Tenth Faculty Seminar Retreat

Book of Abstracts
3rd – 4th March, 2023

MSE
Mentoring Excellence

MADRAS SCHOOL OF ECONOMICS
(Institution of Special Importance)
GANDHI MANDAPAM ROAD, CHENNAI – 600 025

<u>Program Schedule</u>

Day 1: 3.03.2023 (Friday)

Inaugural Session: (9:30 am – 11:00 am)

Venue: Main Auditorium

<u>Welcome address at 9:30 am</u>

Dr. K.R. Shanmugam, Director MSE

<u>Inaugural address at 9:35 am</u>

Title: India at 75 and Beyond

by

Dr. C. Rangarajan

Former Chairman, Economic Advisory Council to the Prime Minister & Former Governor, RBI;

Chairman, Madras School of Economics

<u>Special lecture at 10:15 am</u>

Title: Artificial Intelligence for Public Good and Effective Governance

by

Dr. V. Kamakoti, Director, Indian Institute of Technology Madras

Tea/Coffee Break: 11:00 am -11:30 am

Presenters are marked in bold letters. Each paper is scheduled for a maximum of 30 minutes out of which 20 minutes are for presentation followed by 10 minutes of discussion.

Venue for Technical Sessions: Conference Room, 1st Floor, New Academic Block

Technical Session 1: (11:30 am – 1:00 pm)

Chair: Dr. Swarna Vepa

Paper 1: *Dairy Milk Consumption and Child Height: Evidence from Rural India for Children Aged 6–23 Months*
Brinda Viswanathan and Divya Purohit

Paper 2: *Association Between Intimate Partner Violence and Children's Nutritional Outcome in India: Evidence from NFHS-5*
Amrita Chatterjee and Ngawang L Thakur

Paper 3: *CO2 Emissions and the Net-Zero Targets: The Role of the Manufacturing Sector of India*
Prantik Bagchi and Santosh Kumar Sahu

Lunch Break: 1:00 pm- 2:00 pm

Technical Session 2: (2:00 pm- 3:30 pm)

Chair: Dr. N.S. Siddharthan

Paper 4: *Efficiency of commercial banks in India: A Ray frontier approach*
K.R. Shanmugam

Paper 5: *Climate Risks and Fiscal Transfers*
K.S. Kavi Kumar and Anubhab Pattanayak

Paper 6: *Application of volatility-managed portfolios in the context of a volatility index*
Abhishek Subramanian and **Parthajit Kayal** *(will join virtually)*

Tea/Coffee Break: 3:30 pm -4:00 pm

Technical Session 3: (4:00 pm- 5:00 pm)

Chair: Dr. Saumitra Bhaduri

Paper 7: *Rebooting the Tax System with a Transaction Value Tax for India*
JVM Sarma

Paper 8: *Improved Chebyshev's Inequality Under Restriction*
Gautham Sekar, Rakesh Nigam and Rohith Krishna

Day 1 concludes

<u>Day 2: 4.03.2023 (Saturday)</u>

<u>Technical Session 4: (10:00 am-11:30 am)</u>

<u>Chair: Dr. K.R. Shanmugam</u>

Paper 9: *How Green (performance) are the Indian Green stocks – Myth Vs Reality*
Saumitra Bhaduri and Ekta Selarka

Paper 10: *Does ESG investing matter? Analysis of Stock Price Crash Risk and Corporate Earnings Quality*
Saumitra Bhaduri and **Ekta Selarka**

Paper 11: *A PCA study examining the consequences of COVID-19 and Ukrainian war on the Indian Sovereign Debt Market*
Rupel Nargunam

Tea/Coffee Break: 11:30 am -11:45 am

<u>Technical Session 5: (11:45 am- 1:15 pm)</u>

<u>Chair: Dr. S. Subash</u>

Paper 12: *Effect of final consumption demand on bilateral intermediate goods trade*
Sanjeev Vasudevan

Paper 13: *On Deflecting Economic Sanctions: Does Trade and Political Alliance Matter?*
Devasmita Jena, Akash C., Prachi Gupta

Paper 14: *When to merge with a lower quality producer?*
Neelanjan Sen and Uday Bhanu Sinha

Vote of Thanks

Lunch: 1:15 pm- 2:15 pm

Day 2 concludes

Dairy Milk Consumption and Child Height: Evidence from Rural India for Children Aged 6–23 Months

Brinda Viswanathan [1] and **Divya Purohit** [2]

Abstract: Rural areas where most of the food production takes place, nutritional deprivations are also very high. Suggestions to improve nutrition sensitive agriculture pay less emphasis on allied sectors of agriculture. Among the diets necessary for very young children, dairy milk plays a very important role within the first 1000 days of birth to attain age-appropriate height and weight but few studies examine dairy milk consumption pattern in detail considering for both supply and demand side factors. This study is an attempt to fill this gap. In 2015-16, among 6-23 month old children in India only 38% in rural areas and 45% in urban areas report milk consumption at least once in the last 24 hours; and an average of 2.5 times for those who consume at least once. Notwithstanding the short duration recall period, the zero-inflated Poisson model is used as an empirical strategy to analyse the milk consumption pattern for rural children. The estimates show that girls are less likely to be given milk but irrespective of gender, milk consumption increases with age. Breastfeeding habits affect both milk consumption as well as its frequency while all non-dairy food items except eggs reduces the chance of milk consumption but not its frequency. Other dairy items and eggs are substitutes of milk consumption. Mother's education and wealth effect are important but their level effects differ between milk consumed and frequency of milk consumed. Household ownership of bovine and higher supply of milk at the district level stress the importance of improving proximate supply. Estimates from a linear regression model for child's height for age shows that the frequency of milk consumed is strongly associated with it, but only when milk consumption is an endogenous rather than an

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exogenous variable. Overall, the findings suggest that high priority be given to policies that improve affordability, availability, and awareness towards milk consumption so that the child is not deprived of the opportunities to grow up to be a healthy and productive adult. This would also reduce large disparities in child stunting in India and improve her abysmally low global ranking.

Key Words: Milk, Height-for-age, zero-inflated Poisson model, rural
JEL Classification codes: Q1, I3, C5, R1

Association Between Intimate Partner Violence and Children's Nutritional Outcome in India: Evidence from NFHS-5

Amrita Chatterjee [1] and **Ngawang L Thakur** [2]

Abstract: This study tries to investigate how the exposure to intimate partner violence (IPV) of married women in India is associated with their child's nutritional status using NFHS-5 data. Correcting for the endogeneity of IPV, we use extended regression model to estimate the relationship between mother's exposure to physical, emotional and sexual violence and incidence of stunting, underweight and wasting among their children aged 0 to 59 months. Our findings suggest that a mother's exposure to all three types of IPV raises the incidence of stunting and underweight compared to children whose mothers do not experience IPV, more among less than one year old child. The study shows that prevalence of undernourishment among mothers who are victims of IPV is one of the channels through which malnourishment percolates to children. Results of subsample analysis suggest that maternal control exercised by husbands and acceptance of wife-beating by women aggravate the impact of IPV on stunting. However, adequate pre- and postnatal health care, freedom of decision making and mobility of women and their exposure to media have the potential to mitigate the impact of IPV on child nutritional status.

Keywords: violence against women, child malnutrition, gender norms
JEL Classification Codes: J12, J13, J16

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CO2 Emissions and the Net-Zero Targets: The Role of the Manufacturing Sector of India

Prantik Bagchi [1] and **Santosh Kumar Sahu** [2]

Abstract: The commitment to India to net-zero (NZ) has induced energy security goals. The unique contribution of this paper is to examine the emission behavior from the existing energy policy scheme and link it with the NZ. Using the data of the Centre for Monitoring Indian Economy (CMIE) Prowess and the Ministry of Environment, Forest and Climate Change (MoEF&CC), we carry out an empirical analysis from the post-Kyoto Protocol to the recently available data. Following the IPCC (2006), we estimate the CO2 emission and social cost of carbon (SCC). We use a generalized synthetic control approach to check the effect of the cap-and-trade scheme on emission reduction. Our findings suggest i. Industries under the cap-and-trade have emitted one-third compared to their counterfactual, but it is effective for the lower-emitting industries; ii. A part of emission reduction has happened due to the higher prices, and dynamic pricing is a good strategy for emission reduction; iii. There is a slow shift in the reliance on renewable sources for production. An immediate price reform would help reduce emissions by up to 50 percent; iv. The baseline case is the feasible scenario. It suggests price reforms and complementary policies such as technological improvement may help emission reduction by up to 60 percent by 2100.

Keywords: Indian manufacturing; Emission; Social Cost of Carbon; Net-Zero.

JEL Classification Codes: L6, Q35, Q47, Q48

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Efficiency of Commercial Banks in India: A Ray Frontier Approach

K.R. Shanmugam [1]

Abstract: After liberalization, Indian banking industry has been operating under highly competitive environment and profit motivated. While the global financial crisis has a less impact on the Indian banking industry a few developments emerged, namely increased bad loans, consolidation of information technology, demonetization and covid-19 pandemic from the last quarter of 2019-10. There is a need to evaluate the performance of Indian banking industry after global financial crisis. The purpose of this paper is to estimate the efficiency of banks in four different ownership groups in India from 2010-11 to 2019-20, using the ray stochastic multiple output production frontier model and interest income and non-interest income as outputs following the operating/income approach. The paper finds that the Indian banks on an average have realized only about 75 percent of their potential outputs. Despite the mounting file of non-performing assets and demonetization the publicly owned banks perform better than their private counterparts. Banks with less capital adequacy ratio or old banks or banks with more branches are more efficient.

Keywords: Indian banking industry, Ray frontier function, multiple output, panel model, technical efficiency.

JEL Classification Codes: D21, D24, G21, G23, G29, L77

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Climate Risks and Fiscal Transfers

K.S. Kavi Kumar [1] and **Anubhab Pattanayak** [2]

Abstract: Potential changes in climate are expected to manifest in the form of increased frequency and severity of the climate risks that include natural calamities such as drought, floods and cyclones, that are commonly experienced by different parts of India every year. The Indian subcontinent has witnessed over 475 extreme events during the period 1970-2019, and an acceleration in the frequency of such events since 2005. In a federal system of governance, the transfers from the Central government serve as an important mechanism for the State governments to effectively address the adverse impacts of the natural disasters. However, there is often a significant gap between the relief sought by the states to cope with the hydro-meteorological risks and the assistance provided by the Centre. Taking note of some recent evidence in the literature on the role of partisan politics in the context of fiscal transfers from the Centre to different states affected by natural calamities, this study explores whether the nature of climate risk provides scope for the Central government to exhibit favoritism towards states that are politically aligned than those that are not aligned. The empirical analysis based on total and non-plan fiscal grants from the Centre to different states over three decades and occurrence of drought and floods over the same period suggests that while grant allocation in response to drought is higher for the politically aligned states, no evidence for favoritism could be established in case of grant allocation in response to flood. The study argues that the nature of risk – viz., relatively slow emergence of drought conditions compared to sudden manifestation of flood events, could perhaps provide scope for partisan politics. In the context of changing landscape of political alignment and the dynamically changing nature of climate risks in India, the evidence

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from this study provides crucial inputs for better understanding of the political economy of disaster management and climate risks.

Keywords: Fiscal Federalism; Fiscal Transfers; Political Alignment; Climate Risk; Drought; Floods; India
JEL Classification Codes: D72, H77, O23, Q54

Application of Volatility-Managed Portfolios in the Context of a Volatility Index

Abhishek Subramanian [1] and **Parthajit Kayal** [2]

Abstract: This paper studies the volatility-managed portfolios of Moreira and Muir (2017) and analyses whether the volatility-management trading strategy provides a large utility gain for mean-variance investors for the CBOE Volatility Index (VIX) across multiple equity factors. Upon direct comparison, we document that the volatility-managed scaled factor earns higher returns compared to its original unscaled counterpart. The results from in-sample spanning regression supports the above findings indicating that volatility-managed factors outperform the original factor by extending the mean-variance frontier even after controlling for additional factors. This result is significant in particular with the volatility-managed momentum factor. The ex-post optimization parameters also suggest a positive Sharpe ratio and CER% (Certainty Equivalent Return) across equity factors.

Keywords: Volatility-managed portfolios, Volatility-management, Momentum

JEL Classification Codes: G10; G11; G12

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Rebooting the Tax System with a Transaction Value Tax for India

J V M Sarma [1]

Abstract: Several countries including India have been struggling to streamline their tax systems. The traditional taxes with varied bases have, over the years, thrived only in complicating the lives of both taxpayers and tax payees. Innovations such as the value added tax, although theoretically sound, have proved to be not easy to manage. A new tax idea appears on the horizon with universal base, namely, the value of economic transactions, and with single uniform rate. promising to be a feasible alternative to replace the conglomerate tax system. Already, a version called the Automated Payment Transaction tax is under serious consideration in some developed countries. As for India, the desirability and viability of replacing the present chaotic system with a single uniform Transaction Value Tax was examined two decades ago by this author. This paper follows it up with a fresh attempt to estimate the size and nature of the available base for the Transactions Value Tax and suggest suitable methods of administering the tax. In doing so, it re-examines the need for completely revamping the tax system, especially, in view of the slipshod efforts to implement a version of value added tax (called goods and services tax) since 2010, which is not proving to be easy.

Key words: Taxation, Indian tax policy reform, Transaction value tax
JEL Classification Codes: H201, H21

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Improved Chebyshev's Inequality Under Restriction

Gautham Sekar [1], **Rakesh Nigam** [2] and **Rohith Krishna** [3]

Abstract: Chebyshev's inequality is a well-known probabilistic result which provides a tight upper bound to the probability that the absolute deviation of a random variable from its mean will be greater than or equal to a certain specified value. The inequality applies to any random variable with a finite mean and a finite positive variance. We improve the bounds given by Chebyshev's inequality under the restriction that the random variable does not take its mean as one of its possible values. We obtain results that reduce the upper bound for both discrete and continuous random variables.

Keywords: Probability distributions, statistics, Chebyshev's inequality
JEL Classification Codes: C40, C60

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How Green (performance) are the Indian Green stocks – Myth Vs Reality

Saumitra Bhaduri [1] and **Ekta Selarka** [2]

Abstract: In recent years socially responsible investing has gained currency as investors perceived the Covid-19 pandemic as the century's first "sustainability" crisis. Environmental, Social, and Governance (ESG) factors are often taken as essential factors to assess to sustainability and social impact of an investment in a company or business. Therefore, ESG-focused investment has emerged as a major vehicle for investors to meet non-financial societal values with the investment objectives. Based on a recent EY report, 90% of international investors looked for a company's ESG performance, and 86% brought corporate decarbonization to the priority in their investment checklists. Further, the Global Sustainable Investment Review 2020 reports that over 2018–20, global sustainable investing AUM rose 15% to USD 35.3 trillion, accounting for 35.9% of total professionally managed assets. India is no exception, as data from Morningstar India shows, the ESG (environment social and governance) focused mutual fund assets have grown more than 5 times from Rs. 2,268 crores in March 2019 to Rs 12,447 crore as of March 2022. Therefore, with this growing attention in both the corporate and investment communities, it becomes imperative to test the conventional wisdom that investing for anything other than shareholder value results in poor investor outcomes. In other words, does responsible investing justify risk-adjusted performance? Unfortunately, existing literature that has examined how ESG factors relate to both corporate operating performance and investment outcomes has offered mixed results. Therefore, this study is

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revisiting the question in the Indian context by analyzing the risk-adjusted performance of the two ESG-focused indices, Nifty100 Enhanced ESG Index and Nifty100 ESG Index, over a sample period of July 2018 to Dec 2022. Further, we also examine the argument that ESG strategies offer exposure to equity markets, with reduced sensitivity in crisis periods – specifically we examine the hypothesis that whether the socially responsible firms suffered less during the 2020 pandemic.

Keywords: ESG, India, Risk-adjusted Performance, Pandemic, Nifty 100 ESG/ ESG Enhanced Index

JEL Classification Codes: G30

Does ESG Investing Matter? Analysis of Stock Price Crash Risk and Corporate Earnings Quality

Saumitra Bhaduri [1] and **Ekta Selarka** [2]

Abstract: While coronavirus pandemic led to uncertainties in the global capital markets and limited investment opportunities, there has been an increase in the "responsible" investing that involves considering environmental, social and governance (ESG) issues when making investment decisions. We hypothesize that, while the impact of the Covid crisis on crash risk tends to be positive, it could be potentially heterogeneous, suggesting that some corporate characteristics may soften (or exacerbate) its effects. Using a large sample of publicly listed firms from India, our study explores the following questions. First, we argue that while the crisis increases the negative skewness in stock prices, Covid-19 is unique because it did not originate in the financial markets in the first place and therefore, all the stocks are affected due to transmission of pandemic crisis to the capital markets. As investors become uncertain about the adverse impact of the crisis on firm value and information hoarding by the managers, quality of financial reporting should matter more to bolster their confidence especially in the emerging market with a weak institutional framework and insufficient infrastructure to tackle the crisis. Therefore, we utilize the experimental setup of a non-financial crisis to understand the effectiveness of earnings quality on stock price crash risk. Secondly, it is argued in the literature that corporate governance mechanisms are largely adopted from developed countries and therefore deemed ineffective in the emerging markets. We extend the literature on the efficacy of corporate governance mechanisms to complement the relationship between crash risk and earnings quality during the crisis.

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Finally, we explore if aforementioned relationship differs between ESG companies vis-à-vis their non-ESG counterparts. This framework of integrating earnings quality, corporate governance, and ESG in an environment of extreme stress can provide a clear understanding of the efficacy of these mechanisms in one of the largest emerging markets in the world.

Keywords: Corporate governance, Earnings Management, ESG, India
JEL Classification Codes: G30

A PCA Study Examining The Consequences of COVID-19 and Ukrainian War on the Indian Sovereign Debt Market

Rupel Nargunam [1]

Abstract: This paper addresses the use of principal component analysis (PCA) in modeling the dynamics of sovereign yield curves and investigates certain characteristics of the India government bond market. The study is based on PCA performed on data between March 2019 and March 2022, with emphasis on periods marked by extreme market stress, such as the outbreak of the COVID-19 pandemic in March 2020 and the Russian military invasion of Ukraine in February 2022. PCA is also used to check for relative-value (RV) trading signals and to assess the historical plausibility of yield curve shocks and the magnitude of the unlikely market movement seen during mid-March 2020. The empirical findings support statistical similarities between the Indian yield curve and term structure studies of major countries.

Keywords: principal component analysis (PCA); Indian government bond market; bond yields; yield curve modeling.

JEL Classification Codes: G12, G15, G23.

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Effect of Final Consumption Demand on Bilateral Intermediate Goods Trade

Sanjeev Vasudevan [1]

Abstract: This paper explores the relationship between partner country's final consumption demand and bilateral trade in intermediate goods. I use a rich cross-country panel manufacturing exports dataset of 65 countries for the period 1995–2018. I estimate an augmented gravity model using the Poisson Pseudo Maximum Likelihood method. After correcting for potential endogeneity and multilateral resistance issues, the results indicate a positive and significant effect of final consumption demand on bilateral intermediate goods trade. The results are robust to various sub-sample analyses and econometric estimations. The findings have strong policy implication on the lines of expanding intermediate goods trade for the purpose of final consumption and hence remains of interest for policymakers.

Keywords: Intermediate goods trade, consumption demand, gravity model, Poisson pseudo maximum likelihood.

JEL Classification Codes: F10, F14

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On Deflecting Economic Sanctions: Does Trade and Political Alliance Matter?

Devasmita Jena [1], **Akash C** [2] and **Prachi Gupta** [3]

Abstract: The usage of economic sanctions, as foreign policy instrument, to penalize state-supported political aggression, have multiplied since the second world war. The effectiveness of sanctions to achieve desired economic and policy outcome is squarely hinged on the impact of sanctions on trade flows of the sanctioned nations. This impact, in turn, depends on the sanctioned country's ability to divert trade to a third-party country (country not involved in sanctions). History is witness to the fact that third-party countries facilitate trade diversion, thus busting sanction. Nonetheless, literature does not present conclusive evidence on trade diversion or on motivation of sanction busting. In this context, we make a fresh academic inquiry into the trade impact of sanctions and the role of sanction busters. In particular, we try to answer following questions. What bearing sanctions have on bilateral trade flows and trade diversion? Second, is trade diversion dependent on the political and trade alliance the third-party country shares with the sanctioned and/or with the sanctioning countries? In seeking answer to these questions, we apply structural gravity model for all possible, globally representative, country dyads, during 1990-2019. For gravity estimation, we use the comprehensive Global Sanctions Database. The consequences of sanctions are shrinkage in bilateral trade between the sanctioned and sanctioning nations and trade diversion via third-party country, we find. Our results suggest that existence of trade alliance between third-party country and country involved in sanction will have additional impact on trade diversion. Furthermore, a political alliance between third-party and

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sanctioned country will further heighten trade between them, amidst sanction. However, political alliance between third-party and sanctioning country doesn't explain trade between them in the event of sanctions. Our results have insight for India's evolving trade relations with Russia, since 2022, as Russia reels under Western sanctions.

Key words: Economic Sanction, Trade effects, RTA, Political Alliances, Gravity Model, PPML

JEL Classification Codes: F1, F13, F14, F5, F51, H5, N4.

When to Merge with a Lower Quality Producer?

Neelanjan Sen [1] and **Uday Bhanu Sinha** [2]

Abstract: This paper studies the possibility of different types of mergers when firms produce vertically and horizontally differentiated products. Two firms produce a better quality product, while the third firm produces a lower quality product and the firms compete in quantities. The merger of two firms that produce better-quality products is possible if the quality difference (net of cost) or the horizontal product differentiation are high. However, if the quality difference (net of cost) and the horizontal product differentiation are neither too high nor too low, then the firm that produces the better quality product will merge with the firm that produces a lower quality product. Welfare may increase after the merger between the two firms that produce different quality products. However, if the two firms that produce the better quality product merge then welfare always falls.

Key words: Merger; Oligopoly; Product differentiation; Quality; Cournot

JEL Classification Codes: L24, L13, D43, D12

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