

## Global Integration and the Effects of Protectionist Measures

*Export-Import Bank of India (India Exim Bank) instituted the BRICS Economic Research Annual Citation (BRICS Citation) in 2016. The objective of the Citation is to promote advanced doctoral research in international economics, trade, development and related financing, by nationals of member nations of BRICS, from any University/ educational institution globally. This study is based on the doctoral dissertation titled “Global Integration and the Effects of Protectionist Measures” selected as the winning entry for the India Exim Bank BRICS Economic Research Annual Citation (BRICS Citation) 2025, written by Dr. Anirban Sanyal, currently Assistant Adviser, Reserve Bank of India, Mumbai. Dr. Sanyal received his doctoral degree in 2023 from the University of California Santa Cruz, USA.*

The World as a “Global Village” was first envisaged by Marshall McLuhan, a media and communication theorist, in 1964. In today’s world, we live in a global economy inter-connected by trade, capital flows and technology. The unprecedented integration among economies which started since 1990 was blamed for contagion effects of the global financial crisis in 2008 (IMF, 2012). Different countries responded with various policy measures to counter the spillover impacts. While import tariffs were used as policy tool to protect domestic interests (UNCTAD, 2013), capital controls along with other macro prudential measures, were used to safeguard domestic economies from global financial uncertainties (Korinek & Sandri, 2015). The study focuses on the implication of such policy measures on the inter-connectedness of economies, mainly highlighting the impact of tariffs on trade and the effect of capital control measures on international capital flows. The first chapter provides empirical evidence of the trade diversions to India during the US-China trade war in 2018-19. The second chapter introduces the trade policy uncertainties in a neoclassical trade model through a computable general equilibrium framework. Lastly, the information effect of the capital controls is conceptualized through a portfolio choice model. The empirical validation of the information effect is conducted through a spatial econometric framework.

In recent years, protectionist measures have resurged across both advanced and emerging economies, driven by geopolitical tensions, supply chain vulnerabilities, and domestic economic priorities. The U.S.–China trade war marked a turning point, with both countries imposing steep tariffs on each other’s goods, disrupting global trade flows. Beyond tariffs, countries have increasingly turned to non-tariff barriers such as import licensing, product standards, and export restrictions—particularly evident during the COVID-19 pandemic, when nations restricted exports of essential medical and food supplies. More recently, industrial policy tools like local content requirements, subsidies under frameworks such as the U.S. Inflation Reduction Act and EU Green Deal, and stricter foreign investment screening have emerged, reflecting a shift towards strategic autonomy and economic security. These measures, while aimed at protecting domestic industries and reducing dependence on global rivals, risk fragmenting global trade and investment flows, especially as multilateral disciplines struggle to keep pace with the evolving protectionist landscape.

The first chapter of the study focuses on the empirical evidence of trade diversion from the trade war between the US and China during 2018-19, for India. The trade dispute between the United States and other trade partners resulted in higher tariffs

imposed by the United States Trade Commission on other trade partners. The tariff imposition happened between 2018 and 2020. A majority of tariffs during this trade war targeted imports from China. China retaliated with similar large tariffs on significant imports from the United States. This opened up an opportunity for other trade partners like India. In this chapter, the trade diversion effect on India is evaluated on account of the higher tariffs between US and China. The empirical analysis studies the change in trade intensity between 2019 and 2017 using detailed product level trade flows of India with the United States and China. The average change in trade intensity to India is estimated using a difference-in-difference regression. Due to the short-term nature of the trade war tariffs, the average effect of trade intensity can be grossly under-estimated due to differing levels of elasticity of substitution across different product categories. Hence, the framework is refined with triple interactions by introducing product level heterogeneity in the specification. For that, three broad categories of product classifications are considered namely (i) final goods vs intermediate goods (ii) homogeneous goods vs differentiated goods and (iii) highly elastic vs less elastic goods. The intermediate goods, used for final goods production, are not easily substitutable compared to final goods. Hence, one can expect that any short run effect of trade diversion is likely to increase trade intensity in final goods products, compared to intermediate goods products. Similarly, differentiated goods are hard to substituted for and are the low elastic goods. The empirical findings suggests that India benefitted from the higher tariffs on China as India's export intensity increased to the US. However, no such effect was observed in India's export to China. This finding suggests that Indian manufacturers benefitted from the higher tariffs on China due to similar or comparable comparative advantages in products targeted under US tariffs on China. However, India does not have similar comparative advantages with the US manufacturers on products targeted by China (like soybean, agriculture products, and electronics, among others). The empirical findings of average impact on imports were not statistically significant. Further, the

findings suggest significant product heterogeneity in trade diversion for India. More specifically, India's export intensity to the US increased in final products, homogeneous goods, and highly elastic goods. Trade diversion has become increasingly important in the context of rising global trade protectionism, as countries impose tariffs and other barriers to shield domestic industries from foreign competition. When major economies engage in such protectionist measures—such as the U.S.–China trade war or post-Brexit tariff shifts—global supply chains and trade patterns are disrupted, creating opportunities for third countries to fill the resulting market gaps. This redirection of trade flows, known as trade diversion, can significantly alter the competitive landscape, benefiting countries with similar export capabilities or trade agreements. Understanding these dynamics is crucial for policymakers, as trade diversion not only redistributes global trade shares but also influences investment decisions, supply chain realignments, and bilateral trade relations. In an era of fragmented globalization, anticipating and strategically responding to trade diversion can help countries enhance their export potential and economic resilience.

The second chapter analyzes changes in trade policy uncertainty and its effect on global trade flows using a structural model. The recent literature on the trade war observed that different trade partners experience varying degree of trade diversion on account of higher tariffs between US and China. During the same period of trade war, the trade policy uncertainty index scaled to historical high values due to lack of clarity on the trade war scenarios. Researchers have attributed the heterogeneity in trade diversion to the change in trade policy uncertainty. In this chapter, the impact of trade policy uncertainty is examined on global trade flows by introducing trade policy uncertainty in a multi-country Ricardian trade model. The proposed model uses multi-country multi-sector trade model proposed by Eaton & Kortum (2002) and builds in the uncertainty component. The trade policy uncertainty is drawn from two sources - first, the uncertainty around trade policy changes and

second, stochastic uncertainty around the tariff sizes. The trade policy uncertainty affects the price distribution which translates to demand uncertainty. The rationale behind using these two sources of uncertainty is drawn from the experience in global protectionism like Brexit and US trade war. The policies adopted under these episodes increased uncertainty about trade environment as the trade partners were unsure about the possibility of trade policy changes and the effect of the trade policy changes on trade costs. Such uncertainties in trade policy creates challenges for trade partners due to the high adjustment cost in production planning. The trade partners make their production plans when there is lack of clarity about the future trade policy and allocate the factors of production accordingly. However, the trade policies are announced at later stage when it becomes difficult to modify the factor allocations. The trade policy uncertainty is introduced in the model by adding a distribution of beliefs about future trade policy. Each partner has beliefs about the probability of a trade policy change and the possible change in tariff sizes on account of the policy change. The stochastic nature of tariff sizes and the probability of the policy change translates into the trade partners' assessment of final demand conditions which can be very different from actual tariff scenario (after trade policy is announced). The model establishes the effect of trade policy uncertainty using analytical derivations and quantitative calibration of the model. The analytical derivations shows that the possible heterogeneity in trade diversion is driven by the stochastic choice of trade partners about future policy. Further, it also provides the boundary conditions of different trade diversion scenarios given trade partners' belief. Later, the model extended analytical model to full scale calibration using two stage approach. The trade policy uncertainty is calibrated under different scenarios of tariff sizes and probability of policy changes. Lastly, a full-scale model is demonstrated to reciprocate other scenarios where uncertainty may appear due to other externalities like lockdown imposed by China. This chapter contributes to the growing literature on trade policy uncertainty and Ricardian trade models by introducing a framework

that captures the impact of uncertainty on global trade flows. It extends the standard multi-country trade model by relaxing the assumption of fixed trade costs, allowing for greater flexibility in modeling real-world scenarios. The proposed approach is adaptable to various contexts and can replicate disruptions in trade intensity caused by global events. A key innovation lies in modeling trade policy uncertainty through agents' beliefs about potential trade disputes and the distribution of possible tariff outcomes. These belief structures can be further generalized to capture cross-country heterogeneity in trade diversion experiences.

The third chapter investigates the heterogeneous effect of capital controls on the gross capital flows across sectors. Capital controls are macro-prudential policies adopted by different countries to safeguard their domestic interest from the volatility of capital flows. Often times these policies include taxation on foreign investments, volume restrictions on foreign inflows, legislative steps on foreign investment etc. Generally, advanced economies invest in emerging markets in search for higher yields. However, as the domestic and global investment conditions deteriorate in the destination countries, the direction of capital flows reverses towards advanced economies and other emerging market economies. Such sudden reversal of the foreign capital flows destabilizes the domestic currency, worsens the trade balance, widens the debt burden and de-stabilizes the growth potentials of the emerging market economies. Most Latin American economies and South-East Asian economies faced currency crisis on account of the volatile capital flows during 1990's. In response, the International Monetary Fund prescribed capital controls as suitable macro-prudential policy measures to safeguard the emerging market economies from the volatile capital flows from advanced economies. Capital controls are used as macro-prudential policy to safeguard domestic economy from the volatility of external capital flows. The effects of capital controls are studied across many dimensions. Beyond the intended consequence of capital controls, the indirect effects of such policies

are often highlighted by the investors. The survey of investors, carried out by Forbes et. al. (2016), observed that the capital control policies send a signal to the global investors about the state of domestic economy. Such signaling effect of capital control interacts with the intended effect and can lead to heterogeneous outcome on gross capital flows across different institutional sectors. The institutional sectors, namely government, banks and private corporates, have different risk profiles and the portfolio allocations across these sectors are driven by the risk profile heterogeneity. Following investors assessments about the domestic economy, one can expect that the signaling effect of capital controls can trigger heterogeneous effects on capital flows across these institutional sectors. Further, the framework is extended to examine such heterogeneity in the direct and spillover effects of capital control on gross capital flows using cross-country international capital flows data across various sectors. The direct effect of capital control captures the effect of capital control on gross capital flows across these sectors. The spillover effect, on the other hand, is mainly driven by the network effect of capital flows restrictions on capital flows among different recipient nations. In this chapter, a theoretical underpinning of the possible signaling effects is provided and then, the reduced form is validated for identifying the heterogeneity using sector level global capital flows data. First, the signaling effect of capital controls is introduced in a portfolio choice model with a multi-country set up to demonstrate the possible heterogeneity in the direct effect and the spillover effect on gross capital flows as one country increases capital taxation on capital inflows. The direct effect and spillover effect of capital control can be heterogeneous on capital inflows due to the signaling effect of capital controls. To validate the heterogeneity, the spatial regression framework is estimated on quarterly capital flows data to different institutional sectors

in a spatial econometric framework. The empirical findings indicate that the domestic direct effect of capital controls moderates portfolio inflows to the public sector whereas the portfolio inflows to banks and the corporate sector does not respond to the domestic capital control measures. The spillover effect of capital controls increases capital inflows to all sectors in other countries. The chapter offers important insights for policymakers by highlighting how capital controls, while aiming to stabilize domestic economies against volatile foreign capital inflows, also generate signaling effects that influence investor sentiment and trigger sector-specific portfolio rebalancing. These shifts underscore the need for a nuanced understanding of how capital controls affect different institutional sectors. The findings emphasize the value of sector-wise analysis in designing more targeted and effective capital control policies that can address both direct impacts and cross-border spillovers. Looking ahead, there is significant scope for further research on optimal policy design that accounts for sectoral heterogeneity, with potential to inform comprehensive welfare assessments and more refined macroprudential strategies.

The contents of the publication are based on information available with India Exim Bank. Due care has been taken to ensure that the information provided in the publication is correct. However, India Exim Bank accepts no responsibility for the authenticity, accuracy or completeness of such information.

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