6th ANNUAL CONFERENCE ON BUSINESS ECONOMICS

ACBE 2025

In collaboration with

21st International Conference on Business Management (ICBM) 2025

CONFERENCE PROCEEDINGS

Department of Business Economics
Faculty of Management Studies and Commerce
University of Sri Jayewardenepura
Sri Lanka

18th February 2025

6th ANNUAL CONFERENCE ON BUSINESS ECONOMICS (ACBE) 2025

CONFERENCE PROCEEDINGS

Research Center for Business Economics and Development Studies
Department of Business Economics
Faculty of Management Studies and Commerce
University of Sri Jayewardenepura

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6th ANNUAL CONFERENCE ON BUSINESS ECONOMICS 2025

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MESSAGE FROM THE VICE CHANCELLOR
University of Sri Jayewardenepura

It is with great pleasure that I extend my heartfelt congratulations on the Undergraduate Research Day, held alongside the 21st International Conference on Business Management (ICBM 2025), hosted by the Faculty of Management Studies and Commerce (FMSC).

This event demonstrates the commitment of our university to promoting a culture of research and innovation among its students. Undergraduate research plays a crucial role in shaping the next generation of scholars, business leaders, and change-makers. This platform not only allows students to showcase their dedication to academic inquiry but also highlights their potential as future innovators in the field of business management. The exchange of ideas, critical discussions, and knowledge-sharing that take place here will undoubtedly contribute to the advancement of business education and practice.

I take this opportunity to express my sincere appreciation to the Dean of the Faculty of Management Studies and Commerce, the Conference Co-Chairs, and the entire Organizing Committee for their tireless efforts in bringing this event to life. Their dedication has provided students with a valuable opportunity to present their research findings, engage with faculty members, and refine their academic and professional skills.

May this event inspire many more research contributions that will shape the future of business and management. I wish all participants a successful and enriching experience at the Undergraduate Research Day of ICBM 2025.

Senior Professor M. M. Pathmalal
Vice-Chancellor
University of Sri Jayewardenepura

MESSAGE FROM THE DEAN
Faculty of Management Studies and Commerce

I am delighted to extend my best wishes for the Undergraduate Research Day, held in conjunction with the 21st International Conference on Business Management (ICBM) 2025. As part of our ongoing efforts to foster a vibrant research culture within our faculty, we take pride in providing undergraduate students with the opportunity to engage in scholarly pursuits and share their research findings.

The Undergraduate Research Day holds significant importance as the main undergraduate research event of our faculty this year, running alongside the prestigious ICBM 2025. We are pleased that, as a faculty, we have extended this invaluable opportunity to our undergraduate students. For the students selected to present their papers at the Undergraduate Research Day, this marks a remarkable milestone in your academic journey. Congratulations on being chosen to represent our faculty in this capacity.

I extend my heartfelt gratitude to all research supervisors, research coordinators, and academic staff from various departments who have worked tirelessly to support these students in their research endeavors. To the participating students, I encourage you to make the most of this experience and aspire toward further academic pursuits, such as journal publications. May this event serve as a stepping stone toward developing an inquisitive and scholarly mindset as you advance in your academic journey.

Once again, congratulations to all selected participants, and my best wishes for your continued success.

Prof. Dushan Jayawickrama
Dean, Faculty of Management Studies and Commerce
University of Sri Jayewardenepura

MESSAGE FROM THE CO-CHAIRS
International Conference on Business Management - ICBM 2025

We extend our warmest greetings to all the undergraduate researchers from the twelve academic departments of the Faculty of Management Studies and Commerce who are presenting their work at the Undergraduate Research Day in 2025. This event provides a valuable opportunity for our undergraduates to share their research ideas and findings with a broader audience, helping to foster a vibrant research culture within our university.

We would like to express our sincere gratitude to Dr. Mangala Fonseka, Retired Senior Professor and KPMG Endowed Professor in the Department of Accounting, for his insightful keynote address, as well as for his continuous support and guidance. Special gratitude is also extended to the Dean of the Faculty of Management Studies and Commerce for his direction and assistance in making this event a success.

We look forward to seeing the continued growth of research and innovation within our academic community and wish all the participants the very best in their academic endeavours.

Dr. Neelangie Nanayakkara and **Dr. Gayani Samarakoon**
Co-Chairs, International Conference on Business Management (ICBM) - 2025
Faculty of Management Studies and Commerce,
University of Sri Jayewardenepura.

MESSAGE FROM THE HEAD
Department of Business Economics

It is with great pleasure that I extend this congratulatory message to the proceedings of the 6th Annual Conference on Business Economics (ACBE) 2025, organized by the Research Center for Business Economics and Development Studies of the Department of Business Economics, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura.

The conference aims to foster a strong research culture among the department's undergraduates while providing them with valuable publishing opportunities and disseminating knowledge to a wider community. At a time when economies face increasing complexities and uncertainties, the role of well-educated economists in formulating and implementing sound policies has never been more crucial. Therefore, I strongly believe that this conference provides a vital platform for young researchers to contribute to the ever-evolving field of business economics.

More than just a research event, ACBE also helps build connections between students, academics, industry professionals, and policymakers. The exchange of ideas at this conference is valuable not only for academic learning but also for shaping better economic policies.

Despite the challenges we face today, our students have remained committed to research, and this conference is evidence to their dedication, along with the guidance and support of their academic supervisors. I extend my best wishes to the authors, paper presenters, and all other contributors to the conference. My sincere appreciation also goes to the Organizing Committee of ACBE 2025 for their dedication and hard work in making this event a success.

Dr. P.J.S. Fernando
Head, Department of Business Economics
Faculty of Management Studies and Commerce
University of Sri Jayewardenepura, Sri Lanka

MESSAGE FROM THE CONFERENCE CHAIR

It is with great pleasure that I welcome you to the 6th Annual Conference on Business Economics (ACBE) 2025, proudly organized by the Department of Business Economics in collaboration with the 21st International Conference on Business Management (ICBM), Faculty of Management Studies and Commerce. Over the years, our department has remained committed to fostering a strong research culture and building meaningful collaborations with industry partners, contributing to the advancement of business economics education in Sri Lanka.

A key highlight of ACBE 2025 is the opportunity it provides for undergraduate students to present their research work, allowing them to engage in academic discussions alongside experienced researchers, industry professionals, and policymakers. This initiative not only nurtures young scholars but also strengthens the link between academic inquiry and real-world economic challenges.

Beyond academic discourse, this conference serves as a platform to facilitate knowledge exchange and collaboration between academia, industry, and policymakers. In today's rapidly evolving economic landscape, evidence-based research is more critical than ever in shaping effective policies and sustainable economic strategies.

As both the Conference Chair and Editor, I am honored to witness the dedication and tireless efforts of our organizing committee, whose commitment has been instrumental in bringing this event to fruition. I am confident that the research contributions and discussions at ACBE 2025 will provide valuable insights and inspire meaningful progress in the field of business economics.

I extend my heartfelt best wishes to all authors, paper presenters, and contributors participating in this conference. May your academic pursuits continue to drive innovation and impact.

Ms. Amanda Perera
Conference Chair
6th Annual Conference on Business Economics (ACBE) 2025
Department of Business Economics
Faculty of Management Studies and Commerce
University of Sri Jayewardenepura

KEYNOTE SPEECH

Undergraduate Research: What's next?

By

Dr. Mangala Fonseka

Retired Senior Professor and KPMG Endowed Professor in the Department of Accounting

Faculty of Management Studies and Commerce

University of Sri Jayewardenepura

Sri Lanka

TABLE OF CONTENT

Exploring Green Skills and Circular Economy Strategies in the Emerging Green Job Market: Insight from the Tourist Hotel in Sri Lanka

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ABSTRACT

This research examines the relationship between circular economy (CE) strategies, green skills, and the generation of green jobs within Sri Lanka's tourism and hospitality industry. In response to escalating environmental concerns and the global push for sustainability, the study examines the role of 4R-based sustainability practice Reduce, Reuse, Recycle, and Redesign in creating green employment opportunities. Using Negative Binomial Model, explores the relationships of CE practices, financial support mechanisms, environmental awareness, government policies, and demographic characteristics of hotels on green job creation in tourism sector of Sri Lanka.

The study highlights that circular economy practices such as recycling and redesigning play a crucial role in driving green job creation, while resource efficiency measures like reducing material or water consumption have a limited direct impact on employment growth. Public financing is identified as a key enabler of green employment, reinforcing the need for institutional support to expand sustainable initiatives. Additionally, environmental awareness influences job creation in varying degrees, where higher levels lead to significant employment growth, while moderate awareness has minimal impact. This underscores the importance of structured education and training programs to translate awareness into actionable skills that support green employment.

Hotel demographics also shape sustainability effects, with larger and newer establishments more likely to implement eco-friendly practices and create green jobs. Government policies act as substantial moderators, with their effectiveness modifying across different backgrounds. Compliance with certification standards and adherence to eco-friendly benchmarks further drive green employment, highlighting the need for incentivized sustainability programs. These findings offer valuable insights for policymakers, industry leaders, and educators, advocating for increased public funding, improved regulatory frameworks, and stronger public-private partnerships to boost sustainability and expand green job opportunities within Sri Lanka's hospitality sector.

***Keywords**: Circular Economy, Green Jobs, 4Rs Approach, Reduce, Reuse, Recycle, Redesign*

Impact of Digital Payment Systems on Financial Inclusion in Sri Lanka

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ABSTRACT

The process of assuring vulnerable groups, such as lower income and weaker sections, ability to access affordable financial services and sufficient credit when needed is known as financial inclusion. Due to advancement of the technology, many transactions in the financial sector are done through modern methods such as digital payment systems rather than traditional methods. Hence, this study mainly investigates the impact of digital payment systems on financial inclusion in Sri Lanka. Sub objectives are identifying the impact of social and cultural factors to the usage of digital payment systems and financial inclusion in Sri Lanka, identifying the impact of socioeconomic status to the financial inclusion in Sri Lanka and identifying the impact of urban-rural divide to the financial inclusion in Sri Lanka. In this study, financial inclusion was used as dependent variable. Mobile banking, internet banking, ATM, mobile wallet, credit card and debit card were used as independent variables. Also, mediating variable was social and cultural factors. Socioeconomic status and urban-rural divide were used as moderating variables. Primary data was collected using a questionnaire to accomplish the objectives of this study from a total sample of 180 individuals, 60 individuals from each district of Colombo, Matara and Monaragala. Random sampling was used to select the sample. Multiple regression model is used for data analysis and data were analyzed by entering data into the IBM SPSS Statistics version 27. According to the results of this study, mobile banking, ATM have significant positive impact and social and cultural factors and urban-rural divide have significant negative impact on financial inclusion with the intervention of the mediating and moderating variables in Colombo district. Internet banking and credit card have significant positive impact on financial inclusion with the intervention of the mediating and moderating variables in Matara district. Also, mobile banking, ATM have significant positive impact and mobile wallet has a significant negative impact on financial inclusion with the intervention of the mediating and moderating variables in Monaragala district. Mobile banking, internet banking, ATM and socioeconomic status have significant positive impact on financial inclusion with the intervention of the mediating and moderating variables in all three districts as a whole. This study provides the recommendations to enhance the use of digital payment systems and suggestions for future research.

Keywords*: ATM, Credit Card, Debit Card, Financial Inclusion, Internet Banking, Mobile Banking, Mobile Wallet, Social and Cultural Factors, Socioeconomic Status, Urban-Rural Divide*

Nexus Between Central Bank Independence and Monetary Stability: The Case of Sri Lanka

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ABSTRACT

Central bank independence is widely recognized as a crucial determinant of effective monetary policy. A key objective of monetary policy is to maintain price stability. Sri Lanka's severe economic crisis in 2022 intensified scrutiny of the Central Bank of Sri Lanka (CBSL), with concerns raised about undue political influence. To mitigate the risk of future crises, critics and the International Monetary Fund (IMF) emphasized the need to enhance CBSL's autonomy by shielding it from fiscal and political pressures. In response, Parliament enacted the new Central Bank of Sri Lanka Act No. 16 of 2023. Therefore, the purpose of this study is to empirically examine the causality between central bank independence and monetary stability in Sri Lanka over the data period from 1964 to 2020. In this framework, indices or variables are the exchange rate stability index (ERS) in 1964–2020, the monetary independence index (MI) in 1964–2020, taken from the "trilemma indexes", and the consumer price index (CPI) in 1964–2020, and the broad money supply (M2) in 1964–2020. The analysis revealed a unidirectional causal relationship from MI to CPI, suggesting that changes in monetary independence significantly influence future inflation. Similarly, a unidirectional causal relationship was found from LogM2 to CPI, supporting the notion that money supply growth can drive inflation. Bidirectional causality was observed between LogM2 and ERS, indicating that past values of both variables can predict future values of the other. Furthermore, to delve deeper into the impact of the new legislation on central bank independence, the study utilized the Central Bank Independence-Extended (CBIE) index developed by Romelli (2022). The CBIE analysis revealed a significant increase in the CBSL's independence score, from 0.52 to 0.83, following the transition from the previous Monetary Law Act to the new Central Bank of Sri Lanka Act.

Keywords: *Central Bank Independence, Monetary Stability, Granger Causality, Central Bank Independence-Extended Index*

Impact of Political Stability on Foreign Direct Investment in Selected South Asian Countries

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ABSTRACT

The political stability has emerged as a pivotal factor in attracting foreign direct investment (FDI), especially within the emerging economies of South Asia. The main objective of this research paper is to dedicate to the impact of political stability on Foreign Direct Investment (FDI) inflows in three selected South Asian countries (Sri Lanka, Pakistan and Bangladesh) through quantitative research design and deductive approach for the period of 2000-2022. This study uses the multiple regression models represented by the Autoregressive Distributed Lag (ARDL) model is used to capture both short-run and long-run dynamics and is appropriate in the presence of mixed orders of integration. Foreign direct investment is taken as dependent variable and political stability as independent variable including key control variables such as control of corruption, trade openness, inflation and government expenditure. The regression result based on ARDL revealed that political stability has positive impact on FDI inflow in selected South Asian countries and the rest of control variables such as control of corruption, trade openness and inflation are also significant with negative and positive relationships in turn, but government expenditures are not even marginally significant. It is suggested by the result of the study that selected South Asian countries are supposed to increase the level of political stability for attracting more FDI inflows through establishing appropriate policies and mechanisms.

***Keywords**: ARDL, Corruption, Economic Growth, FDI, Political Stability, Trade Openness*

The Impact of Urbanization on Economic Growth: An Empirical Study on South Asian Countries

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ABSTRACT

This study examines the impact urbanization on economic growth in South Asia, emphasizing the role of urban population share, population density, and demographic factors in shaping development outcomes. South Asia is an ideal context for an investigation into how these dynamics take place within countries that represent different levels of both urbanization and economic development, with its geographical boundary encompassing Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka exhibiting varying degrees of urbanization and economic advancement. The study covers the data from 1990 to 2020, using a robust sample of 248 observations drawn from these countries. Secondary data were sourced from the World Development Indicators developed by the World Bank to assure consistency and comparability in such analysis. The findings indicate a positive relationship between urbanization and economic growth, supporting the view that urban expansion fosters industrial agglomeration, economies of scale, and market connectivity. Population density emerges as a significant factor driving economic activity, highlighting the role of agglomeration economies in enhancing efficiency and innovation. However, gross capital formation is found to be statistically insignificant, suggesting inefficiencies in capital investments due to weak institutional support and lack of complementary factors such as skilled labor. While age distribution does not exhibit a direct impact on economic growth, the study underscores the necessity of well-planned urban development and improved governance to maximize the benefits of urbanization. These results contribute to the existing literature by offering empirical insights into the economic implications of urbanization in South Asia, a region undergoing rapid demographic and spatial transformations. The study underscores the need for strategic urban planning, investment in human capital and governance reforms to harness urbanization's potential for sustainable economic growth. Future research should be considered the environmental and social cost of urbanization to provide a more comprehensive perspective on its long-term effects.

Keywords*: Urbanization, Economic Growth, Population Density, South Asia, Urban Planning, Governance*

Influencing Factors for a Positive Learning Environment in Emerging Online Learning Platforms: Perspective of Management Undergraduates in Sri Lanka

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ABSTRACT

The study explored influencing factors for a Positive Learning Environment in emerging online learning platforms from the perspective of Management undergraduates. In present, Sri Lankan Educational system transformed to online learning platforms (Haththotuwa & Rupasinghe, 2021) Especially undergraduates increasingly adopt online platforms to acquire different qualifications, manage time, resources and due to positive perspectives but still some factors hinder positive learning environment (Hurulle, 2022). The study addresses the question of what are the factors that influence a positive learning environment in an emerging online learning platform. One study mentioned a requirement of further research on learner contribution in creating a positive learning environment (Nolan-Grant, 2019). Research objective is to identify influencing factors in a positive learning environment in an emerging online learning platform. The study followed Qualitative Research under Interpretivism Research Philosophy, as supported by similar research for Canadian University (Rusticus et al., 2023). Data was collected using face-to-face Interviews, online platforms, voice records 30-45 minutes. The sample of twenty-four undergraduates with distinctive characteristics were selected by the population of Undergraduates from the faculty of Management Studies and Commerce at University of Sri Jayewardenepura using Convenience Sampling. The study implemented Thematic Analysis hence its suitability in analyzing lived experiences and perspectives of individuals (Braun & Clarke, 2023) along with Member Checking Technique to validate data. The study identified two main themes, such as Positive Factors that Help to Create and Negative Factors that lead to Damage a Positive Learning Environment along with sub-themes and secondary sub-themes. Under positive factors, there are some sub themes such as, Breaking Barriers for Tech-Driven Learning, Backbone of Learning pointing out the importance of proper learning materials, Empowering Self-Directed Learning, Isolation as a Facilitator, Nurturing Positive Relationships in Virtual Learning Spaces with Positive Interactions, Positive Guiding Hands referring to proper monitoring, supervision mechanisms. Under negative factors there are five sub themes, Poorly Created Resources Can Diminish Learning Experiences highlighting inappropriate leaning materials, Barriers to Technology and Connectivity, Negativity can be Created Through Self-Directed Learning, Isolation as a Burden in Creating a Positive Learning Environment, Less Interpersonal Relationships as a Roadblock to Learning Process with Less Interactions and Inconsistent Feedback and Low engagement as secondary sub themes. Isolation and Self-Directed Learning have both supportive and damaging effects. However, some suggested a hybrid learning approach, combining physical and online learning.

***Keywords**: Hybrid Learning Approach, Interpretivism Research Philosophy, Positive Learning Environment, Qualitative Research, Thematic Analysis, Tech-driven Learning*

Impact of Board Gender Diversity on Carbon Emission Disclosure: Empirical Evidence from Environmentally Sensitive Listed Firms in Sri Lanka

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ABSTRACT

This study investigated the influence of board gender diversity on carbon emission disclosure in environmentally sensitive listed Sri Lankan firms. The primary objective was to determine whether the proportion of female directors contributed significantly to transparent environmental reporting practices in an emerging economy. Additional control variables included examining the roles of background changes by return on assets, return on equity, and leverage in shaping carbon emission disclosure. A quantitative methodology was adopted through panel data from corporate annual and sustainability reports. Panel data regression was utilized within the research to model the relationship between board gender diversity and carbon emission disclosure. The method allowed comparison through time and allowed more completeness in ascertaining the relationship between board gender diversity and disclosure levels. The theoretical scope concentrated on stakeholder and resource dependence theories, focusing on how varying board structures influence strategic decision-making. Findings indicated that board gender diversity exhibited a statistically significant positive effect on carbon emission disclosure. Firms demonstrating higher proportions of female directors tended to report more extensively on carbon emissions, whereas financial performance indicators and leverage presented insignificant relationships. These findings underscored the importance of inclusive board compositions in promoting environmental responsibility. The research holds theoretical, social, and practical value by demonstrating that gender-diverse leadership contributes to improved sustainability reporting. Outcomes may shape policy guidelines related to corporate governance, promote enhanced social responsibility, and inform investor decision-making. A shift toward transparent environmental communication could benefit broader development goals, potentially affecting public attitudes and quality of life. Limitations included variations in reporting quality and the reliance on data from publicly available sources. To extend these insights, future investigations could explore sector-specific trends, non-financial factors, and cross-country comparisons.

Keywords: *Board Gender Diversity, Carbon Emission Disclosure, Corporate Governance*, *Sri Lanka*

Impact of Blue Economy Factors on Economic Growth in Developing Countries: Evidence from Sri Lanka

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ABSTRACT

The Blue Economy refers to the sustainable usage of marine and other water resources for employment, economic development, and social and cultural development, focusing on preserving and restoring the marine environment, including internal and external water sources. Developing countries such as Sri Lanka do not primarily focus on protecting, promoting, and achieving economic growth through the Blue Economy. These countries lack sufficient infrastructure, modern technology, and an appropriate skilled workforce to develop their Blue Economy, and researchers also pay limited attention to the development of the Blue Economy. Furthermore, none of the existing literature clearly identifies the factors that have the greatest impact on the national economy or the level of risk associated with these Blue Economy factors in Sri Lanka. Therefore, this study aimed to assess how Blue Economy factors influenced Sri Lanka's economic growth from 1962 to 2023. The methodology outlines the procedures and techniques used to investigate the impact of Blue Economy factors on the economic growth of Sri Lanka. This research adopts a quantitative approach, utilizing multiple regression analysis and the Vector Auto-Regression Model (VAR) to test the relationship between various Blue Economy factors, including total fish production, hydropower electricity production, import of fuel, export of tea, export of agricultural products, export of merchandise products, import of merchandise products, and the number of tourists arriving from marine vessels. Key findings reveal that hydropower production, tea exports via shipping, merchandise exports, and tourist arrivals by marine vessels positively impact economic growth. Conversely, overall fish production, fuel imports via ocean routes, and merchandise imports negatively affect economic growth in Sri Lanka. Among these, only hydropower generation and maritime tourism showed statistically significant effects on economic growth in Sri Lanka from 1962 to 2023. Finally, the researcher concluded that hydropower and maritime tourism significantly drive Sri Lanka’s economic growth, while inefficiencies in fisheries and imports hinder sustainable development in Blue Economy.

Keywords: *Blue Economy, Economic Development, Fishery Sector, Hydropower Electricity Sector, Marine Transportation Sector, Tourism Sector*

Factors Affecting the Intention to Adopt E-wallet in Sri Lanka: Analysing Based on UTAUT Model

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ABSTRACT

With the rapid development of technology, cashless payments have gained huge popularity among customers. E-wallets, as a Fintech product, facilitate customers in performing mobile banking, mobile payments, and mobile trading more conveniently. Although many e-wallets have entered the market, they have failed to entice customers to adopt digital transactions in Sri Lanka. Therefore, this study aims to explore the factors affecting the intention to adopt e-wallet in Sri Lanka by extending the unified theory of acceptance and use of technology (UTAUT) with the addition of two constructs: Perceived Regulatory Support (PRS) and Hedonic Motivation (HM). The population of the study comprises residents of the Western Province in Sri Lanka aged 18 years or older who do not currently use e-wallets. Additionally, they should meet two preconditions. First, the respondents had to have an internet-enabled smartphone or any device and, second, they had to have a bank account. The researcher assumed the population to be approximately 4.62 million residents. This quantitative study collected primary data through a questionnaire, with a sample of 226 non-users of e-wallets surveyed using convenience sampling. The data were analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique, and the analysis was conducted with SmartPLS 4.0 and SPSS Version 27. The key findings indicate that the model explains 69.9% of the variance in behavioral intention. Furthermore, performance expectancy has a strong positive and significant effect on the behavioral intention to use e-wallets. Additionally, effort expectancy and hedonic motivation also have a positive and significant effect on the behavioral intention to use e-wallets. However, the study does not provide evidence that facilitating conditions, perceived regulatory support, and social influence significantly affect the intention to use e-wallets. Although there have been limited studies conducted in Sri Lanka exploring the factors affecting the intention to adopt e-wallets, almost all of these studies have used the Technology Acceptance Model (TAM). Therefore, the expanded UTAUT framework with the proposed relationships in this study has not been adequately examined in previous research on e-wallets in Sri Lanka through empirical analysis. This study represents one of the first attempts to enhance the UTAUT by empirically analyzing these relationships. The findings of this paper would be useful for e-wallet service providers, mobile app writers and institutions involved in the facilitation and regulation of such services to develop suitable strategic frameworks to encourage the adoption of e-wallets.

***Keywords**: Behavioral Intention, E-wallet, Sri Lanka, Partial Least Squares Structural Equation Modeling, UTAUT*

The Impact of Fintech Adoption on the Performance of Commercial Banks of Sri Lanka

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ABSTRACT

Fintech is an emerging technology not only locally but also on a global scale. Fintech has garnered global attention since the 21st century, reaching its peak worldwide in 2014 and 2015. Today in Sri Lanka we can identify 144 fintech startups. The main objective of this study is to analyze the determinants of fintech adoption, and its effects on Sri Lankan bank performance. It serves as pivotal technology for developing new financial products and services tailored to meet current customer demands. Emerging FinTech businesses are posing a direct challenge to traditional banking models through peer-to-peer lending and with other FinTech products. With that many banks are now embracing fintech technologies in response to the increasing demand for innovative financial products and services. Previous studies on fintech and bank performance have indicated that there can be a positive, negative, or mixed relationship between fintech adoption and bank performance. This study focusses on 24 Sri Lankan commercial banks, collected from 2014 -2023, ensuring feasible data collection for the population. The data for this study was collected from annual reports of Sri Lanka commercial banks and CBSL payments bulletins covering the period of 2014 – 2023. The independent variables are the value of mobile payments and volume of mobile payments. Dependent variables are ROA, growth rate and capitalization Panel data analysis served to evaluate the research hypotheses. E Views software served as the platform for conducting analysis. The main finding of this research shows that the outcomes of the three models indicate a meaningful full regression from Probability (F Statistic) which is below 0.05. Value and volume of mobile payments were the main variables that captured FinTech adoption. The mean values suggested that these channels played an increasingly significant role in transaction activities. Results indicated that the value of mobile payments had a positive and statistically significant impact on ROA. Total assets presented a negative relationship with growth rate and capitalization. Indicating that larger institutions may face unique challenges in attaining proportional expansion and sustaining higher capital levels. Additionally, the impact of COVID-19 is another significant event that occurred in recent years. The pandemic led to a substantial increase in internet-based transactions and altered consumer behavior in Sri Lanka. As a result, it becomes challenging to isolate the sole impact of fintech adoption on bank performance.

***Keywords**: Bank Growth, Bank Performance, Commercial Banks, FinTech, Sri Lanka*

Can Agricultural Exports Boost Foreign Exchange Reserves? An Instrumental Variable Approach

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ABSTRACT

Foreign exchange reserves have become a crucial *indicator* of a country's economic health. At the same time, agricultural exports represent a significant portion of the national output of many economies. In this context, this study examines the causal effect of agricultural exports on foreign exchange reserves, addressing potential endogeneity issues arising from simultaneity, reverse causality, omitted variables, and measurement errors. Additionally, it explores whether this effect varies by income level, considering three groups: all income groups, low and lower-middle-income countries, and upper-middle and high-income countries. Despite limited research in this area, apart from a few country-specific studies, this study contributes to the literature by conducting a cross-country analysis at global level. To address endogeneity concerns, an instrumental variable strategy is employed using the two-stage least squares (2SLS) technique, with changes in precipitation serving as the instrument. A panel regression model is estimated for 197 countries over 22 time periods from 1961 to 2022. The first-stage regression confirms the relevance and validity as a strong instrument. In the second stage, agricultural exports show a positive and statistically significant impact on foreign exchange reserves across all income groups. Similar effects are observed in the income-based subgroups, with slight variations in coefficient magnitudes. These findings suggest that promoting agricultural exports, such as through diversification, can help strengthen foreign exchange reserves, regardless of a country's development level.

Keywords: *Agricultural Exports, Changes in Precipitation, Foreign Exchange Reserves, Instrumental Variable, Panel Regression, Two-stage Least Squares Regression*

The Impact of Religiosity on Financial Development: An Instrumental Variable Approach

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ABSTRACT

The causal effect between religiosity and financial development remains largely unexplored, except for a few studies that examine the association between these two variables. Therefore, this study aims to investigate the causal effect of religiosity on financial development at national level, employing an instrumental variable strategy using the two-stage least squares (2SLS) technique to mitigate potential endogeneity issues. The analysis is based on a panel dataset covering 61 countries from 1961 to 2022 depending on the data availability. Financial development, the outcome variable, is measured using the Financial Development Index developed by the International Monetary Fund, and religiosity, the treatment variable, is measured using data from the World Values Survey. The religiosity index is constructed based on three aspects: the frequency of attending religious services, self-identification as a religious person, and the perceived importance of God in individuals' lives. The study uses expenditure on recreation, culture, and religion—retrieved from the World Bank—as an instrumental variable. Additionally, to address potential omitted variable bias, ten control variables are included in the models. The validity of the results is ensured by verifying the instrument relevance condition and demonstrating that the instrument is not weak. The findings indicate a significant negative effect of religiosity on financial development, suggesting that lower levels of religiosity are associated with higher levels of financial development. This result is plausible, as financial flows may be affected by factors such as risk aversion, restrictions on interest-based transactions, and charitable giving, which are linked to religiosity, as well as negative perceptions of wealth creation in certain religious traditions. Previous studies also suggest an inverse relationship between religiosity and financial development. Further research is needed to explore the specific mechanisms through which religiosity influences financial development.

Keywords: *Financial Development, Instrumental Variable, Panel Regression, Religiosity, Two-stage Least Squares Technique*

The Impact of Debt Restructuring on Economic Growth

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ABSTRACT

This study explores the economic implications of sovereign debt restructuring across six nations: Argentina, Ukraine, Cyprus, Greece, Jamaica, and Sri Lanka. Sovereign debt restructuring has become an essential instrument for addressing unsustainable debt burdens; however, its outcomes are highly context-specific, influenced by the chosen strategies and prevailing macroeconomic conditions. This research employs quarterly data corresponding to the periods during which each country restructured its debt. The selection process uses purposive sampling method, emphasizing countries that recently experienced restructuring, i.e., after 2004, and possess adequate data availability nations. The sample includes both developed and emerging economies, allowing for a more diverse examination of the effects of restructuring. Ordinary Least Squares (OLS) regression is used to estimate the short-run impact of debt restructuring on GDP growth, including key economic indicators such as inflation, unemployment, interest rates, government expenditure, trade balance and exchange rates. Although sovereign debt restructuring has emerged as a crucial tool for dealing with unmanageable debt burdens, its results vary greatly depending on the unique circumstances and macroeconomic environment.

The results indicate that debt restructuring and economic recovery frequently have a positive correlation. The potential of well-executed restructuring programs is demonstrated by the statistically significant GDP increase that has been observed in Argentina, Ukraine, and Sri Lanka after restructuring. On the other hand, the Jamaican scenario emphasizes a less desirable result, highlighting the complex connection between restructuring and macroeconomic performance. Additionally, it is determined that maintaining post-restructuring growth requires complementing macroeconomic measures, such as fiscal discipline, unemployment reduction, and inflation control. The recent restructuring of Sri Lanka emphasizes the significance of robust fiscal reforms and open creditor negotiations. A prolonged recovery requires tackling inflationary pressures, exchange rate volatility, and unemployment, even in the face of favorable initial effects like improved GDP growth. By analyzing various macroeconomic situations and using quarterly data to capture short-term economic dynamics, this study adds to the body of current material. It does, however, recognize several drawbacks, such as the use of secondary data, the emphasis on immediate effects, and the omission of institutional issues. According to the study's findings, restructuring sovereign debt may encourage economic recovery when combined with strong policy frameworks. Policymakers can gain knowledge about how to create plans that strike a balance between economic expansion and budgetary sustainability while building confidence with both local and foreign stakeholders.

Keywords: *Sovereign Debt, Debt Restructuring, Economic Recovery, GDP Growth, Macroeconomic Indicators*

A Study on Factors Affecting Informal Financing Decisions of Small and Medium Enterprises: Evidence from Sri Lanka

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ABSTRACT

The aim of this research was an investigation into the critical determinants of informal financing decisions by small and medium enterprises of Sri Lanka, based on five binding determinants lack of credit history, collateral requirements, financial literacy, speed of loan approval, and individual social capital. SMEs are a major contributor to the Sri Lankan economy but suffer excessively from acute access to formal financial resources due to stern documentation, credit history requirements, and collateral conditions. This often forces the SMEs to reach out for informal sources of finance, because of their easy access, however they are risky due to high interest rates and lack of regulation. A quantitative research design, using a structured questionnaire, was adopted for collecting the primary data from 100 SMEs in the Colombo district. Purposive sampling technique was utilized to select the sample. Structural Equation Modeling (SEM) was employed for investigating the role of independent variables on informal financing decisions and data were analyzed using SmartPLS 4.1.0.9 software.

Findings of the study revealed that a lack of credit history and collateral requirements are significant deterrent that force SMEs toward informal sources of finance. Further it turned out that Financial literacy exhibits a negligible negative relationship suggesting minimal impact on informal financing sources. Also, it revealed that the speed of loan approval shows an almost negligible positive contribution. On the other hand, individual social capital, characterized by networks and trust, has a moderate positive influence, underscoring its importance in accessing informal finance. These results highlight the varying degrees of influence of these factors on the financing decisions of SMEs in the study setting. The study further enumerates a number of policy interventions required for these challenges. It also includes suggestions such as developing other alternative mechanisms of credit scoring, simplification of the procedure for loan approvals, and enhancement of financial literacy programs designed specifically for SME owners. Further, it calls for increased social capital incorporation within the formal systems of credit by group lending programs and community-based microfinance programs. These measures may help bridge the gap between informal and formal financing and, in return, improve financial inclusions for the long-term sustainability of SMEs in Sri Lanka.

***Keywords**: Collateral Requirements, Credit History, Financial Inclusion, Financial Literacy, Informal Financing, SMEs, Social Capital, Speed of Loan Approval, Sri Lanka*

Investigating Association between Commuting Behaviour and Employee Productivity: Evidence from Banking Sector in Colombo District, Sri Lanka

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ABSTRACT

Employee productivity is a vital factor in achieving economic growth in every country. Although many studies have been conducted relating to factors affecting to employee productivity, limited focus was given to the influence of commuting behaviour on employee productivity. Accordingly, the purpose of this study is to examine the association between commuting behaviour and employee productivity in banking sector in Colombo district, Sri Lanka. The study explored the commuting behaviour by means of the commuting mode, commuting time, commuting distance and these were the independent variables of the study. Employee productivity was measured through job performance and job absenteeism where these were the dependent variables. Commuting satisfaction and personal health were the mediators of the study. The research employed a quantitative methodology, with data collected through a structured questionnaire distributed to a sample of 100 respondents through an online platform. Structural Equation Model (SEM) was used to test the developed hypotheses and data were analysed by SmartPLS version 4.1.0.9 software. The findings revealed that there is a statistically significant relationship between commuting behaviour and employee productivity through the mediating effects of commuting satisfaction. Specifically, commuting time and commuting distance were negatively associated with job performance and positively associated with job absenteeism. Employees who commute by public transportation indicated high job absenteeism and low job performance while private commuting mode users indicated low levels of job absenteeism and higher levels of job performance. Consequently, employers can increase employee productivity by increasing commuting satisfaction of employees through offering company provided buses or transport allowances. And allowing flexible work options, such as working from home, hybrid schedules, or adjusting work hours. Policymakers can use the findings of the study to focus on the development of the transportation infrastructure to enhance the commuting conditions.

***Keywords**: Commuting Behaviour, Commuting Satisfaction, Employee Productivity, Job Absenteeism, Job Performance, Personal Health*

Impact of Worker Remittances and their Volatility on the Real Exchange Rate: Evidence from South Asia

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ABSTRACT

The study investigates the impact of worker remittance and its volatility on the real exchange rate in South Asia using annual data from 1990 to 2023. Employing a Panel Autoregressive Distributed Lag (ARDL) model, the research captures both short-run and long-run relationships among the variables across four South Asian countries: India, Pakistan, Bangladesh, and Sri Lanka. The study utilized the real exchange rate (RER) as the dependent variable, while the explanatory variables include worker remittances (REM), remittance volatility (REMV), foreign direct investment (FDI), foreign reserves (FR), gross domestic product growth rate (GDPG), inflation (INF), terms of trade (TOT), trade openness (TOPN), official development assistance (ODA), and the real interest rate (RINR).

Robustness checks were conducted through various diagnostic tests, including assessments for multicollinearity, autocorrelation, heteroskedasticity, stationarity, cointegration, normality, and causality, ensuring the reliability of the findings. The cointegration analysis confirmed a long run relationship among the variables. The ARDL results confirm that worker remittance (REM) has a significant and positive effect on real exchange rate (RER) in the long run, suggesting that increasing remittance inflows lead to an appreciation of the real exchange rate. However, no significant short-run impact is observed. Conversely, remittance volatility (REMV) has a significant negative effect on the real exchange rate (RER) in the long run, implying that greater remittance volatility contributes to exchange rate depreciation, with no short-run impact. Additionally, the findings reveal that the real exchange rate is positively associated with inflation (INF), foreign direct investment (FDI), terms of trade (TOT), trade openness (TOPN), and the real interest rate (RINR), while it is negatively associated with GDP growth (GDPG), foreign reserves (FR), and official development assistance (ODA). Furthermore, the Granger causality test identifies a unidirectional causal relationship between remittance volatility (REMV) and the real exchange rate (RER).

These insights provide valuable insights for policymakers aiming to manage exchange rate fluctuations and enhance the remittance inflows within the South Asian region. The findings suggested that policymakers should develop favorable policies and efficient systems designed to attract remittances through formal channels. Additionally, they should work to reduce the transaction cost associated with remittance inflows to ensure a continuous and sustainable flow of worker remittances into their home countries.

Keywords: *ARDL, Granger Causality, Real Exchange Rate, Remittance, Remittance Volatility, South Asia, ARDL*

An Analysis of Factors Affecting Tea Exports in Sri Lanka

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ABSTRACT

Ceylon tea is a key global tea brand and a significant contributor to Sri Lanka's economy. However, tea exports have declined in recent years. This study analyzes the short- and long-run effects of factors influencing tea exports, focusing on the exchange rate, annual precipitation, and GDP growth rate, using the ARDL model on data from 2000 to 2023. Results show that GDP growth positively impacts tea exports, while exchange rate depreciation negatively affects tea exports. Precipitation influences exports in the short term but is insignificant in the long run. The findings underscore the need to address macroeconomic, environmental, and economic challenges to enhance tea exports in Sri Lanka.

Keywords*: ARDL Model, Climate Change, Economic Growth, Exchange Rate, Sri Lanka Tea Industry, Tea Exports*

1. Introduction

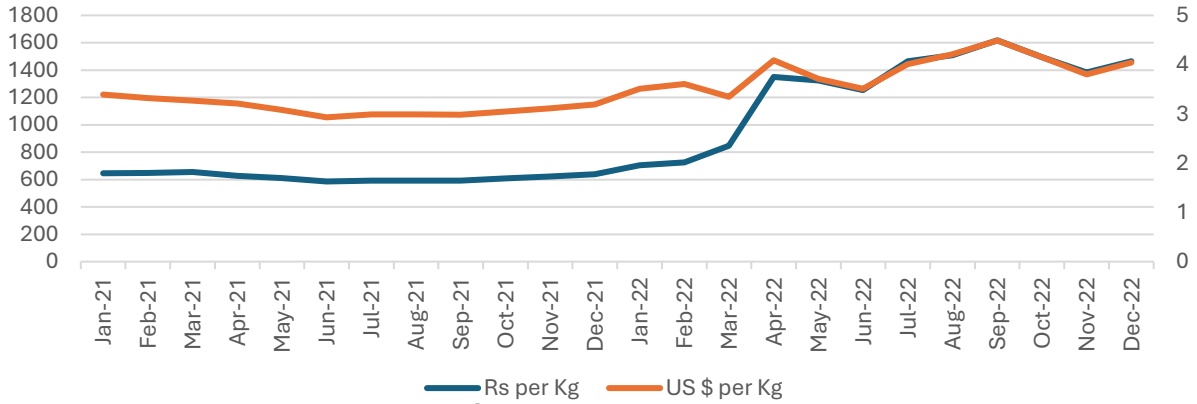
Background of Study

Ceylon tea is one of the major high-quality tea brands in the world tea market. Sri Lanka was the second-largest producer, accounting for 15.74% of global tea exports. Tea is a major agricultural export for Sri Lanka, making up more than 50% of the country's total agricultural exports. It also accounts for a significant portion of Sri Lanka's overall exports, ranging from 10% to 15%. However, recent trends indicate a decline in tea exports, indicating the need for an in-depth analysis of their underlying causes.

Research Problem

According to George et al. (2022), the Sri Lankan Economy is currently facing an economic and political crisis. According to them, the major causes of the crisis are ineffective economic policy decisions, depreciation of the Sri Lankan rupee, declining foreign reserves, an increase in the trade deficit, etc.

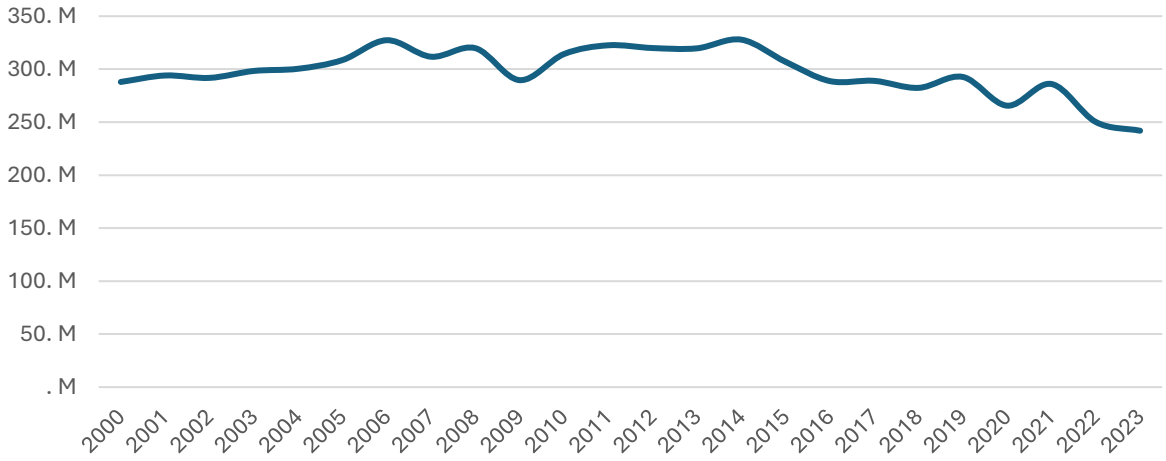
Figure 1: Monthly Tea Auction average prices in SL. Rs. & US $ per Kg



Source: Tea Exporters Association Sri Lanka, 2023.

Over the last two years, the exchange rate has drastically depreciated. With that, the earnings of the local tea manufacturers substantially increased. As shown in Figure 1, in January 2021, 1 kg of tea was sold at approximately Rs. 600 (3.5 USD), but by April 2022, the same quantity fetched around Rs. 1,300 (4 USD) (Tea Exporters Association Sri Lanka, 2023). While these increased earnings may suggest that the tea industry is performing well, the total quantity of tea exports has continued to decline, as shown in Figure 2.

Figure 2: Total Quantity of Tea Exports from 2000 to 2023



Source: Forbes & Walker Tea Brokers (Pvt) Ltd,2024.

As this decline has been happening for over a decade, many researchers try to identify the reasons behind this. Thushara (2015) explored its causes using a qualitative approach. The analysis identified key factors contributing to the downturn, including a lack of product differentiation, low productivity, high production costs, significant competition from substitutes, and poor vertical integration. Rupasinghe and Malkanthi (2023) try to explore the reasons behind this downtrend using a quantitative approach. For that, they investigate the relationship between exchange rate changes and tea export volumes. Their findings revealed a negative relationship between exchange rate volatility and tea export volume. However, the study did not examine how these different factors affect tea exports in short-run and long-run. These findings lead to the conclusion that tea exports are affected by a wide range of factors. Thus, the impact of these factors might change in the short run to the long run and those impacts are not properly examined. This led to a need for an in-depth analysis of how different factors influence tea exports in the short-run and long-run.

Research Objective

The current research aims to analyze how different factors (Such as exchange rates, precipitation, and GDP growth rate) affect tea exports in both short-run and long-run impacts by using the Autoregressive Distributed Lag (ARDL) model.

Research Questions

To achieve the objective of the research the following research questions were developed.

- What are the key factors influencing the exports of Sri Lanka's tea industry?
- How do those key factors impact tea exports in Sri Lanka in both the short run and the long run?

Summary of Literature Review

Theoretical Background - Agroclimatic Zoning Theory

The Agroclimatic Zoning theory classifies agricultural land into zones based on climate conditions, helping farmers and policymakers make informed decisions on crop selection and resource allocation (Food and Agriculture Organization of the United Nations, 1996). In Sri Lanka, tea is categorized into low-country, mid-country, and up-country types, based on elevation and climate, each producing different flavors. This theory is vital for understanding how climate and geography impact tea quality and productivity, as climate changes can threaten tea yields and flavor, as noted by Lou et al. (2021).

Empirical Literature

The empirical literature review focuses on exploring how the different researchers have identified the exchange rate, climate change, and the economic growth impact on tea exports.

Impact of Exchange Rate on Tea Exports

Rutto and Ondiek (2014) analyzed how exchange rate fluctuations affect Kenya's tea exports using time series analysis. Their findings revealed that exchange rate volatility negatively impacts tea exports, making exports less stable and predictable. Similarly, Opinya (2017) conducted a study using multiple regression analysis and confirmed that exchange rate volatility has a negative relationship with tea export volume in Kenya. However, Kabayiza et al. (2019) found contrasting results in Rwanda. Their study, which used monthly data from 2001 to 2016 and applied the GARCH model, showed that in the short run, exchange rate volatility negatively affected tea exports. However, in the long run, exchange rate fluctuations had a positive impact. This suggests that, over time, exporters may adapt to exchange rate changes, improving their trade strategies. For Sri Lanka, Rupasinghe and Malkanthi (2022) examined the relationship between exchange rate volatility and tea exports. Their study used multiple regression analysis, with tea export volume as the dependent variable and exchange rate volatility as the main independent variable. They also included tea prices, inflation rate, and tea production volume as control variables. Their findings showed a significant negative relationship between exchange rate volatility and tea export volume, indicating that unstable exchange rates make exporting more challenging. The inflation rate also had a notable impact on tea exports, whereas tea prices and production volume were not significant factors. However, one limitation of their study was that they did not differentiate between short-run and long-run effects, leaving room for further research. These studies highlight the complex role of exchange rates in tea exports. Most findings indicate a negative impact, though some suggest that long-term adaptations can mitigate these effects.

Impact of Climate Changes on Tea Exports

Climate change is a serious issue affecting tea production worldwide. Lou et al. (2021) found that in China, tea yields decline significantly during high temperatures and droughts, while periods of good rainfall lead to increased production. This shows that tea is highly sensitive to changing weather patterns. In Sri Lanka, Wijeratne (1996) highlighted the industry's vulnerability to climate change. His study found that droughts cause major losses since irrigation is rarely used in tea plantations. On the other hand, heavy rainfall leads to soil erosion and fertilizer runoff, further damaging tea crops. His findings predict that Sri Lanka will experience longer dry and wet seasons, worsening these climate-related challenges. Further research by Wijeratne et al. (2007) focused on how rising temperatures and reduced rainfall affect tea production. Their study found that a 1°C temperature increase can reduce tea yields by 10–15%, while a 100mm drop in monthly rainfall can lower crop yields by 30–80 kg per hectare, depending on the region. Based on these studies, it is clear that climate change has a direct impact on tea production. Since lower yields mean fewer exports, these effects could significantly impact Sri Lanka's tea industry and the overall economy.

Impact of Economic Growth on Tea Exports

Economic growth refers to the increase in a country's production of goods and services over time and can be measured through indicators such as GDP growth rate, per capita income, industrial output, and employment rates. In this study, the GDP growth rate is used due to its availability and relevance. Bhowmik et al. (2017) found that economic growth positively impacts tea exports in India. The study identified key reasons for this, including improved infrastructure, increased investment in key sectors, and greater macroeconomic stability, such as a more stable exchange rate, which supports the export industry.

Research Gap

The existing literature presents mixed findings on the impact of exchange rate fluctuations on tea exports, with some studies highlighting negative effects and others suggesting positive relationships, underscoring the need for further analysis. Additionally, while climate change has been studied in relation to tea production, its direct impact on Sri Lanka's tea exports remains underexplored. Similarly, there is limited research on the role of GDP growth in influencing tea exports, despite its potential effects on domestic production, demand, and trade strategies. This study aims to fill these gaps by providing a comprehensive analysis of the factors affecting Sri Lanka's tea exports. Furthermore, existing studies have not differentiated between short-run and long-run effects, making it crucial to assess how these variables influence exports over different time horizons.

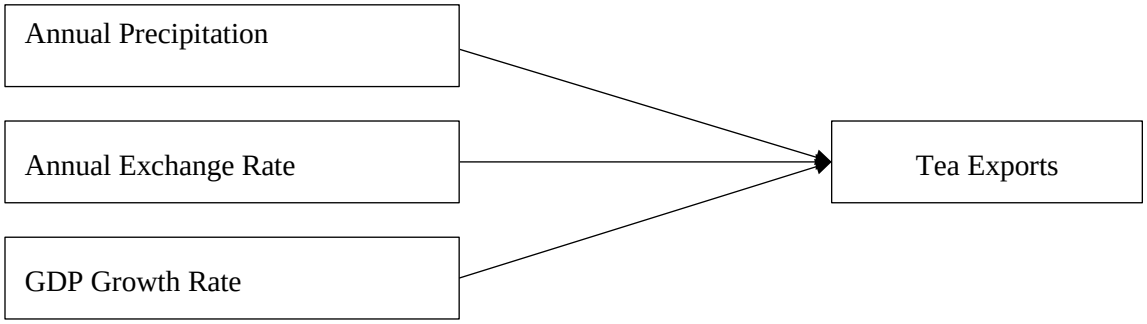
2. Methodology

This study uses a quantitative research approach to examine the factors influencing tea exports in Sri Lanka. The Autoregressive Distributed Lag (ARDL) model is employed as the primary analytical tool due to its suitability for capturing both short- and long-run relationships simultaneously, especially with small sample sizes. For conducting the analysis, annual data was collected from the year 2000 to 2023, which included 24 samples. The data was collected from

secondary data sources, including the Central Bank of Sri Lanka, the Sri Lanka Tea Board, and the World Bank's Climate Change Knowledge Portal.

Conceptual Framework

Figure 3: Proposed Conceptual Framework



Source: Based on the author's review of the literature.

The dependent variable is the Log of the Total Quantity of Tea Exported (LTQE), representing the logarithmic transformation of the total volume of tea exports (measured in kilograms). The data was obtained from the Sri Lanka Tea Board. The study incorporates three independent variables. The first is the Annual Exchange Rate (AER), which is defined as the annual average value of the Sri Lankan Rupee against the US Dollar. It is measured in terms of LKR/USD and obtained from the Central Bank of Sri Lanka. The second independent variable is the Log of Annual Precipitation (LAP), representing the logarithmic transformation of total annual rainfall recorded in Sri Lanka. Measured in the logarithmic scale of millimeters, this data is sourced from the World Bank Climate Change Knowledge Portal. The third independent variable is the GDP Growth Rate (GDPGRO), which represents the annual percentage change in Sri Lanka's Gross Domestic Product. This variable, measured as a percentage, is also obtained from the Central Bank of Sri Lanka.

With this, the model used for the analysis can be identified as follows:

$$LTQE = \beta 0 + \beta 1\ AER + \beta 2\ LAP + \beta 3\ GDPGRO + e$$

Where: $\beta 0$: Intercept, e: Residuals/Error Term

3. Result of the Data Analysis and Discussion

Before conducting the ARDL analysis, the stationarity of the dataset was tested using the Augmented Dickey-Fuller (ADF) test developed by Dickey and Fuller (1981). The results indicated that all variables were stationary at their first differences, allowing the ARDL model to proceed.

Table 1: Results of the ARDL Analysis

Variable	Coefficient	T-Statistic	Probability Value	Conclusion
Short Run Results				
LTQE(-1)	0.3751	2.8975	0.0096***	Significant
LAP	0.1055	1.8319	0.0836*	Not Significant
AER	-0.0004	-2.8519	0.0106**	Significant
GDPGRO	0.0072	3.0995	0.0062***	Significant
C	11.4426	4.3804	0.0004***	Significant
Long Run Results				
LAP	0.1689	1.6577	0.1147	Not Significant
AER	-0.0007	-2.9998	0.0077***	Significant
GDPGRO	0.0116	2.8066	0.0117**	Significant
C	18.3113	24.4677	0.0000***	Significant
Results of Error Correction Model				
CoinEq(-1)	-0.62	-8.0473	0.0000***	Significant

Source: Author's Calculation

*Note: The asterisks ***, **, and * denote significance at the 1 percent level, 5 percent level, and 10 percent level, respectively*

According to Table 1, The lagged total quantity exported (LTQE(-1)) is statistically significant at the 1% level with a positive coefficient, suggesting that tea exports in the previous year have a strong and positive impact on the current year's exports. Gilbert Kiprono (2019) found similar results to this in Kenya's coffee exports. The log of annual precipitation (LAP) is not significant at 5% but significant at 10% in the short run, with a positive coefficient. But its long-run impact is statistically insignificant. However, this contradicts most existing literature. Lou et al. (2021) found tea to be highly sensitive to climate change in China, while Wijeratne et al. (2007) noted that a 100mm rainfall reduction could lower tea yields in Sri Lanka. However, Que and Zhao (2024) explain that precipitation alone does not determine tea production, as factors like soil quality, nutrient availability, water management, and pruning practices also play a crucial role.

The annual exchange rate (AER) is the only independent variable that has a negative relationship with TQE in both the short run as well as the long run. This result is mostly aligned with existing literature. However, some researchers, like Kabayiza et al. (2019) in Rwanda, found that the exchange rate had a positive impact on tea exports. According to the literature, most researchers agree that the impact of the exchange rate on tea exports depends on the context of the analysis conducted and it may not be always either positive or negative. The GDP growth rate (GDPGRO) is significant in both the short and long run, with a positive impact on tea exports. Bhowmik et al. (2017) found that a higher GDP growth rate boosts tea exports in India. According to them, improving infrastructure, reducing transportation costs, will enhance tea production efficiency. Additionally, GDP growth increases foreign currency reserves, leading to better exchange rate stability and lower import costs.The coefficient of the cointegration equation (CoinEq(-1)) is significant at the 1% level and negative, indicating a strong error correction mechanism. This

suggests that deviations from the long-run equilibrium are corrected at a speed of 62% annually, confirming the model's stability.

Diagnostic Tests

Diagnostic tests, including heteroskedasticity tests, normality tests, Ramsey's RESET Test, Serial Correlation LM Test, and VIF, were conducted to verify the validity and reliability of the model. Stability tests, such as the CUSUM and CUSUMQ tests, confirmed that the model's coefficients remained stable throughout the sample period. The results of all tests indicate no issues with the model or the data, ensuring the accuracy of the analysis.

4. Conclusion

This study analyzed the factors influencing tea exports in Sri Lanka, focusing on the impacts of exchange rates, precipitation, and GDP growth rate on tea exports using the ARDL model. The findings reveal that the annual exchange rate (AER) has a negative and statistically significant impact on tea export volumes in both the short run and long run, highlighting how exchange rate depreciation raises production costs and reduces competitiveness. Annual precipitation (LAP) positively influences tea exports in the short run but shows no significant long-run effect, emphasizing the immediate importance of rainfall on production but limited influence over time. The GDP growth rate (GDPGRO) demonstrates a positive and significant impact on tea exports in both time horizons, reflecting the role of economic growth in supporting infrastructure and export capacity. These findings underscore the interplay of macroeconomic, environmental, and economic factors in shaping tea exports. Practical implications include the need for policies to address exchange rate volatility, enhance climate adaptation strategies, and support economic growth to ensure the global competitiveness and sustainability of Sri Lanka's tea industry.

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Investigate the effect of economic growth and renewable energy consumption on carbon dioxide emissions: Evidence from South Asia

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ABSTRACT

This study explores the reasons behind the higher level of CO_2 emissions in the South Asian region, which has been undergoing a rapid economic development process where the region has been showing an increasing trend in annual GDP growth. However, the problem lies in the region, which also showcases massive amounts of CO_2 emissions with a growing trend. As the South Asian region is categorised as a low-income country compromise with six lower-middle-income countries and one low-income country, the region is one of the most vulnerable regions to climate change and adverse weather conditions (World Bank Group, 2023). This study uses secondary data from the World Bank Data Bank to analyze the relationship between CO_2 emissions per capita and various macroeconomic factors in seven South Asian countries from 1995 to 2020. The independent variables include GDP per capita, renewable energy consumption, FDI inflows, urban population, and tourism arrivals, analyzed using Stata statistical software. The study aims to explore the factors affecting CO_2 emissions and to assess the validity of the Environmental Kuznets Curve (EKC) hypothesis. Results indicate that the EKC hypothesis is valid, demonstrating an inverted U-shaped relationship between economic growth and CO_2 emissions. Additionally, there is a negative relationship between CO_2 emissions and renewable energy consumption, a positive relationship with urbanization, and a negative relationship with tourism. FDI was not found to significantly influence CO_2 emissions. Implementing precautionary measures to combat high CO_2 emission levels is essential, as it is an ethical responsibility to protect the environment.

***Keywords**: Carbon dioxide emissions, Economic growth, Environment Kuznets Curve Hypothesis, Renewable energy, Tourism, Urbanization*

1. Introduction

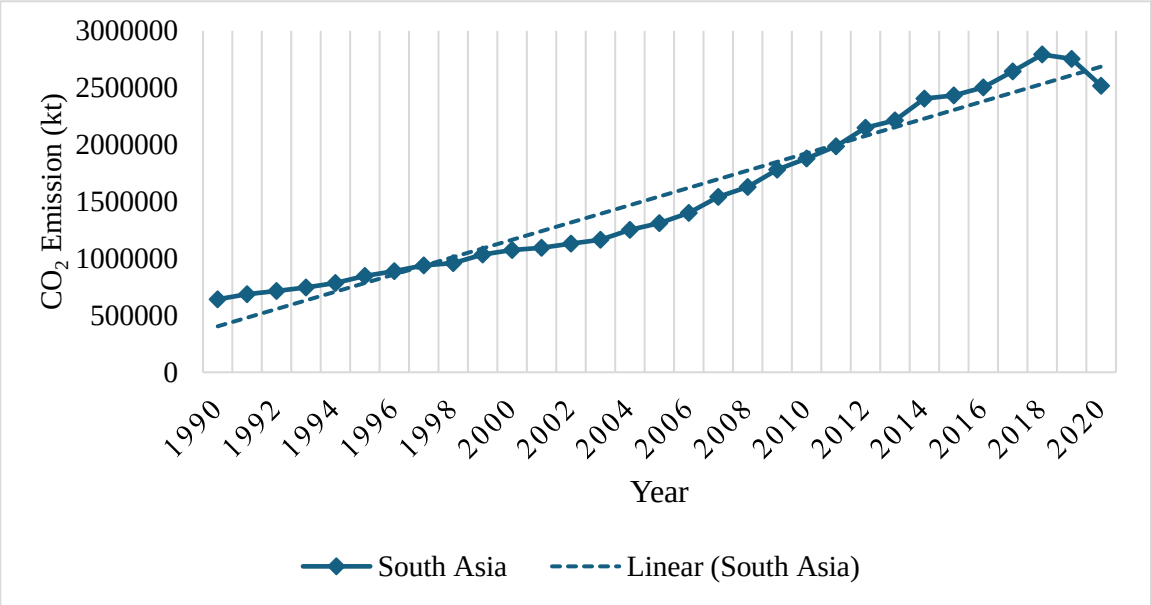
This study expects to address the increasing CO_2 emissions in South Asian countries as the region is exhibiting a boom in economic growth despite some efforts that advocated to mitigate the environmental harm caused by economic activities (Amin et al., 2020). Even though the South Asian region is on track to achieve rapid economic growth when considering the economic growth (GDP Growth annual %) of the South Asian region, the South Asian region has had the highest GDP annual growth rates for many consecutive years historically even with some fluctuations. Even the 2019 – 2020 period recorded the lowest GDP annual growth rates mainly due to the Covid-19 pandemic, the region recovered quickly in 2021 by recording 8.25% economic growth and 6.49% in 2022. Hence, as a region that is showing continuous and rapid economic growth, it is essential to investigate the impact of economic growth and other key macroeconomic factors on the CO_2 emissions for the context of the South Asian region as it is one of the major problems faced by the region that hinder the green economic growth.

Economic growth is accompanied by a considerable increase in CO_2 emissions which ultimately contribute to climate change and environmental degradation. Not limiting to economic growth, it is worth mentioning that there are key macroeconomic variables that influence CO_2 emissions, for instance, energy consumption, urbanization, investments and many more that need to shed light on the current discussion (Rehman et al., 2021). It is important to draw attention to identifying the key macroeconomic factors that affect the high CO_2 emissions in the region as the consequences of delaying finding a proper solution for this may hinder the region's economic progress. Further, it mentioned that more than half of all South Asians (approximately 750 million people) in this region were affected by one or more catastrophes caused by climate change in the last two decades. Hence, if these rising CO_2 emissions continue, it will essentially impede the economic development of the region, increase the cost of adapting to the climate risks, and inflame socio-economic problems that the region already facing (Aryal et al., 2020; Sahana et al., 2021).

It is worth mentioning that South Asia claims 7.50% of the total CO_2 emissions (kt) in 2020 (World Bank, 2023). India is the largest CO_2 emitter in the region emitting 2,200,836.3 kt in 2020 followed by Pakistan which indicate an emission of 184,111.20 kt CO_2 in 2020 (World Bank, 2023). ***Error! Reference source not found.*** shows the total CO_2 emissions in the South Asian region from 1990 to 2020, as it displays, the total CO_2 emissions have an increasing trend over time. Further, it is worth mentioning that the short-term decline in economic activities may tend to reduce CO_2 emissions, but not the long-term impact on energy consumption and CO_2 emissions (Mitić et al., 2023). Hence, it is essential to explore the factors causing this high CO_2 emissions in the region.

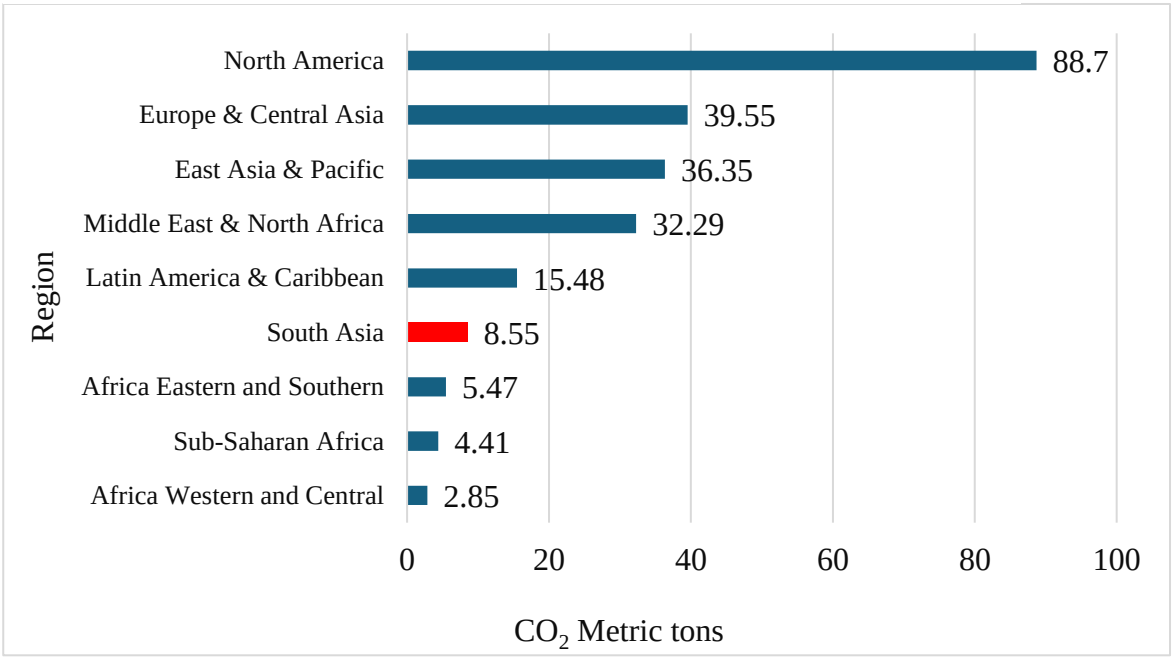
As Figure shows, South Asia ranks as the sixth region with the highest aggregate CO_2 emissions (metric tons per capita) for 2015–2020. When delve more into, when consider the Middle East & North Africa, East Asia & Pacific, Europe & Central Asia, and North American regions, those regions have giant developed or emerging economies like, the United States of America, China, the Russian Federation, Japan, Germany, Canada, Saudi Arabia, Brazil, Turkiye and so on. Hence, among the developing regions like Africa Western and Central, Sub-Saharan Africa, Africa Eastern and Southern, South Asia, Latin America & Caribbean, the South Asian region ranks as the second largest aggregate CO_2 emitter as per the World Bank data by claiming 3.4 billion MT CO_2 emissions in 2023. Hence, South Asia holds a significant position in global CO_2 emissions that need to be investigated further.

Figure 1: CO2 emissions (kt) in the South Asian Region, 1990 - 2020



Source: World Bank Data, 2024
Access link: https://data.worldbank.org/indicator/EN.ATM.CO2E.KT

Figure 2: Aggregate CO_2 emissions (metric tons per capita), 2015 - 2020



Source: World Bank Data, 2024
Access link: https://data.worldbank.org/indicator/EN.ATM.CO2E.PC

Hence, this study conducts an empirical investigation to analyse the direction and magnitude of each factor to get insights to provide a solution to the problem of high CO_2 emissions in the region. Hence, the research problem statement is; "What macroeconomic factors affect CO_2 emissions in the South Asian Region?"

This study aims to address two specific research questions throughout the research. One is "what are the macroeconomic factors that affect CO_2 emissions in South Asia?" and the other one is, "is the Environment Kuznets Curve (EKC) hypothesis valid in South Asia?"

Therefore, this study aims to address that particular issue by contributing to determining the factors that affect CO_2 emissions in the South Asian region. Hence, there are two specific research objectives in this study. They are; "to investigate the macroeconomic factors that affect CO_2 emissions in South Asia." And "to investigate the validity of the Environment Kuznets Curve (EKC) hypothesis in South Asia."

Literature Review

When considering environmental degradation and economic growth the Environment Kuznets Curve (EKC) hypothesis is the most widely used comprehensive empirical model (Leal & Marques, 2022). Initially, it was revealed by Grossman & Krueger (1991) that, there is an inverted U-shaped relationship between environmental pollutants and per capita income. Panayotou (1993) is the one who named that relationship the Environment Kuznuets Curve hypothesis followed by the work of Kuznets (1955) as he presumed that there is also a similar kind of relationship between income inequality and economic development. When summing up the EKC hypothesis states that in the pre-stage of achieving economic development, where there is a low level of income level, as the economy begins to develop and gradually increase the income level it leads to an increase the environmental degradation; and after passing a specific level of economic development and the nation's income increased further as the people demand better environment conditions and value ecological well-being the environment degradation tends to decrease, this scenario explicit an inverted U-shaped relationship between economic development and environment degradation (Al-Mulali et al., 2015; de Vita et al., 2015; Zoundi, 2017)

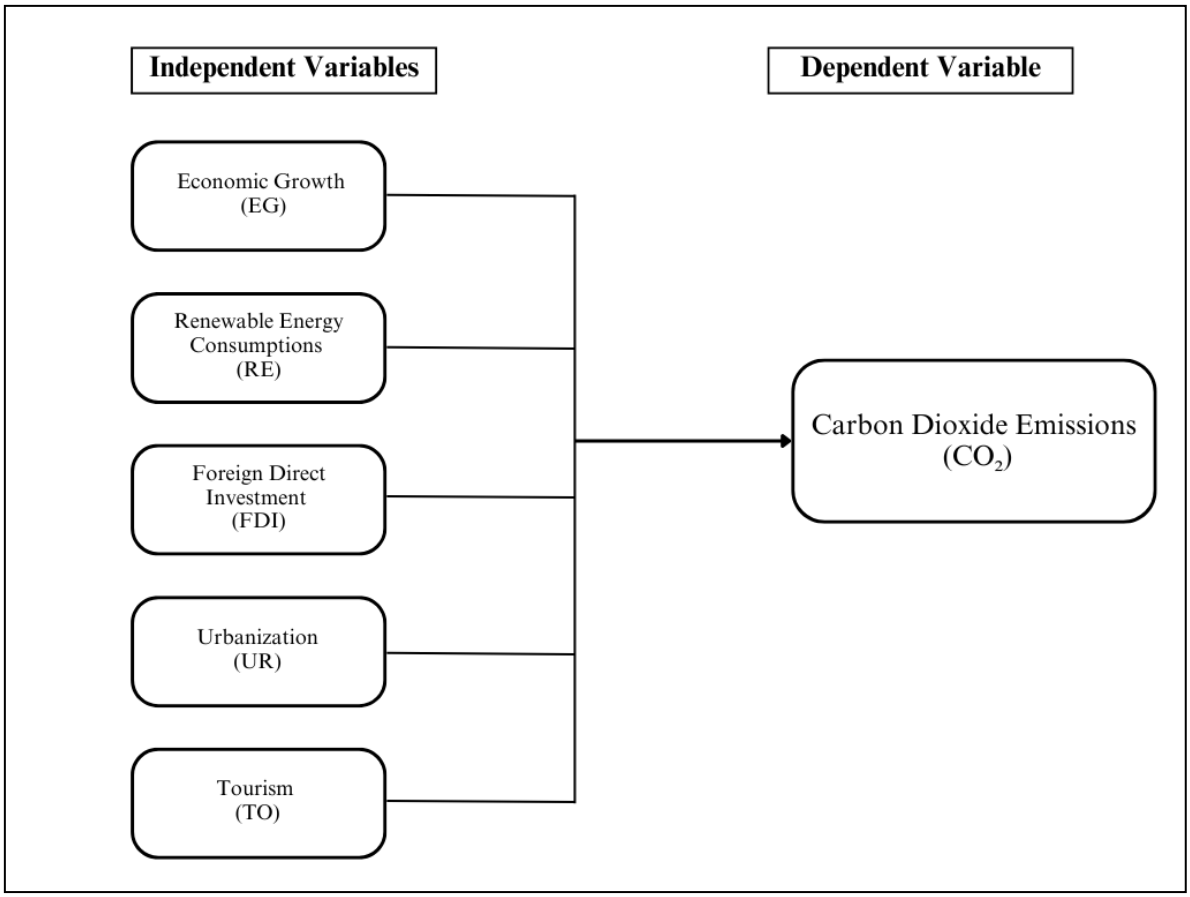
As energy usage is a key determinant of higher economic development, economies are reluctant to limit energy consumption, and ultimately it upsurges CO_2 emission (Radmehr et al., 2021). And according to Kahia et al. (2019) replacing non-renewable energy with renewable energy could significantly mitigate the harm caused by CO_2 emissions globally. In the present financially globalized context, where there is visible evidence for global FDI flows across nations has become the most prominent factor for the contribution of CO2 emission more than any other factor (Chen & Moore, 2010). The effect of FDI flows on environmental degradation and CO_2 emission can be discussed under two main theories namely; the Pollution Haven Hypothesis and the Pollution Halo Effect Hypothesis (Musah et al., 2022). Even though urbanization is a key demographic indicator that could have a significant effect on CO_2 emission many theories explain the environmental impact of urbanization, but there is no individual theory that could precisely explain the effect of urbanization on CO_2 emission (Lv & Xu, 2019). According to Poumanyvong & Kaneko (2010) three main theories explain the linkage between urbanization and CO_2 emission: ecological modernization, urban environmental transition, and compact city theory. Ecological Modernization Theory points out that even in urban development, both economic development and environmental sustainability can be done simultaneously through the promotion of eco-friendly practices, technological advancements, innovations, and changes in social behavior (Shah et al., 2020). According to Shah et al. (2020) urban environmental transition theory states that; a country faces inherent challenges in urbanization such as energy efficiency, reducing pollution, and infrastructure development when transitioning from a lower-income country to a middle-income country through achieving both economic development and environmental sustainability. According to Rysz & Mazurek (2015), the Compact City Theory posits

that urban development should be prioritized to create compact and walkable-scale cities for a high level of population density with mixed usage of lands, and should be concerned more with utilizing public commuting methods to reduce the usage of private vehicles and promoting a more sustainable lifestyle with the liveable urban environment.

2. Data and Methodology

The working conceptual framework demonstrated in Figure guides the research process by defining the relationship between variables. The conceptual framework is based on the established theories and previous literature described in the literature review.

Figure 3: Conceptual Framework



Source: Compiled by the author

This study is for six South Asian countries namely; Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka. Afghanistan and Maldives will be excluded from the study due to the unavailability of data. The model applied in this research includes six variables. CO_2 emissions is the dependent variable, whereas economic growth, renewable energy consumption, FDI, trade openness, urbanization, and tourism are the independent variables.

This study covers the period from 1995 to 2020 based on availability of data. The panel of this study would consist of seven countries and 26 time periods. Hence, the model shown in Equation 01 is the specific model that is expected to be investigated in this study.

$$CO_{2\,it} = \beta_0 + \beta_1 EG_{it} + \beta_2 RE_{it} + \beta_3 FDI_{it} + \beta_4 TR_{it} + \beta_5 UR_{it} + \beta_6 TO_{it} + \acute{z}_\iota \alpha + \lambda_t + u_{it}$$

Equation 1

As an econometrics remedy to deal with the normality problem, this study is expected to use the natural logarithm form of the variables *(Equation)* as the guidelines provided by Akadiri et al. (2019).

$$lnCO_{2\,it} = \beta_0 + \beta_1 lnEG_{it} + \beta_2 lnRE_{it} + \beta_3 lnFDI_{it} + \beta_4 lnUR_{it} + \beta_5 lnTO_{it} + u_{it}$$

Equation 2

To accomplish the second objective, the study applies the *Equation 3* as per the guidelines of Akadiri et al. (2019). Here the EG and the squared term of the EG to test the validity of the EKC hypothesis and the estimated coefficients would determine whether there is proof to determine the validity of the EKC or not.

$$lnCO_{2\,it} = \beta_0 + \beta_1 lnEG_{it} + \beta_1 ln(EG_{it})^2 + u_{it}$$

Equation 3

3. Analysis and Findings

According to the pool regression, according to the R-squared value of model 01, 88.94% of changes in CO_2 are explained by the EG, RE, FDI, UR, and TO. Additionally, the Prob > F value of 0.000 confirms the overall fitness of the model, indicating that the independent variables significantly explain the dependent variable. When it comes to the EG, β_1 *($p < 0.05$)* estimates indicate that a 1% increase in the EG is associated with a 0.75% increase in CO_2 emissions. The coefficient β_2, explains a significant ($p < 0.05$) positive relationship between CO2 emissions and renewable energy consumption, indicating that a 1% increase in renewable energy consumption is associated with a 0.143% increase in CO_2 emissions. The coefficient of urban population; β_4 shows a significant *($p < 0.05$)* positive sign indicating a 1.32% increase in CO_2 emissions when the urban population increased by 1%. Also, the β_5 coefficient, which also indicates a positive significant sign *($p < 0.05$)* explains a 1% increase in international arrivals is associated with a 0.16% increase in CO_2 emission. Besides that, FDI which is not statistically significant *($p > 0.05$)* has been estimated at the coefficient β_3.

Then the Fixed Effect model based on the results of the Hausman test focuses more on the changes within the countries over time (Akadiri et al., 2019). Because, the p-value of the Hausman test is less than 0.05 (p-value=0.001) thus, the null hypothesis of difference in coefficients not systematic is rejected. The analysis results of the Fixed Effect model are shown in Table 2.

Table 2: Estimates of Fixed Effect for the Model 01

Variables		Coefficient	Std. Err.	t	P>t
C		-6.993445	0.85814	8.15	0.0000
lnEG		0.6240	0.100957	6.18	0.0000
lnRE		-0.4212	0.106936	3.94	0.0000
lnFDI		-0.0138	0.016293	0.85	0.3970
lnUR		1.0729	0.171071	6.27	0.0000
lnTO		-0.0069	0.030468	0.23	0.8220
Prob > F	=	0.0000			
F test for u_i	=	0.0000			
R-squared	:				
Within	=	0.8512			
Between	=	0.7036			
Overall	=	0.7020			

Source: Compiled by the author

The R-squared values suggest the fitness of the mode, as the R-squared within the group indicates a strong fit (0.8512), the R-squared between groups suggests a moderate fit (0.7036), and the overall moderate fit as the R-squared value is 0.7020. Also, the Prob > F being 0.000 indicates that the model is highly significant while the F test for u_i confirms that the fixed effect for the individual country is significant.

The coefficient of EG has a significant *($p < 0.05$)* positive value indicating that a 1% increase in the GDP Per Capita leads to a 0.0624% increase in the CO_2 emissions MT per capita. This finding is aligned with the empirical evidence of Joo et al. (2015), Pao & Tsai (2010), Rahman et al. (2020), Hasanov et al. (2019). The coefficient of RE has a significant *($p < 0.05$)* negative value indicating that a 1% increase in Renewable energy consumption leads to a 0.431% decrease in the CO_2 emissions MT per capita. This finding is aligned with the empirical evidence of Zoundi (2017), Dogan & Seker (2016), Kahia et al. (2019), Leitão & Lorente (2020). The coefficient of UR has a significant *($p < 0.05$)* positive value indicating that a 1% increase in the urban population leads to a 1.073% increase in the CO_2 emissions MT per capita. According to this finding, all three theories explained in Chapter 02; ecological modernization, urban environmental transition, and compact city theory became null in this research context and the findings are aligned with the empirical evidence of Sheng & Guo (2016), Poumanyvong & Kaneko (2010), Zaman et al. (2016). Moreover, the coefficient of FDI is not statistically significant *($p > 0.05$*) and has a negative value indicating that a 1% increase in the FDI inflows leads to a 0.0138% decrease in the CO_2 emissions MT per capita. Also, the coefficient of TO has been not statistically significant *($p > 0.05$*) and has a negative value indicating that a 1% increase in tourism arrivals leads to a 0.0069% decrease in the CO_2 emissions MT per capita.

The next regression for *Equation 03* has been employed and is robust to deal with the problem of heteroskedasticity. The model has 0.6828 R-squared values indicating that the model explains 68.28% of the total variations of the CO_2. Also, the Prob > F being 0.000 confirms the relationship between CO_2 and EG, it indicates that the model is highly significant. Also, the probability values confirm the significance of all variables included in the model.

When considering the coefficient estimates of variables, β_1 has a 4.771591 *positive coefficient* while β_2 having *negative* 0.2535054 estimates for the coefficient. This scenario confirms the validity of the EKC hypothesis for the selected South Asian countries for the 1990 to 2020 period. (Akadiri et al., 2019). The signs of the coefficient estimate of the EG (GDP Per Capita) and its squared term are here, to confirm the EKC hypothesis by validating the inverted U-shape causal relationship between the EG and CO_2.

Table 3 Estimates of Robust Least Square Regression for the Model 02

Variables		Coefficient	Robust Std. Err.	t	P>t
C		-21.68019	3.250306	-6.67	0.0000
ln_EG		4.771591	0.8347321	5.72	0.0000
ln_EG^2		-0.2535054	0.0529948	-4.78	0.0000
Prob > F	=	0.0000			
R-squared	=	0.6828			

Source: Compiled by author

Also, the EG threshold at the turning point can be calculated. The results indicated that at the point where EG became approximately 12,224.80 USD, CO_2 emissions have reached their peak point. Hence, as expected it can be concluded that the EKC hypothesis is valid for the context of South Asian countries. This finding is aligned with the prevailing literature findings of Işik et al. (2020), Zafar et al. (2019), Balsalobre-Lorente et al. (2021), de Vita et al. (2015), and Akadiri et al. (2019).

4. Conclusion

This study examined the relationship between various factors and CO_2 emissions in South Asia. The region must take precautionary measures to address the harmful impacts of high CO_2 levels, as it is an ethical responsibility towards nature. Given the positive correlation between economic growth and CO_2 emissions, it is essential to balance both. The region should focus on achieving economic growth while preserving the environment by investing in green projects, purifying waste air, planting trees, and implementing reforestation initiatives to reduce CO_2 emissions. (Cunningham et al., 2015; Tong et al., 2018).

The region should prioritize renewable energy sources like solar, hydropower, and wind due to its tropical climate. South Asian countries must also work together to combat poverty and improve slum conditions. Emphasizing green urbanization over conventional methods, governments should create sustainable urban plans. Additionally, to mitigate CO_2 emissions, tourism development should adhere to global ecological standards for sites, accommodations, and transportation.

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The Dynamics of Exchange Rate Volatility on Foreign Direct Investments (FDI) in South Asia: A Dual Model Approach

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ABSTRACT

This study aims to examine the impact of exchange rate volatility on foreign direct investments (FDI) in four South Asian countries including India, Sri Lanka, Pakistan, and Bangladesh using a comprehensive methodological framework. The study employs both the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) and Autoregressive Distributed Lag (ARDL) bounds test to examine the effect over the period from 1980 to 2023. The GARCH model is utilized to capture the dynamics of exchange rate volatility and its persistence by examining the effect of past volatility on present conditions. The ARDL bounds test examines both short-run and long-run causal effects of exchange rate volatility on FDI. The study incorporated key macroeconomic variables such as GDP growth, inflation, and trade openness, to provide a better understanding of the interaction between exchange rate volatility and FDI.

The results reveal that exchange rate volatility significantly impacts FDI, with a positive short-run effect but a negative long-run effect, indicating that while short-term currency fluctuations may attract speculative investments, prolonged volatility undermines investor confidence. Similarly, the exchange rate significantly impacts FDI, with a negative short-run effect but a positive long-run effect, suggesting that depreciation of the currency may discourage FDI initially, but the long-term competitive edge may draw in investment. Trade openness has a negative short-run effect but a positive long-run effect, highlighting the adjustment period required for economies to benefit from liberalized trade policies. GDP growth rate and inflation were found to be insignificant in the short run but showed a positive and significant impact on FDI in the long run, suggesting that stable economic growth and moderate inflation enhance long-term investment attractiveness. These findings highlight the importance of policies maintaining exchange rate stability and implementing gradual trade reforms to foster a favorable investment climate. Policymakers should focus on reducing economic uncertainty and ensuring consistent economic growth in order to attract sustainable FDI inflows. The study contributes to the limited literature on exchange rate volatility and FDI in South Asia offering valuable insights for policy makers. It emphasizes the importance of having stable exchange rate policies, gradual trade liberalization, and the importance of having stable economic conditions to attract a sustainable flow of FDI.

***Keywords**: ARDL, Exchange Rate Volatility, FDI, GARCH, South Asia, Trade Openness*

1. Introduction

Background of the Study

Foreign Direct Investment (FDI) is a crucial source of capital for emerging and developing economies, driving economic growth through capital, technology, and managerial expertise (Bashir et al., 2014; Chaudhary et al., 2012). FDI benefits host countries by enhancing competition, increasing productivity, and promoting skill development (Ajayi, 2006). However, exchange rate volatility, defined as unexpected fluctuations in currency values (Ozturk, 2008), presents a significant risk to investors, affecting profitability and investment decisions. South Asian countries, which include India, Sri Lanka, Pakistan, and Bangladesh, face substantial exchange rate volatility, particularly after shifting to more flexible exchange rate systems in the 1990s (Hooy & Choong, 2010). This volatility may deter foreign investment and impact the economic stability of these nations.

While FDI inflows in South Asia show potential, factors such as exchange rate volatility, political instability, and macroeconomic fluctuations play a critical role in influencing investment decisions. Despite this, research on the impact of exchange rate volatility on FDI in South Asia is limited and fragmented. Existing studies tend to focus on individual countries or sub-regions and often neglect other important factors like inflation, GDP, and trade openness.

Research Problem and Research Gap

The impact of exchange rate volatility on FDI in South Asia remains unclear due to mixed findings in existing literature (Wang, 2013). Some studies show a negative correlation, while others suggest no significant relationship, and a few even report positive impacts. Furthermore, most research focuses on individual countries or sub-regions, limiting the broader applicability of results. Many studies also ignore other key variables that influence FDI, such as inflation and GDP growth, leaving a gap in understanding the comprehensive factors affecting FDI in the region.

This research aims to fill these gaps by providing a more holistic and region-wide analysis, examining both short-term and long-term effects of exchange rate volatility on FDI and identifying additional factors such as exchange rate, inflation, GDP growth rate, and trade openness that influence investment decisions in South Asia.

Concise overview of the existing literature

The existing literature examines the relationship between exchange rate volatility and Foreign Direct Investment (FDI), with mixed findings across various regions and methodologies. Studies by Dhakal et al. (2010) and Thujiyanthan (2021) suggest a positive impact of exchange rate volatility on FDI in some Asian countries, including Sri Lanka, while other studies like Azhar et al. (2015) and Ullah et al. (2012) indicate a negative effect in South Asian countries. Researchers such as Suliman et al. (2015) and Chaudhary et al. (2012) also highlight the complex relationship, with volatility influencing FDI in both the short and long term, although the results vary across countries. Additionally, studies by Kiyota and Urata (2004), Ellahi (2011), and Wang (2013) emphasize the importance of stable exchange rates for attracting FDI, pointing out that exchange rate fluctuations create uncertainty that can deter investment.

Research Questions

1. What is the short-run and long-run effect of exchange rate volatility on FDI in South Asian countries?
2. What are the other factors that affect the flow of Foreign Direct Investment (FDI) in South Asian countries?

Objectives of the Study

The primary objective of this study is to examine the short-run and long-run effects of exchange rate volatility on FDI in South Asian countries. Further, the study aims to examine the effect of other key macroeconomic variables such as GDP growth, inflation, and trade openness on the FDI inflows in the region. This study will contribute to the existing literature by providing a comprehensive understanding of how exchange rate volatility impacts investment decisions and offer recommendations for policymakers to attract more foreign direct investments.

2. Methodology

Research Design

This study is a quantitative and deductive research. The analysis is based on secondary data gathered from reliable sources such as the World Development Indicators, Federal Reserve Economic Data, and central banks of selected countries. The research focuses on examining the impact of exchange rate volatility on Foreign Direct Investment (FDI) in South Asian countries, specifically India, Sri Lanka, Pakistan, and Bangladesh, over the period from 1980 to 2023. The Exchange Rate Volatility, Exchange Rate, Gross Domestic Product (GDP), Inflation and Trade Openness are the independent variables while Foreign Direct Investment (FDI) is the dependent variable of this study.

Population and Sample

As the research focuses on examining the impact of exchange rate volatility on FDI inflows in this region, the population for this study consists of South Asian countries. The selected countries for the sample include Sri Lanka, India, Pakistan, and Bangladesh, because of their diverse economies and the accessibility of credible secondary data on exchange rates, FDI, and other macroeconomic variables.

Data collection

A panel dataset is used in this study, combining both cross-sectional and time-series data, with observations collected over the period from 1980 to 2023 for each country. The data is collected from various reliable data sources. Monthly exchange rates are gathered from Federal Reserve Economic data and central banks of selected countries to measure exchange rate volatility while annual data of FDI, exchange rate, GDP Growth rate, inflation, and trade openness are collected from World Development Indicators.

Methodology of Analysis

This study employs the Generalized Auto Regressive Conditional Heteroskedasticity (GARCH) model introduced by Bollerslev (1986) to measure exchange rate volatility. Additionally, the Auto Regressive Distributed Lag (ARDL) bound test approach developed by Pesaran, Shin, and Smith (2001) is used to examine the short run and long run impact of exchange rate volatility on FDI. To enhance robustness, several diagnostic and robustness checks are conducted including multicollinearity, autocorrelation, heteroskedasticity, stationarity, cointegration and normality tests, as well as the alternative model specifications, ensuring the reliability of the findings. EViews software is used for model estimation and data analysis.

3. Results

GARCH Model Results and Interpretation

Table 1 GARCH Model Results

Country	Mean Equation (C)	Variance Equation (C)	RESID(-1)^2 (α)	GARCH(-1) (β)	P Value	Log likelihood
Sri Lanka	0.005329	0.000054	0.087837	0.731558	0.0000	1428.000
India	0.002630	0.000019	0.455844	0.620169	0.0000	1462.863
Pakistan	0.002987	0.000036	1.232275	0.174420	0.0000	1588.917
Bangladesh	0.001734	0.000017	1.195983	0.163135	0.0000	1845.303

Source: Constructed by Author using EViews

The analysis of exchange rate volatility in Sri Lanka, India, Pakistan, and Bangladesh reveals distinct patterns. In Sri Lanka, the mean equation coefficient is positive and statistically significant, indicating consistent upward movement in returns, while the GARCH model's volatility equation is stable and mean-reverting, with past volatility strongly influencing current volatility. India also shows a positive and significant mean equation, with volatility exhibiting high persistence, as indicated by a sum of α and β slightly above 1. Pakistan and Bangladesh, however, exhibit explosive volatility, with their coefficients showing significant positive trends, and the sum of α and β greater than 1, indicating prolonged and amplifying effects of shocks on volatility. In summary, Sri Lanka and India have mean-reverting volatility, while Pakistan and Bangladesh face more persistent and explosive exchange rate volatility.

ARDL Analysis and Interpretation

Long Run Relationship

Table 2 Results of Long Run Relationship

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNERV	-0.227807	0.090713	-2.511296	0.0144
D(LNER)	1.964444	0.473599	4.147903	0.0001
GDPGR	0.033566	0.010842	3.095873	0.0029
D(INF)	0.024859	0.010976	2.264939	0.0268
D(LNTO)	0.954672	0.303047	3.150244	0.0024

Source: Constructed by the Author using EViews

The long-run relationship between FDI inflows and various factors reveals several key findings. Exchange rate volatility has a significant negative impact on FDI, indicating that higher volatility reduces foreign investments. On the other hand, exchange rate depreciation (a weaker local currency) has a positive effect on FDI inflows, making investments more attractive to foreign investors. Economic growth, measured by the GDP growth rate, also encourages more FDI, as investors are drawn to expanding markets with better prospects.

Inflation, at moderate levels, is positively related to FDI, possibly because it signals active economic conditions. However, extremely high inflation could deter investment. Trade openness is another

important factor, as higher levels of trade integration with global markets strongly attract foreign investments. Overall, exchange rate volatility hinders FDI, while economic growth, trade openness, and exchange rate depreciation encourage it, and moderate inflation can also play a positive role.

Short Run Relationship

Table 3 Results of Short Run Relationship

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ01	-2.016422	0.387938	-5.197800	0.0000
D(LNFDINI(-1),2)	0.817228	0.261781	3.121803	0.0027
D(LNFDINI(-2),2)	0.491297	0.159974	3.071099	0.0031
D(LNFDINI(-3),2)	0.346486	0.076459	4.531662	0.0000
D(LNERV)	0.215064	0.237157	0.906840	0.3677
D(LNERV(-1))	0.491273	0.129300	3.799483	0.0003
D(LNERV(-2))	0.305991	0.137465	2.225953	0.0294
D(LNERV(-3))	0.573455	0.238830	2.401101	0.0191
D(LNER,2)	-2.630934	0.158720	-16.57597	0.0000
D(LNER(-1),2)	-4.036225	1.684731	-2.395768	0.0194
D(LNER(-2),2)	-3.509418	1.086492	-3.230046	0.0019
D(LNER(-3),2)	-2.708694	0.782988	-3.459434	0.0009
D(GDPGR)	-0.045830	0.027233	-1.682897	0.0970
D(GDPGR(-1))	-0.011391	0.017213	-0.661789	0.5104
D(GDPGR(-2))	0.012955	0.037890	0.341900	0.7335
D(GDPGR(-3))	0.046461	0.025584	1.815992	0.0738
D(INF,2)	-0.044632	0.036286	-1.230000	0.2230
D(INF(-1),2)	-0.042117	0.035283	-1.193698	0.2368
D(INF(-2),2)	-0.001248	0.045793	-0.027261	0.9783
D(INF(-3),2)	-0.001375	0.026893	-0.051125	0.9594
D(LNTO,2)	-1.877365	0.446883	-4.201016	0.0001
D(LNTO(-1),2)	-2.403361	0.662867	-3.625707	0.0006
D(LNTO(-2),2)	-1.817436	0.602694	-3.015519	0.0036
D(LNTO(-3),2)	-0.534023	0.477785	-1.117706	0.2677
C	-2.480345	0.438164	-5.660769	0.0000

Source: Constructed by the Author using EViews

The short-run results show several key findings. The error correction term is significant, indicating that the model quickly returns to long-term equilibrium after any shock, correcting 201.6% of the deviation in each period. FDI inflows in the short run are positively affected by previous changes in FDI, with all lagged differences being significant. Exchange rate volatility also has a positive impact on FDI in the short term, but exchange rate fluctuations have a negative effect, with the impact increasing over time. Trade openness has a negative short-term effect on FDI inflows. Variables like GDP growth and inflation do not show any significant short-term effects on FDI. The constant term is negative, indicating a baseline reduction in FDI in the short run, even when other factors remain constant. In summary, the short-term effects of exchange rate volatility, exchange rate changes, and

trade openness on FDI inflows are significant, while GDP growth and inflation do not have an immediate impact.

4. Conclusions

In conclusion, this study examines the long-term and short-term relationships between exchange rate volatility and foreign direct investment (FDI) inflows, with additional consideration of other macroeconomic factors such as exchange rates, GDP growth, inflation, and trade openness. The key findings highlight that in the long run, exchange rate volatility negatively affects FDI inflows, while economic growth, trade openness, and exchange rate depreciation positively influence FDI. Moderate inflation also appears to attract foreign investment. In the short term, previous FDI changes, exchange rate volatility, and exchange rate fluctuations significantly impact FDI inflows, while GDP growth and inflation do not show immediate effects. This study contributes to the limited literature on exchange rate volatility and FDI in South Asia by providing a region-wide perspective, addressing inconsistencies in previous findings, and incorporating key macroeconomic factors. Unlike most single-country or sub-region studies, it offers insights into key South Asian economies, making it a valuable addition to existing research on the relationship between exchange rate volatility and FDI.

The practical implications of these findings suggest that policymakers should aim to stabilize exchange rate volatility, as its negative effect on FDI in the long run could deter foreign investment. Additionally, fostering economic growth, promoting trade openness, and managing inflation effectively could create a more attractive environment for foreign investors. In the short term, governments should consider the timing of policy changes, as exchange rate fluctuations and trade openness can have significant effects on FDI inflows. These insights can help guide strategies to boost FDI and enhance economic development in South Asian countries.

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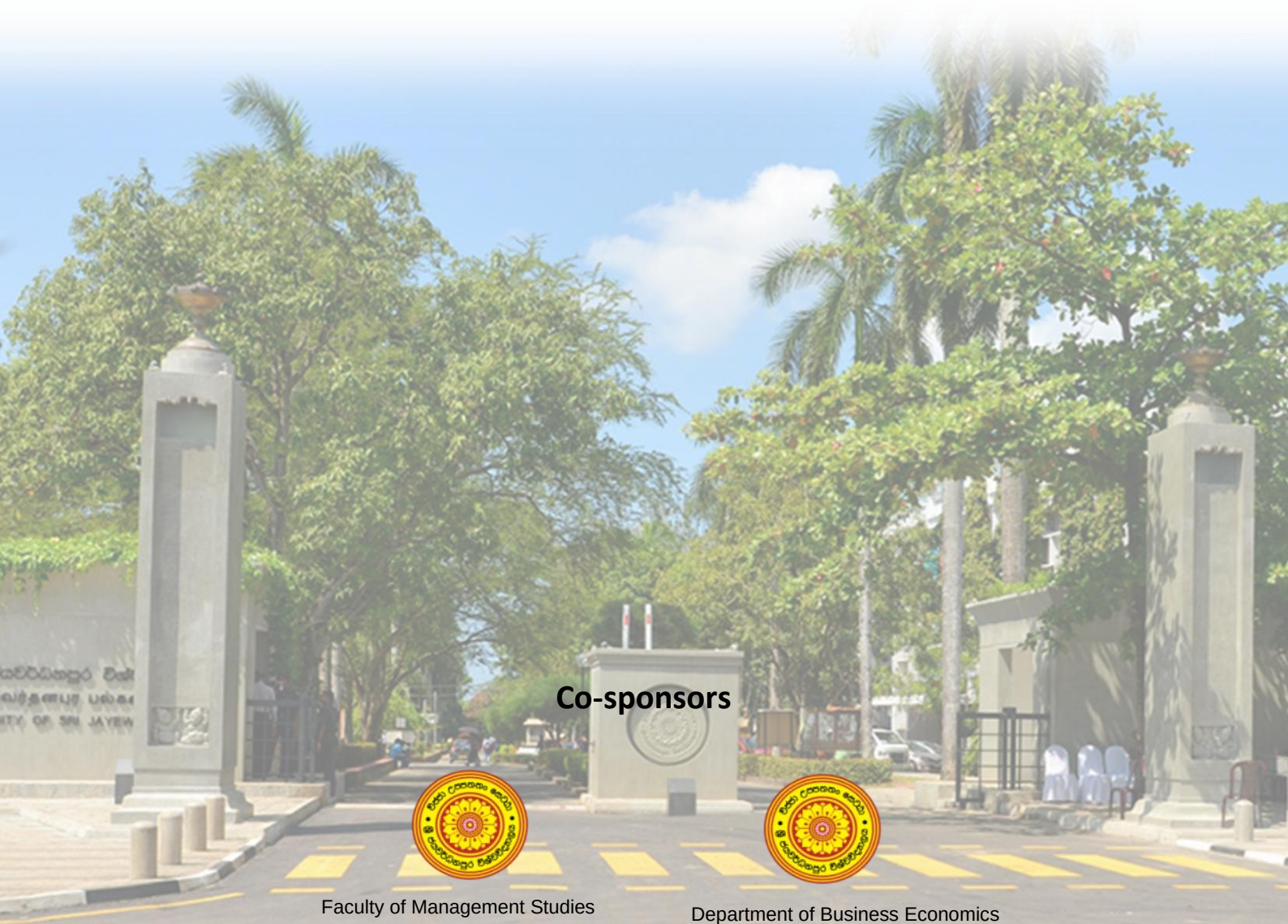

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