

A STUDY ON DYNAMIC FISCAL MULTIPLIERS

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**DEPARTMENT OF MANAGEMENT STUDIES
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A STUDY ON DYNAMIC FISCAL MULTIPLIERS

By

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DEPARTMENT OF MANAGEMENT STUDIES

Submitted

*In fulfilment of the requirements of Doctor of Philosophy
to the*



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Certificate

This is to certify that the thesis titled “A Study on Dynamic Fiscal Multipliers”, being submitted by Ms. Mahima Gupta to the Indian Institute of Technology Delhi for the award of the degree of Doctor of Philosophy is a record of bonafide research work carried out by her. She has worked under my guidance and supervision and has fulfilled all the requirements for the submission of the thesis, which has attained the standard required for a Ph.D. degree of this institute. The results presented in this thesis have not been submitted in part or full to any other university or institution for any degree or diploma.

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Mahima Gupta

Abstract

Government spending as a stabilization tool has been widely discussed in the literature as one of the most important components of economic growth. Literature suggests that there are different factors that determine the fiscal multiplier behaviour in the economy. Broadly there are two types of factors: first, there are the structural factors of the economy that affect how it works in normal times, such as the level of public debt, human development, trade openness, financial infrastructure, and labour markets; and second, there are the conjunctural factors, such as business cycles or monetary policies, that affect how fiscal policy acts, causing it to deviate from normal levels (Batini et al. 2014). This thesis reviews the heterogeneity in the fiscal multiplier estimates through three dimensions: examining the non-linear fiscal behaviour contingent on the structural characteristics, which is not just time-variant across threshold levels but time-invariant across distinct latent groups; analysing the sub-national level fiscal multiplier behaviour based on the structural factors of the states; and studying the asymmetric impact of fiscal shocks on macroeconomic variables across business cycles in India. This thesis is an attempt to address the limited evidence on fiscal multiplier efficiency, especially for the EMDEs. Notably, structural characteristics of the economy are intrinsic factors that shape economic behaviour over extended periods, potentially leading to heterogeneous behaviour among economies. This thesis is an attempt to extensively discuss the heterogeneity within a panel dataset by using the recently developed Panel Structure Threshold Regression Model (Miao et al. 2020). Heterogeneous effects in the panel data could be crucial, given that each unit possesses a distinct identity and exhibits structural variations (Durlauf 2001; Su and Chen 2013; Browning and Carro 2007). We identify latent groups of countries intrinsic to the structural characteristics of the variables and find that structural variables determine fiscal multipliers in a non-linear fashion where fiscal multipliers change significantly across the threshold of structural variables. Results suggest that improvements in human development and financial infrastructure measures play a prominent role in enhancing fiscal multiplier effects across economies. We also find that economies can achieve higher fiscal multipliers by keeping a check on the import propensity. We identify female labour force participation as one of the significant structural determinants of the fiscal multiplier, where many latent groups find parallels with the declining portion of the U-shaped feminization hypothesis. Overall, the results suggest that countries should pursue targeted, structural change-oriented fiscal policy to achieve higher economic growth. Furthermore, we study the asymmetric behaviour at state-

level fiscal multipliers. We also distinctively analyse the state government revenue and capital expenditure multipliers and find that capital expenditure multipliers are higher. We find state public debt has significant negative implications for all the categories of fiscal multipliers and across all the latent groups. This evidence suggests for a sustainable policy-oriented targeting framework wherein states target public debt below a certain threshold level. At last, our analysis of the Indian economy indicates that the adoption of preemptive fiscal stimulus in recessionary phases and fiscal consolidation during expansionary phases will facilitate macroeconomic stabilisation.

सार

आर्थिक विकास के सबसे महत्वपूर्ण घटकों में से एक के रूप में साहित्य में एक स्थिरीकरण उपकरण के रूप में सरकारी खर्च की व्यापक रूप से चर्चा की गई है। हालांकि, राजकोषीय खर्च के लिए आर्थिक प्रतिक्रिया कई कारकों पर निर्भर करती है। राजकोषीय गुणक को प्रभावित करने वाले दो मुख्य प्रकार के कारक हैं: पहला, अर्थव्यवस्था के स्थायी प्रकृति के कारक हैं जो सामान्य समय में काम करने के तरीके को प्रभावित करते हैं, जैसे सार्वजनिक ऋण का स्तर, व्यापार खुलेपन, वित्तीय बुनियादी ढांचे और श्रम बाजार; और दूसरा, अस्थायी प्रकृति के कारक हैं, जिन्हें संयुग्म कारकों के रूप में भी जाना जाता है, जैसे कि व्यापार चक्र या मौद्रिक नीतियां, जो राजकोषीय नीति के कार्य करने के तरीके को प्रभावित करती हैं, जिससे यह सामान्य स्तर से विचलित हो जाती है। (Batini et al. 2014). यह थीसिस तीन आयामों के माध्यम से राजकोषीय गुणक अनुमानों में विषमता की समीक्षा करता है: संरचनात्मक विशेषताओं पर आकस्मिक गैर-रैखिक राजकोषीय व्यवहार की जांच करना, जो न केवल सीमा स्तरों पर समय-भिन्नता है, बल्कि अलग-अलग अव्यक्त समूहों में समय-भिन्नता है; राज्य के संरचनात्मक कारकों के आधार पर उप-राष्ट्रीय स्तर के राजकोषीय गुणक व्यवहार का विश्लेषण करना; और भारत में व्यापार चक्रों में व्यापक आर्थिक चर पर राजकोषीय झटकों के असममित प्रभाव का अध्ययन करना। यह शोध प्रबंध राजकोषीय गुणक दक्षता पर सीमित साक्ष्य को संबोधित करने का एक प्रयास है, विशेष रूप से ईएमडीई के लिए। विशेष रूप से, अर्थव्यवस्था की संरचनात्मक विशेषताएँ आंतरिक कारक हैं जो विस्तारित अवधि में आर्थिक व्यवहार को आकार देते हैं, जो संभावित रूप से अर्थव्यवस्थाओं के बीच विषम व्यवहार की ओर ले जाते हैं। यह थीसिस हाल ही में विकसित पैनल स्ट्रक्चरल थ्रेशोल्ड रिग्रेशन मॉडल का उपयोग करके पैनल डेटासेट के भीतर विषमता पर व्यापक रूप से चर्चा करने का एक प्रयास है। (Miao et al. 2020). डर्लीफ (2001) सु एंड चैन (2013) और ब्राउनिंग एंड कैरो (2007) के अनुसार पैनल डेटा में विषम प्रभाव महत्वपूर्ण हो सकते हैं, यह देखते हुए कि प्रत्येक इकाई की एक अलग पहचान होती है और संरचनात्मक विविधताओं को प्रदर्शित करती है। हम चर की संरचनात्मक विशेषताओं के लिए आंतरिक देशों के अव्यक्त समूहों की पहचान करते हैं और पाते हैं कि संरचनात्मक चर एक गैर-रैखिक फैशन में राजकोषीय गुणकों को निर्धारित करते हैं जहां राजकोषीय गुणक संरचनात्मक चर की सीमा के पार महत्वपूर्ण रूप से बदलते हैं। परिणाम बताते हैं कि मानव विकास और वित्तीय बुनियादी ढांचे के उपायों में सुधार अर्थव्यवस्थाओं में राजकोषीय गुणक प्रभावों को बढ़ाने में प्रमुख भूमिका निभाते हैं। हम यह भी पाते हैं कि अर्थव्यवस्थाएं आयात की प्रवृत्ति पर नियंत्रण रखकर उच्च राजकोषीय गुणक

प्राप्त कर सकती हैं। हम महिला श्रम बल की भागीदारी को राजकोषीय गुणक के महत्वपूर्ण संरचनात्मक निर्धारकों में से एक के रूप में पहचानते हैं, जहां कई अव्यक्त समूह यू-आकार की स्त्रीकरण परिकल्पना के घटते हिस्से के साथ समानता पाते हैं। कुल मिलाकर, परिणाम बताते हैं कि देशों को उच्च आर्थिक विकास प्राप्त करने के लिए लक्षित, संरचनात्मक परिवर्तन-उन्मुख राजकोषीय नीति को अपनाना चाहिए। इसके अलावा, हम राज्य-स्तरीय राजकोषीय गुणकों के असममित व्यवहार का अध्ययन करते हैं। हम पाते हैं कि राज्य के सार्वजनिक ऋण का राजकोषीय गुणकों की सभी श्रेणियों और सभी अव्यक्त समूहों के लिए महत्वपूर्ण नकारात्मक प्रभाव पड़ता है। यह साक्ष्य एक स्थायी, नीति-उन्मुख लक्ष्यीकरण ढांचे के लिए तर्क देता है जिसमें राज्य एक निश्चित सीमा स्तर से नीचे सार्वजनिक ऋण को लक्षित करते हैं। हम राजस्व और पूंजीगत सरकारी व्यय गुणकों का भी विशिष्ट रूप से विश्लेषण करते हैं और पाते हैं कि पूंजीगत व्यय गुणक अधिक हैं। अंत में, हमारे विश्लेषण से पता चलता है कि मंदी की अवधि के दौरान पूर्वव्यापी राजकोषीय प्रोत्साहन के कार्यान्वयन की आवश्यकता होती है, जबकि विस्तार अवधि के दौरान राजकोषीय समेकन उपायों से व्यापक आर्थिक स्थिरीकरण का मार्ग प्रशस्त होगा।

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Abbreviations

AEs	Advance Economies
AIC	Akaike Information Criteria
BIC	Bayesian Information Criteria
CAG	Comptroller Auditor General
CEIC	CEIC Data provides the most expansive and accurate data insights into both developed and developing markets.
CMIE	Centre Monitoring Indian Economy
CSO	Central Statistics Office
DSGE	New-Keynesian Dynamic Stochastic General Equilibrium
EFC	Expansionary Fiscal Contraction Hypothesis
EMDEs	Emerging Markets and Developing Economies
EME	Emerging Market Economy
FDI	Financial Development Index
FI	Financial Inclusion
FLPR	Female Labour Force Participation Ratio
FRBM	Fiscal Responsibility and Budget Management Act 2003
FRED	Federal Reserve Economic Data
FRLs	Fiscal Responsibility Legislations (FRLs)
G	General Government Final Consumption Expenditure
GDP	Gross Domestic Product
GSDP	Gross State Domestic Product
HDI	Human Development Index
IFS	International Financial Statistics
ILO	International Labour Organisation
ILOEST	International Labour Organisation Modelled Estimates and Projections Database of World Bank
IMF	International Monetary Fund
IR	Import-to-GDP Ratio
IRF	Impulse Response Function

LP	Local Projection
LR	Likelihood Ratio
MOSPI	Ministry of Statistics and Programme Implementation
NCT	National Capital Territory
NPAs	Non-Performing Assets
NSDP	Net State Domestic Product
PCI	Per Capita Income
PD	Public Debt-to-GDP Ratio
PFCE	Private Final Consumption Expenditure
PI	Private Investment
RBI	Reserve Bank of India
RSS	Residual Sum of Squares
SVAR	Structural Vector Autoregressive methodology
TAR	Threshold Auto Regression Models
TFP	Total Factor Productivity
UNDP	United Nations Development Programme
VAR	Vector Auto Regression
WEO	World Economic Outlook
WPI	Wholesale Price Index