CBEC sales in 2014, a 25% increase from last year (Kawa and Zdrenka, 2016). China registered 31.1% e-sales in 2020, a 40.1 % increase from last year worth USD 238 billion, exports contributed USD 157 billion (1). US share of CBEC market in 2021 is worth 142 billion US dollar with a compound annual growth rate (CAGR) of 26.1%. The magnitude of CBEC in highly competitive global market was made possible only through strategic use of e-technology for integration. CBEC is going to be a complete and comprehensive ecosystem of the future (Chen et al., 2022).

In developing and least developed countries (LDCs), e-commerce has been instrumental in bringing about innovative opportunities for business growth, jobs creation, poverty alleviation and better gender equality with overall increase in national gross domestic product (GDP). (Awan et al., 2023). It has the potential to bridge the missed opportunity gap to socio-economic and technological development. (Reardon et al., 2021). Many developing economies have successfully harnessed e-commerce based innovative trans-border integration. (Dawood et al., 2023). African platforms, including Jumia, Konga, Mall for Africa, Takealot, and Bidorbuy have surpassed Amazon in terms of local e-commerce share of business. India's projected e-commerce market share shall be to the tune of 200 billion dollars by 2026. However, the materialization of these futuristic predictions in these regions in CBEC will be dependent on more enabling policies and sophisticated regulatory environment, manned by skilled human resource capital and well developed infrastructure. (UN, 2018).

In Pakistan, the CBEC is still in its infancy, privacy, security, and trust related issues being the major barriers due to insufficient integration of local regulations with international law. (Fatima et al., 2023) not limited to low logistics capacities, knowledge gaps, limited cross-border data flow, a lack of uniform international technical standards, and, but also the which are hindering the growth and development of CBEC in Pakistan (Imtiaz et., 2020). Our emerging start up culture of IT companies & call centers has grown to more than 5000, supported by 300,000 English-speaking IT professionals, 13 software technology parks, and a continuous supply chain 20,000 plus IT personals. State Bank of Pakistan (2018), projections for 2025 stands at a healthy 36 billion in GDP along with 4 million new white collar jobs in digital financial services alone. Youth comprises of 64%, around 130 million, of population in Pakistan and they are ready to embrace technology, promoting CBEC friendly regulation of e-commerce shall ensure youth employment to for next few decades by addressing regulatory inconsistencies, equal opportunities for all stakeholders and transparent taxation. (Zhao, Rahman, Afshan, Ali, Ashfaq, & Idrees 2023; Qadri, Shi, Rahman, Anees, Ali, Brancu, & Nayel 2023; Shahzadi, Sheikh, Sadiq, & Rahman 2023; Dawood, Rahman, Majeed, Umair, & Idrees 2023; Zahra, Nasir, Rahman, & Idress, (2023).

The key role of e-commerce for young entrepreneur's employment is established in achieving sustainable future growth in GDP. Internet network has developed a lot but adoption of local e-commerce is still minimal, favourable policies envisioning capacity building both infrastructure and humans are needed.

^{1*} School of Economics, and commerce Superior university city campus Lahore, rubinamalik933@gmail.com

² Department of Business and Management Sciences, Superior University Lahore

³ School of Economics, and Commerce, Superior university city campus Lahore

This research project has been proposed to identify the existing policy deficits, analyse the impact of Employment, GDP on e-commerce and devise viable policy briefs for the relevant stakeholders to catalyse the stagnant economy of Pakistan.

1.1. Scope of Research (Objectives; Research Questions/Hypotheses; Research Problem)

This proposed research will be carried out with the following specific objectives:

1. To identify the challenges and opportunities associated with integrating cross-border e-commerce into Pakistan's trade landscape,
2. To analyse the impact on cross-border e-commerce and employment and GDP growth in Pakistan,
3. To provide policy briefs for the relevant stakeholders to catalyse the economy of Pakistan.

2. Review of Literature

Cross-border e-commerce (CBEC) refers to the multiparty transactions through e-commerce platforms across nation-state borders and regions (Ai et al., 2016). These e-platforms connect buyers with sellers and provide third-party logistics and financial services to materialize the transfer of products or services. (Mou et al., 2019a). Globalization wouldn't have been possible without IT in the atmosphere of evolving demand and consumption patterns of consumers. Favourable policies are the most important vehicle for promoting international trade (Li and Chan, 2016; Kim et al., 2017). Digital intermediaries have made it possible to approach distant international consumers (Sinkovics et al., 2007; Giuffrida et al., 2020). By 2022, business-to-consumer (B2C) cross-border online sales are projected to be around 22% of total global e-commerce (Forrester Research, 2019). CBEC is the most important pillars of international trade which has helped to dissipate economic surplus across borders (UNCTAD, 2016).

Long transportation times and costs and difficulties in ensuring high-quality return services are inherent in CBEC. Ding et al. (2017) pointed out that cultural differences in consumers' patterns shaping product and marketing issues and perceptions about different payment modes on one side and laws and regulations about financial tools, litigation settlement and securities issues on the other hand will continue to create obstacles for CBEC. Strzelecki (2019) studied the characteristics of service provider e-retailers' requirements to accurately identify customer needs. Consumer's probability of willingness to repurchase from the same source can be a useful indicator. (Wu et al., 2014). Mou et al. (2019b) studied the positive impact of customer repurchase intention and actual future purchase behaviour in the future reflected as more buyers and increase the market share of the store or enterprise. Uncertainties loom around in spite of popularity of e-commerce resulting in trust deficit as an important determinant of their acceptance of electronic services (Mou et al., 2016).

The growth of e-commerce sector has extended the reach beyond borders benefitting not only the traders but becomes an important source of government revenue. (Saez et al., 2020). Corona-virus (COVID-19) on one side limited trading activities while new opportunities emerged for others. Restrictions on movement and public gathering led to bypass behaviours by shifting towards online buying. Brazil, China, Germany, Italy, The Republic of Korea, Russian Federation, South Africa, Switzerland and Turkey have embraced digital solutions. (Qayyum et al., 2018; Hassan, Sheikh, & Rahman, 2022; Khan, Afzali, Shad, Rahman, 2022; Rahman, Ali, Idrees, Ali, & Zulfiqar, 2022; Li, Bai, Meo, Anees, & Rahman, 2022; Khoula, Rahman, Idress, 2022; Zulfiqar, Ansar, Ali, Hassan, Bilal, & Rahman, 2022; Hafiza, Manzoor, Fatima, Sheikh, Rahman, Qureshi, 2022). User-friendly mobile apps have become the preferred mode of shopping. E-commerce has supplemented the business chains' strategies to avoid sales dropout (Javed, 2020).

E-commerce industry in Pakistan almost doubled with an increase to 99.3 billion in FY 18 (KCCI, 2019), from Rs. 51.8 billion in Fiscal Year (FY) 17 as a result of governmental patronage with Digital Pakistan policy. The fast-evolving infrastructure for digital payment and e-transactions is promising in spite of multiple issues. (Research and Markets, 2015). Lack of awareness about e-banking and perceived insecurity and trust deficit on e-commerce (Moomal and Masrom, 2015) still are the major concern. Payment gateways like PayPal have been successful in winning businesspeople's trust. High entry cost, concerns of international community about money laundering and uncertainties in payment clearance have not allowed it to operate in Pakistan (KCCI, 2019). Islamabad High Court ruling may ultimately pave the way for Amazon and PayPal in Pakistan (Rabbie, 2020).

There is a lack of access towards affordable Information and Communication Technology (ICT) infrastructure as per Global Innovative Index 2019 which ranked us at 111 and 118 in terms of ICT access and its usage respectively. (Ullah, Rehman, Raman, 2023; Hafiza, Rahman, Sadiq, Manzoor, Shoukat, & Ali, 2023; Chaudhary, Nasir, Rahman, & Sheikh, 2023; Khan, Rahman, Fiaz, 2023; Usman, Rahman, Shafique, Sadiq, & Idrees, 2023; Shahid, Gurmani, Rahman, & Saif, 2023; Ilyas, Banaras, Javaid, & Rahman, 2023). Non-functional institutions and/or under-performing trade bodies of E-commerce industry has failed to win customers' confidence along payments and logistics issues for the customer-related issues. (Ahmed, 2019). Adoption of digital platforms' adoption is even slower in rural areas.

Despite the significance of e-commerce and CBEC, it can be envisaged from the above review of literature that underdeveloped ICT infrastructure failing to support payment gateways, lack of e-payment regulations, non-functional institutions and/or under-performing trade bodies and customer trust deficit remains major challenges.

Focused policy interventions aligned with the international demand favoring entry of new products are needed.

2.1. Association between GDP and e commerce

McKinsey, a renowned research organization assigned at least 3.4% of GDP to internet based business activities in large economies representing 70% share of global economy. (McKinsey, 2021). GDP of Spain and Canada need to be added up make it equal to Global contribution of Internet. Internet based capital consumption is more than the agricultural sector. (McKinsey, 2011). ICT has helped US to boost labour efficiency and utility of the capital. (Oliner & Sichel, 2020). Chinese logistics industry has its foundation on the development of e-commerce. (Huirong, 2014). Another empirical research studied A sustained 0.25% annual increase in GDP (basis 2000-2010) was contributed by B2B e-commerce for U.S., Japan, Germany, Britain and France. (Brookes & Wahaj, 2000). Better efficiency targeted toward transaction cost reduction with e-commerce adds in GDP (Xiaohong, 2011 Sarwar, Ali, Bhatti, & Rahman, (2021), Rahman, Chaudhry, Meo, Sheikh, & Idrees, (2021), Zhu, Fang, Rahman, & Khan, (2021), Younas, Idrees, & Rahman, (2021), Shafique, Rahman, Khizar, Zulfiqar, (2021). In 2002 Cisco Systems reported 2 time increased acceptability of e-commerce in the US from 1995 to 2000. This trend accelerated in EU, from 0.3% to 1.7% in the period 2000-2010 (Huirong, 2014).

2.2. Association between Employment and e commerce

As expected developed economies has gained more in terms of profits on domestic consumption while developing economies at lower levels of e-commerce development and lower wages created more jobs due to outsourcing trend. Developing economies focuses more on exports and tradable sectors and better employment opportunities rather than impact of digitalisation on growth (World Economic Forum, 2013). Out of 6 million new jobs 94% were created in emerging economies. For any country a gain of 10 point on the digitization score, unemployment is reduced by 1.02% (World Economic Forum, 2013).

The relationship between the dynamic impact of e-commerce on employment and wages are both interactive and complex (Terzi, 2011). E-commerce while creating both direct and indirect employment opportunities at the expanse of jobs in other sectors which it replaces or makes technologies outdated. ICT created jobs for IT managers, database administrators and system analysts, hard and software engineers and technicians. Commercial artists, graphic designers and Blog writers and editors came back. (Singh, 2008). At least 3.6 million jobs Internet related jobs were created in the United States alone surpassing the combined strength of agriculture and construction workforce. (Castelao, 2012). Mobile application and IT related 500000 jobs were created during past five years in the USA. (European Commission, 2012), (ITIF, 2013). British business expects to absorb at least 7,45,000 new skilled workers for their economy, they have to invite immigrant workforce to meet the demand posted by growth of 5.4% in 2020.(Grech, 2014). Currently this thriving digital ecosystem has engaged 1.46 million. (Tech City, 2018). French figures shows 2.6 new jobs for every single job made redundant due to internet in last 15 years, 1.2 million new jobs against 5,00,000 jobs lost.(McKinsey Global Institute, 2022), (ITIF, 2017). In Nigeria, a developing country, where e-commerce is at a nascent stage generated 50000 jobs. Nigeria is a starter in adopting e-commerce industry new opportunities are materializing in web designing, logistics staff and affiliated support services. Nigerian Ministry of Communications Technology quoted in 2021 e-commerce has created 12000 jobs for the country,(Kamangar et al. 2020 Shahzadi, Ali, Ghafoor, & Rahman 2023, Zainab, Qaisra, Hassan, Haris, Rahman, & Ali 2023, Mukhtar, Mukhtar, Shahid, Razzaq, Rahman, 2023, Nawaz, Rahman, Zafar, & Ghaffar, 2023).

At least 60% of the jobs are being advertised online adding another category to e-commerce. (Vanguard, 2015). Online business are going to create new jobs that can contribute about 20% growth in European Union (European Commission, 2012). Based on 2013 online penetration in Europe, 650,000 websites of B2C online shops are projected to grow by 15-20% to create at least 2 million jobs. (Europe E-commerce, 2018). Digital industries will need skilled manpower in multiple segments. Continuous innovation and creative thinking are the future buzz words for the digital business. (Jones, Beynon-Davies, & Muir, 2022).

3. Research Methodology

Keeping in view the proposed objectives, the methodology of the research will comprise the following phases:

3.1. Phase 1 – Qualitative Research

3.1.1. Research Design

The purpose of this research was to explore the problems faced by government departments, e-commerce platforms, exporters, and consumers who are studying of Faisalabad, Pakistan. This study used a qualitative approach which is inductive in nature to explore the experiences of the individuals in government departments, exporters, and consumers in their own words. According to Creswell 1998, Shahbaz et al, 2019 Tabassum, Rahman, Zafar, & Ghaffar, 2023, Idrees, Awan, Arslan, Hussain, Razzaq, Haris, & Rahman,(2023). the qualitative nature of inquiry is more appropriate when the topic needs to be explored and little is known about the phenomenon. Only e-commerce platforms were studied, to have an in-depth understanding of the problems. This study is based on effects of cross border e-commerce and employment on GDP as a catalyst for Pakistan's stagnant economy.

A qualitative study was designed to gather insights from key stakeholders, including relevant government departments, e-commerce platforms, exporters, and consumers. For the purpose, purposive sampling was

employed to select participants representing various sectors, ensuring a diverse range of perspectives. Different semi-structured interviews were conducted with government officials, e-commerce platform executives, representatives from export-oriented businesses, and consumers. Moreover, group discussions with stakeholders to encourage interactive conversations and gather collective opinions were focused for further facilitation.

3.2. Phase 2 – Policy Recommendations

Based on the findings of Phase I–III, actionable recommendations for policymakers will be provided to evaluate the existing policies related to e-commerce and international trade in Pakistan and aligning the study findings with existing policy frameworks and identify gaps and areas for improvement. Moreover, evidence-based policy recommendations could be developed, considering the practical implications and feasibility of implementation of the research.

3.3. Dissemination of Research

The research findings will be effectively communicated to stakeholders, policymakers, and the academic community through a comprehensive research report outlining the methodology, findings, and recommendations. These findings will also be disseminated through seminars, workshops, and conferences. Furthermore, relevant stakeholders will be engaged through policy briefs and targeted communications to ensure the practical application of the research outcomes. By employing a multi-faceted methodology that combines qualitative and quantitative approaches, this research aims to provide a holistic understanding of the role of cross-border e-commerce in catalysing economic growth in Pakistan. The integration of diverse data sources and perspectives will contribute to the robustness and reliability of the study's findings and recommendations.

3.4. Expected Outcomes

1. Policy recommendations for enhanced cross-border e-commerce integration in Pakistan.
2. Quantifiable impacts on economic indicators.

4. Limitations

1. Integration and implementation may be the long-term policy matter.
2. Practical applicability at grass root level may take longer in Pakistan due to economic uncertainties.

5. Public Policy Relevance

The proposed research holds substantial value for shaping and enhancing public policy in Pakistan, offering actionable insights that can guide policymakers in navigating the country's economic challenges. The findings from this study on cross-border e-commerce and its role in stimulating economic growth have direct implications for the formulation and refinement of public policies in several key areas.

Firstly, the research provides a nuanced understanding of the challenges hindering the integration of cross-border e-commerce in Pakistan, shedding light on regulatory bottlenecks, infrastructural shortcomings, and technological gaps. By addressing these issues, policymakers can develop targeted policies that foster an environment conducive to cross-border e-commerce activities. Secondly, the evidence-based policy recommendations emerging from this study offer pragmatic solutions to streamline and optimize existing policies related to e-commerce and international trade. These recommendations consider the specific socio-economic context of Pakistan, providing a road map for policymakers to enact reforms that encourage cross-border trade, boost employment, and contribute to GDP growth.

Moreover, the research contributes to the broader narrative of economic diversification. By understanding the potential impacts of cross-border e-commerce on various economic indicators, policymakers can make informed decisions that align with Pakistan's goals of sustainable economic development and increased global competitiveness. In a nutshell, the research directly informs public policy by pinpointing challenges, offering tailored recommendations, and fostering a deeper comprehension of the role cross-border e-commerce can play in transforming Pakistan's economic landscape. By integrating these insights into policy-making, Pakistan has the opportunity to create an environment that harnesses the full potential of cross-border e-commerce for its economic soar.

References

Ahmed, R. 2019. E-commerce in Pakistan: challenges & opportunities. WHICEB2019 Proceedings. 2019;75.

Awan, A., Rahman, S. U., Ali, M., & Zafar, M. (2023). Institutional Performance and Tourism Arrival Nexus in BRICS Countries: Evidence from Nonlinear ARDL Cointegration Approach. IRASD Journal of Economics, 5(1), 127–139.

Ai, W., Yang, J., and Wang, L. (2016). Revelation of cross-border logistics performance for the manufacturing industry development. *Int. J. Mob. Commun.* 14, 593–609. doi: 10.1504/IJMC.2016.079302.

Chen, Y., Li, M., Song, J., Ma, X., Jiang, Y., Wu, S., & Chen, G. L. (2022). A study of cross-border E-commerce research trends: Based on knowledge mapping and literature analysis. *Frontiers in Psychology*, 13, 1009216.

Cho, H., and Lee, J. (2017). Searching for logistics and regulatory determinants affecting overseas direct purchase: an empirical cross-national study. *Asian J. Ship. Logist.* 33, 11–18. doi:

Dawood, M., Rahman, S. U., Majeed, Umair., & Idrees, S. (2023). Contribution the Effect of Corporate

Governance on firm Performance in Pakistan. *Review of Education, Administration & Law*, 6(1), 51-65. doi: 10.1016/j.ajsl.2017.03.002

Ding, F., Huo, J., and Campos, J. K. (2017). The development of cross border E-commerce. *Adv. Econ. Bus. Manag. Res.* 37, 370–383. doi: 10.2991/ictim-17.2017.37

Fatima, K., Jamshed, S., Tariq, M. I., & Rahman, S. U. (2023). An Empirical Examination on What Huge Information Investigation Means for China SME Execution: Dope Item and Interaction Development Matter?. *Pakistan Journal of Humanities and Social Sciences*, 11(2), 792–801.

Forrester Research (2019) Forrester Analytics: Online Cross-Border Retail Forecast, 2018 to 2023 (Global). Cambridge: Forrester Research Inc.

Giuffrida, M., Mangiaracina, R., Perego, A., and Tumino, A. (2020). Cross-border B2C e-commerce to China: an evaluation of different logistics solutions under uncertainty. *Int. J. Phys. Distrib. Logist. Manag.* 50, 355–378. doi: 10.1108/IJPDLM-08-2018-0311.

GOP (Govt. of Pakistan). 2019. e-Commerce policy of Pakistan 2019. Available at: https://www.commerce.gov.pk/wp-content/uploads/2019/11/e-Commerce_Policy_of_Pakistan_Web.pdf.

Hassan, K. H. U., Sheikh, S. M., & Rahman, S. U. (2022). The Determinants of Non Performing Loans (NPLs): Evidence from the Banking Sector of Pakistan. *Annals of Social Sciences and Perspective*, 3(1), 1-22.

Imtiaz, S., Ali, S. H., & Kim, D. J. (2020). E-commerce growth in Pakistan: Privacy, security, and trust as potential issues. *Culinary Science & Hospitality Research*, 26(2), 10-18.

Javed, A. 2020. Impact of COVID-19 on Pakistan's services sector. *Jurnal Inovasi Ekonomi*. 2020;5(03).

Jiang, X., and Ma, Y. (2021). Development strategy of cross-border e-commerce under the background of anhui free trade zone. *Sci. J. Econ. Manag. Res.* 3:6.

Kawa, A., and Zdrenka, W. (2016). Conception of integrator in cross border commerce. *Sci. J. Logist.* 12:63. doi: 10.17270/J.LOG.2016.1.6

KCCI. 2019. E-commerce: A plausible solution to Pakistan's economic woes. *Karachi Chamber of Commerce & Industry*.

Kim, T. Y., Dekker, R., and Heij, C. (2017). Cross-border electronic commerce: distance effects and express delivery in European Union markets. *Int. J. Electron. Commer.* 21, 184–218. doi: 10.1080/10864415.2016.1234283

Li, C., and Chan, T. (2016). “Ten China commercial highlights 2016 series: cross-border e-commerce import businesses see rapid growth; new channels for commercial enterprises to transform and innovate.” Available at: www.fbicgroup.com/sites/default/files/Ten%20Highlights%20of%20China's%20Commercial%20Sector%202016_07.pdf

Moomal, A., Masrom, M. 2015. ICT Development and its impact on e-business and HRM strategies in the organizations of Pakistan. *Journal of Advanced Management Science*. 3(4): 344-349.

Mou, J., Cui, Y., and Kurcz, K. (2019a). Bibliometric and visualized analysis of research on major e-commerce journals using Citespace. *J. Electron. Commer. Res.* 20, 219–237.

Mou, J., Ren, G., Qin, C., and Kurcz, K. (2019b). Understanding the topics of export cross-border e-commerce consumers feedback: an LDA approach. *Electron. Commer. Res.* 19, 749–777. doi: 10.1007/s10660-019-09338-7.

Mou, J., Shin, D. H., and Cohen, J. (2016). Health beliefs and the valence framework in health information seeking behaviors. *Inf. Technol. People* 29, 876–900. doi: 10.1108/ITP-06-2015-0140.

Rabbie, N. 2020. IHC asked federal government to bring Paypal and Amazon services in Pakistan, Techjuice. Available at: <https://www.techjuice.pk/ihc-asked-federal-government-to-bring-paypal-and-amazon-services-in-pakistan/>

Reardon, T., Belton, B., Liverpool-Tasie, L. S. O., Lu, L., Nuthalapati, C. S., Tasie, O., & Zilberman, D. (2021). E-commerce's fast-tracking diffusion and adaptation in developing countries. *Applied Economic Perspectives and Policy*, 43(4), 1243-1259.

Research and Markets. 2015. Pakistan B2C E-Commerce Market. Available at: http://www.researchandmarkets.com/research/8qskpk/pakistan_b2c.

Saez, S., Rizwan, N., Marel, E. 2020. Digital Pakistan: A business and trade assessment. World Bank, Washington, DC. © World Bank. Available at: <https://openknowledge.worldbank.org/handle/10986/33880> License: CC BY 3.0 IGO.

Sarwar, F., Ali, S., Bhatti, S. H., & Rahman, S. (2021). Legal Approaches to Reduce Plastic Marine Pollution: Challenges and Global Governance. *Annals of Social Sciences and Perspective*, 2(1), 15-20.

Sinkovics, R. R., Yamin, M., and Hossinger, M. (2007). Cultural adaptation in cross border e-commerce: a study of German companies. *J. Electron. Commer. Res.* 8, 221–235.

State of Economy, Annual Report 2017-18, Chapter 7 Digitization of Services in Pakistan, State Bank of Pakistan

Strzelecki, A. (2019). Key features of e-tailer shops in adaptation to cross-border e-commerce in the EU. *Sustain.*

For. 11:1589. doi: 10.3390/su11061589.

Tabassum, N., Rahman, S. U., Zafar, M., & Ghaffar, M. (2023). Institutional Quality, Employment, Trade Openness on Environment (Co2) Nexus from Top Co2 Producing Countries; Panel ARDL Approach. *Review of Education, Administration & Law*, 6(2), 211-225.

Ullah, S. Rehman, C. A., Raman, S. U. (2023). Public Investment, Technological Innovations, and Environmental Degradation: Asymmetric ARDL Approach. *Pakistan Journal of Humanities and Social Sciences*, 11(2), 704-716.

UNCTAD (2016). CROSS-BORDER E-COMMERCE TRADE DATA UNCTAD technical notes on ICT for development [WWW document]. (Accessed January 2, 2018).

United Nation. 2018. Conference on Trade and Development, South-South Digital Cooperation for Industrialization: A Regional Integration Agenda (2018) at pp 14-5. Available at <https://unctad.org/en/Pages/MeetingDetails.aspx?meetingid=1940>.

Wang, Y., Yu, Z., Shen, L., and Dong, W. (2021). E-commerce supply chain models under altruistic preference. *Mathematics* 9:632. doi: 10.3390/math906063

Wu, L. Y., Chen, K. Y., Chen, P. Y., and Cheng, S. L. (2014). Perceived value, transaction cost, and repurchase-intention in online shopping: a relational exchange perspective. *J. Bus. Res.* 67, 2768–2776. doi: 10.1016/j.jbusres.2012.09.007.

Zainab, J., Qaisra, N., Hassan, I., Haris, M., Rahman, S. U., & Ali, M. (2023). Assessing Mediating Role of Environment Knowledge Between Green Resource Management and Sustainable Performance, Under Moderating Effects of Green Self- Efficacy.

Zhao, Rahman, Afshan, Ali, Ashfaq, & Idrees 2023; Qadri, Shi, Rahman, Anees, Ali, Brancu, & Nayel 2023; Shahzadi, Sheikh, Sadiq, & Rahman 2023; Dawood, Rahman, Majeed, Umair, & Idrees 2023; Zahra, Nasir, Rahman, & Idress, 2023.