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NAVIGATING THE SHIFTING TIDES: A CRITICAL ASSESSMENT OF INTERNATIONAL TRADE THEORY AND POLICY IN THE ERA OF EMERGING TRADE AGGLOMERATIONS

Jadhav Chakradhar[*] and A V Manjunatha[**]

Abstract

In recent decades, significant changes have fundamentally altered the global trade landscape. In this paper, a comprehensive examination of trade theories is attempted, spanning classical theories like comparative advantage to modern perspectives incorporating economies of scale, trade costs, product differentiation, imperfect competition, and new economic geography. Categorising these theories into traditional, new, and 21st-century paradigms, their theoretical and empirical developments are explored in detail. The motivations behind regional trade agreements are depicted from a trade policy perspective. The established gravity model is critically examined, considering theoretical and recent advancements. Further, the diminishing significance of distance and critiques associated with gravity models are discussed. Finally, the concept and operations of trade agglomeration emerging in world trade are illustrated, offering a nuanced perspective on the dynamic landscape of global trade theories and their applications.

Keywords: Trade, Factor endowment, trade policy, Regional Trade Agreements, Gravity model of trade, trade agglomerations

Introduction

The past four decades have witnessed the increased importance of international trade in economic growth, sparking interest among policymakers and academia in understanding the determinants of trade among the countries. Theoretical and empirical research has revealed a plethora of pertinent channels through which trade influences economic growth (Singh, 2010; Zhang, 2008;Kali et al. 2007). Consequently, a large body of literature has emerged examining the role of domestic and international factors in determining trade. Overall, within the international trade literature, two primary schools of thought have emerged to understand the pattern of global trade. The first school of thought rooted in the classical school of trade theories mainly focuses on supply-side factors, possibly assuming the role of demand-side issues. These theories hypothesise that trade patterns are shaped by relative differences in the proportion of labour and capital employed in the production process. These theories also assume the presence of homogeneous products, constant returns to scale, and a market characterised by perfect competition (Kunroo and Ahmad, 2023).

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In contrast, the second school of thought, inspired by a more contemporary approach and anchored in demand-side factors, envisions a scenario with differentiated products, increasing returns to scale, and an imperfectly competitive market structure (Mathur et al., 2017). Other studies were mostly focused on the intra-industry framework, assuming that similar factor endowments influence trade patterns. Strangely, the trade partnership in all these theories emerged from empirical factors, taking other factors like political blocs, etc, for granted only. Two or more countries agglomerate due to factors other than those traditionally put in place. The process of trade agglomeration increased after the WTO and the emergence of trade blocks. Following the impasse in the multilateral negotiations of the World Trade Organisation (WTO), notably the Doha round, there has been a pronounced resurgence of interest in regional trade integration through the establishment of Regional Trade Agreements (RTAs). As a result, there is a notable emphasis on the creation of RTAs as a strategy to enhance economic cooperation and address the challenges confronting nations more effectively. The Gravity model of trade became a key framework for predicting trade flows among member countries of RTAs.

In this context, this attempt is to document the historical assessment of trade theory and policy to account for possible determinates of trade flows and provide a theoretical framework on trade agglomeration. However, to the best of our knowledge, not many studies have comprehensively documented the historical and theoretical background of international trade theories and trade policies and their impact on international trade flows.

The rest of the paper is organised as follows: The first section provides a comprehensive overview of trade theories, ranging from classical theories like comparative advantage to more contemporary theories. Moreover, the new economic geography and their recent theoretical and empirical developments are examined. Further, these theories are classified into traditional, new, and 21st-century trade theories. The following section reviews the reasons for the formation of RTAs and offers insights into the ongoing Regionalism vs. Multilateralism debate. The third section critically examines the gravity model's theoretical and empirical aspects, including its recent developments. The fourth section scrutinises distance's diminishing significance and critiques gravity models. The fifth section of this paper deals with a review of agglomeration and trade. The definition of trade agglomeration and conclusion are provided in the last section.

Theoretical literature

Classical Trade Theories

International trade theories have a longstanding economic history, seeking to answer the fundamental questions: why do economies engage in trade, and what benefits does it bring to nations? Across the decades, various well-established theories have emerged to understand patterns and gains from trade. The standard theories of international trade, as recognised today, can be traced back to the period from 1776 to 1826. The publication of two seminal works notably characterises this timeframe: Adam Smith's "Wealth of Nations" in 1776 and David Ricardo's "Principles of Economics" in 1826. These influential texts laid the groundwork for the development of classical trade theories that continue to shape our

understanding of international trade dynamics even today. Both theories have attempted to explain the pattern of trade by utilising the concept of the law of comparative advantage. According to Adam Smith, the gain from trade arises due to differences in trade partners' natural resources (soil, climate and availability of labour) and acquired advantages (educational levels and skills). Hence, countries can export goods with absolute cost advantages and import the goods with absolute cost disadvantages (Smith, 1869). The gains from trade, according to Smith, arise from the advantages of the division of labour and specialisation[1] used in the production process.

David Ricardo proposed the theory of comparative advantage, the most influential trade theory during the classical period. Notably, it has remained most dynamic and relevant even in contemporary world trade. The theory of comparative advantage serves as a vital conceptual framework that examines the concentration of production activities. Compared to another country, a country that employs fewer hours of workers to manufacture a certain item will have a comparative advantage in that item's production. When a country exports a product that has a comparative advantage over other countries, it gains from trade by specialising in the production of that particular good (Sen, 2008). Additionally, these differences in the technology and concentration of production activities are the push factors to trade.

In the early 1900s, Swedish economists Heckscher and Ohlin challenged classical economists' perspectives on sources of gains. Heckcher-Ohlin (HO) argued that the gain from trade arises from the differences in endowment factors in terms of capital and labour. Particularly, if a country has higher endowments in a specific factor of production, that country shall aim to specialise in that factor of production and capture the advantage linked to engaging in trade regarding that commodity only. While the core concept of comparative advantage remains unchanged in the HO theorem, they have redirected attention, highlighting differences in factor endowments as the central source of comparative advantages.

Trade economists extensively examined the validity of the HO theorem, with particular attention given to propositions of Stolper-Samuelson, Rybczynski, and the factor price equalisation theorems. In their seminal work, Wolfgang Stolper and Paul Samuelson (1941)examined the correlation between relative factor prices (wages and capital)and changes in the prices of goods within a country. They found that if the relative prices of a good rise due to trade, there will be an increase in the return to the factor of production extensively utilised in producing that particular good. In contrast, the return to the other factor will decrease. The synthesis of the HO theorem and Stolper-Samuelson theorem implies that the factor of production that is relatively scarce in a country will experience a decrease in returns.

In contrast, the abundant factor will see an increase in return. Rybczynski's theorem (1955) affirms that if a country experiences an increase in the supply of one factor of production, it intensively increases the output using that factor and decreases the output of other goods. The factor price equalisation theorem proposed by Hicks (1959) found that over time, with the integration of international markets, the return to the factor of production used in the production process will tend to equalise across

[1] Division of labour involves breaking down the production process into distinct tasks, with different workers specialising in specific aspects of production. This leads to increase in the efficiency and productivity of workers due their focus on specific task in the production process.

different countries. In other words, countries engaging in international trade experience convergence in the prices of their production factors, leading to more uniform factor prices globally.

Nevertheless, conventional theories have faced substantial criticism when assessing their applicability in two-country and two-factor models. Moreover, these assumptions failed to generalise when applied to multi-country and multi-commodity frameworks. In 1953, the Leontief Paradox, proposed by Wassily Leontief (1953), challenged the predictions of the Heckscher-Ohlin model. His analysis suggests the US has abundant capital; exports were labour-intensive rather than capital-intensive goods. His paradox seemingly contradicts the assumptions of the HO theorem. Later, many empirical studies have attempted to improve the methodology of the Leontief Paradox and evaluate its validity in real-world scenarios. Among them were Leamer (1980), Brecher and Choudhri (1982) and Bowen et al. (1986).

Demand Side Argument

Contrary to the prevalent supply-side explanations, Staffan Linder (1961) introduced the concept of "overlapping demand or similar demand" as an alternative explanation. The demand-side argument by Linder and the more recent theoretical model developed by Fajgelbaum et al. (2011) have garnered significant attention in the trade literature. Linder's hypothesis posits that nations with comparable per capita income levels would tend to have similar preferences and produce similar yet differentiated products, leading to an overlap in the demand for trade in the manufacturing sector. In 1961, Linder argued that a similar demand structure between trading partners induces them to trade more intensively in manufacturing goods. Furthermore, the demand side of this theory states that countries with high per capita income spend more on high–quality goods. Subsequently, they develop a comparative advantage in products with high domestic demand and are more likely to become major exporters of that good, defined as the home market effect (Krugman, 1979, 1981). In this context, Fajgelbaum et al. (2011) theoretically documented that, due to the home market effect, countries specialise in specific commodities and trade extensively with each other. The demand side arguments, however, lacked in technically putting these forward; hence, the supply side dominated the literature.

Development of New Trade Theories

The conventional trade theories are built on assumptions of constant return to scale, perfect competition, full mobility of factors of production, no externalities and full employment in the economy. However, these assumptions were relaxed in the subsequent theories to better reflect real-world trade dynamics. The new trade theories have highlighted the substantial significance of the intra-industry trade among the countries. These theories focused on economies of scale and imperfect competition (important assumptions of intra-industry trade) and their impact on the pattern of trade (Mathur et al.2017).This shows the trading of products within the same industry with similar factors of production or identical endowments. In an intra-industry trade, the final product may differ, but they are very close substitutes. Hence, these theories proposed that economics of scale, product differentiation and market imperfections are the major drivers of international trade. This theoretical framework posits that countries engaged in trade are inclined to export goods with similar factor intensities, thereby facilitating the exploration of product differentials (Mathur et al. 2017).

The seminal works of Krugman (1979, 1980, 1981) and Dixit and Stiglitz (1977) are among the most widely accepted theorems and have made significant contributions to the development of new trade theory by introducing the concept of the "love for variety". This concept assumes that consumers' preferences and demand for trade arise from a desire for diverse goods. Their models predominantly rely on utilising the Constant Elasticity Function (CES). According to them, exchanging varieties of goods is deemed beneficial to consumers, as each variation contributes to consumers' utility function (love for variety). Hence, a country can concentrate on the production of a few varieties at which it has a comparative advantage while importing alternative sets of the same products from another country at lower cost. In this way, both countries exploit the gains from trade.

Additionally, the theorems of Krugman, Dixit, and Stiglitz attempted to find the impact of trade liberalisation on firms' export performance under the intra-industry trade framework. They found that firms with favourable economies of scale are more likely to participate in international trade. Melitz (2003) proposed the heterogeneous firm model to elucidate the effect of trade liberalisation on firm export performance, focusing on the entry and exit of firms in a competitive global market. Krugman (1979) and Balassa (1966) attempt to elucidate potential reasons for gains using an intra-industry framework. Krugman's (1979) theory suggests that economies of scale benefit firms by increasing production and offering diverse goods to consumers. Multiple firms producing differentiated goods act as close substitutes, creating export demand.

In essence, new trade theories highlight various factors that influence countries' trade patterns. These theorems attempt to predict trade flows by taking firm export behaviour, imperfect competition, and economics of scale assumptions under the intra-industry framework.

21st Century Trade Theories

The classical and new theories assumed that all firms in each industry were homogeneous. Several empirical studies in recent years noted the significant difference in the firm's export behaviour due to their size and productivity differences. They found that only a small percentage of total firms within an industry actively participate in trading activities.

In this context, the existing literature explored many determinants' pattern of trade by considering the role of factor allocations, extensive and intensive margins, innovations, firm heterogeneity, research and development, and firm entry and exit under various conditions. The study by Miltz (2003), with the help of Krugman's new trade theory model, found that differences in firm productivity are the major reasons for firm participation in international trade. Moreover, firms that operate more efficiently and exhibit higher productivity are better positioned to engage in export activities. These firms are motivated to attract new entrants distinguished by their productivity within the industry. Yet, the decision to sell products domestically or internationally is influenced by sunk costs[2] and the costs associated with

[2] Evis and Hobdari (2007) discovered that a company's financial performance and sunk costs play vital roles in determining its involvement in exporting. Furthermore, their research highlighted that a firm's recent history of engaging in export activities over the past two years significantly increases the likelihood of continued export participation in the current period. See: https://research-api.cbs.dk/ws/portalfiles/portal/58936957/6544.pdf

participating in the international market, which, in turn, affects the productivity levels of firms. These models are highly successful in understanding the pattern of trade with firm heterogeneity under the intra-industry framework. On a similar line, extensive work has been devoted in the literature to understand the interrelationship between comparative advantage and firm heterogeneity. Bernard et al. (2007) Melitz and Ottaviano (2008) and Helpman et al. (2004) found that a limited number of firms with better productivity can cover the trade cost and have higher chances to participate in trade.

It is essential to emphasise the summary of trade theories outlined in the preceding paragraphs. Classical and modern trade theories considered the importance of comparative advantage, whereas new trade models have highlighted the substantial significance of intra-industry trade. These models proposed that economics of scale, product differentiation and market imperfections are the major drivers of international trade. Finally, the 21st-century trade model argues a limited number of firms with better productivity have more chances to participate in global trade.

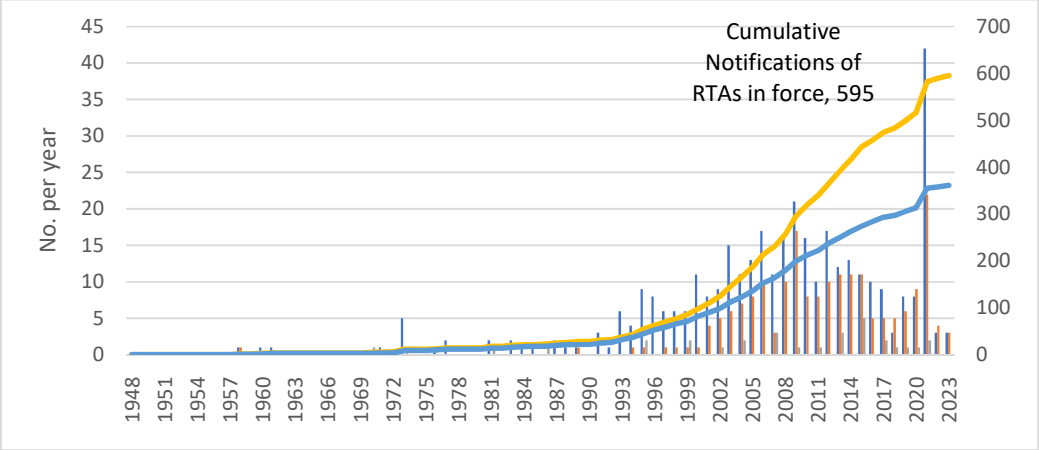
The Role of Trade Policy

Review of the formation of Regional Trade Blocs and Gravity model

After the stalled multilateral negotiations of World Trade Organisations (WTO), particularly the Doha round, there were attempts for resurrection through regional trade integration, leading to the formation of RTAs. Consequently, there is a significant focus on the formation of RTAs to promote economic cooperation and effectively tackle the challenges that nations confront. The increase in the number of RTAs after Article XXIV[3] of GATT went up extensively across the nations. Several WTO countries entered at least one RTA (see Figure 1). In 2022, top export nations such as China (20), the United States (15), Germany (46), Japan (18), the Netherlands (46), South Korea (18), Italy (47), Belgium (46), and France (46) were actively engaged in numerous RTAs (WTO-RTA database, 2023). Hitherto, the individual countries acted like monomers in polymer chemistry, but as new bonds were discovered between the vertices represented by different countries, the RTA turned into an agglomeration. In other words, RTAs are formal agglomerates, whereas informal groups could act as trade agglomerates.

[3]Article XXIV provides a framework within which regional trade agreements can be formed among GATT members. It outlines the conditions under which regional trade agreements are allowed while still complying with the principles of the GATT. See: https://www.wto.org/english/tratop_e/region_e/region_art24_e.htm

Figure 1: RTAs in Force-1948-2023



Source: WTO Secretariat, accessed on 16 November 2023. http://rtais.wto.org/UI/charts.aspx#

The surge in RTAs or countries agglomerated aimed at trade facilitation between countries displays no indications of slowing down in the foreseeable future. Numerous negotiations are actively in progress and have been duly notified to the WTO[4]. Researchers in both economic and political fields have endeavoured to understand the reasons behind this swift growth. In this context, Whalley (1998) noticed that countries engage in RTAs for diverse reasons, with some cases involving multiple negotiating objectives, while in others, one or two specific objectives tend to take precedence. In this context, the next section deals with reasons for the formation of RTAs and their impact on trade patterns.

Reasons for the Formation of RTA

Gains from trade: Trade creation and trade diversion

The widely accepted objective of countries getting agglomerated is to garner reciprocal concessions on trade barriers (tariffs) and market access. The preference for regional negotiations, as opposed to multilateral ones, often arises due to the involvement of key trading partners (dominant trade players), a perceived higher likelihood of success owing to a smaller participant pool, or historical dissatisfaction with unsuccessful multilateral negotiations (Whalley, 1998). The fundamental concern raised by the development of RTAs is whether it would improve member countries' welfare. Does the formation of RTAs introduce the potential effects of trade creation or trade diversion as expounded by Viner (1950)? Trade creation represents a positive scenario contributing to the overall welfare. Trade diversion involves a shift in production from efficient external suppliers to less efficient suppliers within the trading bloc.

Viner (1950), by taking a partial equilibrium framework, argued that RTAs do not inherently guarantee an enhancement of the welfare of its member countries. Furthermore, he also found that Custom Unions (CU) are inclined to generate trade creation when member countries prioritise import from

[4]As of November 2023, 361 RTAs are in force, and 595 have been notified to the WTO. See: https://rtais.wto.org/UI/PublicMaintainRTAHome.aspx

efficient producers within the bloc, potentially displacing less efficient domestic producers. Consequently, these agreements contribute to efficiency in both production and consumption, resulting in an overall increase in welfare. Meade (1955), in his book "The Theory of Customs Union", adopts a multi-country, multi-commodity general equilibrium framework. Meade disagreed with Viner's assumption of constant production costs among trading countries, emphasising the role of terms of trade in achieving balance and maintaining equilibrium in PTAs. Numerous scholars have expanded upon Viner's foundational work and become part of a more comprehensive framework known as the general theory of the second best, as articulated by Lipsey and Lancaster (1956). This theory suggests that reducing tariffs for certain countries may not enhance welfare for individual countries or the global economy since some tariffs might be maintained. Lipsey (1960) made a notable contribution alongside Meade by elucidating the welfare impact of customs unions on member countries, emphasising the elimination of divergence between domestic and international prices.

Even in cases where a customs union might lead to trade diversion, Lipsey argued that it could still increase the welfare of the home country by eliminating tariff distortions and improving consumer welfare. However, Cooper and Massell (1965) argued that existing theories failed to provide a convincing economic rationale for the formation of customs unions and their welfare impact on member countries. They contended that reducing tariff rates unilaterally would enhance economic welfare more than forming or joining a customs union. He also argued that the objective of regional economic integration extends beyond merely attaining optimal conditions for fostering welfare. Wonnacott and Wonnacott (1981) questioned Cooper and Massell's concept and contended that countries may join customs unions to benefit from export effects rather than to increase welfare.

Furthermore, they underscored the significance of considering tariffs imposed by the rest of the world on the export countries of the customs union, commonly referred to as the "missing third-country tariff" in the literature. This acknowledgement is critical for a comprehensive assessment of the potential impacts and challenges that may arise within international trade agreements and the impact of third-country tariffs on members of CU. Kemp and Wan (1976) and Vanek (1965) introduced a theoretical perspective by equating the marginal rate of transformation (MRT) and the marginal rate of substitution (MRS) for each pair of goods across all agents in the union. Their work highlighted the significant impact of intra-regional and extra-regional trade changes on international prices and the economic welfare of both member and non-member countries.

Baldwin (1993) introduced the concept of the 'Domino theory of Regionalism' and explained why countries prefer regional integration over multilateral liberalisation. This theory posits that initiating one FTA encourages other nations to enter into existing FTAs they might have avoided. It implies that the trade diversion impact of the initial FTA generates new political and economic dynamics that have initially excluded nations. Along similar lines, Vicard (2012) argued that deep RTAs are primarily motivated by security concerns, effectively preventing conflicts, unlike their shallow counterparts that have negligible impacts on the probability of wars. Bagwell and Staiger (2004) discussed the rationale for trade agreements at the multilateral level, emphasising that governments are motivated by terms of trade implications of the reduction of tariffs. They suggested that reciprocal multilateral trade

agreements, balancing the interests of member nations, are preferred to unilateral agreements. In Levy's (1997) work, a median voter theory of free-trade agreements (FTAs) is formulated, shedding light on how bilateral FTAs can weaken the political backing for broader multilateral trade liberalisation efforts. Krishna (1998) found that trade agreements favouring specific partners, which divert trade away from the rest of the world, are more likely to get political support. These preferential arrangements, however, can reduce the incentives for broader global trade liberalisation. Bhagawati (1993) and Bhagawati and Panagariya (1996b) extended the concept of dynamic PTAs, emphasising the incentives that lead to adding more members over time and moving towards free trade. They argued that the world's welfare is maximised when there are more trade blocks, favouring the move towards RTAs. Studies by Panagariya (2000), DeRosa (1998), Lloyd and Maclaren (2004), and Piermartini and Teh (2005) have provided comprehensive theoretical developments on regionalism and reasons for the formation of RTAs. Panagariya (2000) strongly favoured multilateral trade liberalisation over regional agreements, citing potential trade diversion and welfare losses for members and non-members. De Rosa (1998) conducted an analysis of the impact of RTAs on the trade flows and welfare of member and non-member countries, as well as on the global economy. The empirical findings reveal that RTAs can enhance the welfare of member countries, primarily the most cost-efficient producers of exportable goods. In cases where trade between member countries and non-member countries persists under internationally determined terms of trade rather than terms of trade determined regionally, the prevailing conditions within the trading bloc may limit the positive effects on welfare resulting from increased trade.

Since the early 1990s, regional integration has emerged as the predominant approach to trade liberalisation. Following the conclusion of the Uruguay Round in 1994, little substantial progress has been achieved in multilateral liberalisation. In RTAs, participating members commit to reducing trade barriers among themselves. However, it is noteworthy that these agreements focus on lowering tariffs among member nations, while tariffs on imports from non-member countries remain unrestricted. Tariff reductions can have a significant impact on trade flows between countries. When tariffs are reduced, it becomes cheaper for goods to be imported and exported between countries. As a result, trade volumes tend to increase (Froning, 2000). This can lead to increased economic activity and growth, as well as greater access to foreign markets for businesses. Additionally, tariff reduction can also lead to competition among domestic and foreign firms, which can result in lower prices for consumers. Furthermore, tariff reduction can also promote the integration of developing countries into the global market. Numerous empirical studies support the positive correlation between tariff reduction and increased trade flows. A seminal work by Rose (2002) found that a 1% reduction in tariffs led to a 0.7% increase in trade. Lowering tariffs enhances market access, stimulates competition, and encourages cross-border transactions. As a result, countries that engage in tariff reduction often experience a surge in both exports and imports. RTAs play a crucial role in shaping the impact of tariff reduction on trade flows. Studies by Goldberg and Pavcnik (2007) highlight that certain industries may face challenges due to increased competition. Carrère, C. (2006) examined the impact of NAFTA on trade flows among the United States, Canada, and Mexico. The study found a substantial increase in intra-regional trade

following the agreement's implementation, suggesting that tariff reductions and other liberalisation measures had a positive effect on trade.

Geographical Proximity and Natural Trading Partners

Proximity facilitates the movement of goods, reduces transportation costs, and enhances the overall efficiency of trade relations. Therefore, geographical proximity is a natural advantage for countries in terms of international trade, as it fosters closer trade cooperation and reduces trade barriers (Bai et al., 2023). However, this cannot be a rule as often the neighbours are enemies for some or the other issues. Therefore, trade is not singularly dictated by economic factors, and agglomerations have two components: economic factors and non-economic considerations. A growing body of literature has attempted to determine the extent to which neighbourhood trade is explained by natural factors, particularly geographical proximity (Engel and Rogers, 1996; Parsley and Wei, 1996). These studies have shown that countries that are geographically closer to each other have higher trade volumes and lower trade costs. Wonnacott and Lutz (1989) suggest that countries can experience substantial advantages by joining CU with a significant trade partner that encounters minimal natural trade costs.

Krugman (1991) argues that geographically dispersed countries naturally form trading regions due to variations in transport costs, fostering increased trade without the need for Regional Trade Agreements (RTAs). Aligning trading blocs with natural partners, according to Krugman, mitigates the risk of trade diversion. However, Bhagwati and Panagariya (1996a) challenge the adequacy of relying solely on trade volume and transport costs criteria for predicting RTAs' impact on welfare. They stress the unreliability of trade volumes as predictors of trade diversion and highlight the evolving nature of comparative advantage. Additionally, their study suggests that forming an RTA with a distant country might yield greater benefits than with a nearby one, particularly when the two countries share similar economic structures. Frankel et al. (1995) investigated natural factors influencing RTAs, such as proximity, size, GDP per capita, common borders, and shared language, to understand their role in regional trade levels. The results of their investigation supported the idea that these "natural" factors influence the formation of trade blocs.

However, Lloyd and Maclaren (2004) conducted a comprehensive survey covering theoretical and empirical facets of regional integration, shedding light on the benefits and drawbacks for member and non-member countries. The 'natural trading partners' hypothesis suggests that nations with substantial initial trade levels, including neighbours or those with complementary resources, may be prone to expanding their trade, supported by Summers (1991). However, Bhagavati and Panagariya (1997) and Schiff (1997) argued that in such instances, tariff revenue loss could be substantial and economic gains resulting from the formation of trade bloc-based natural trading criteria are likely to be comparatively smaller. However, Schiff (1997) also pointed out that welfare is higher for small countries in an FTA if member countries are in trade complementarity. Schiff (1997, 1999) examined the nexus between natural trading hypothesis and trade complementarity structure. Deardorff and Stern (2009) endorsed proximity as a foundation for trade between nations, emphasising its potential to reduce transaction costs, which is questionable.

Nevertheless, this proposition faced criticism from Lawrence (1996) and Krueger (1999). They argued that trading with a distant partner might enhance welfare, given that a country's factor endowments and production structures could align with its geographically distant trading counterparts. In other words, due to similar factors, endowments and production techniques may not lead to comparative advantage, leading to welfare loss. Further, their results are supported by Krishna (2003), who surprisingly reveals no significant correlation between geography, trade volume, and welfare gains. These findings challenge the conventional notion that these factors are reliable indicators of trade benefits, as proposed by the natural trade bloc's approach.

Role of Government

The role of the government in joining RTAs is pivotal and multifaceted. Recognising that participating in RTA is fundamentally a political choice is crucial. The formation of specific types of agreements is contingent upon the objectives set by governments. However, governments are influenced by diverse motivations, notably shaped by the interests of special interest groups. Grossman and Helpman (1995) suggest that when interest groups significantly influence governments through campaign contributions, they are inclined to favour trade-diverting agreements to accommodate the preferences of these special interest groups. Another study by Martin et al. (2012) demonstrates the interplay between economic and political factors shaping the geographical distribution of RTAs. Using data spanning from 1950 to 2000, the study untangles the impact of trade gains and political considerations. The findings indicate that countries with a history of more frequent wars are increasingly inclined to enter RTAs, particularly when the potential trade gains are substantial. Ornelas (2005) demonstrates that Free Trade Agreements (FTAs) reduce incentives for lobbying against imports from non-member countries, leading to decreased rents generated in lobbying processes. Governments, anticipating these rent reductions, tend to adopt a more cautious approach towards engaging in FTAs. This suggests that arrangements promoting welfare may lack political support, while politically feasible FTAs with potential welfare-reducing effects face greater challenges. The author suggests that if industry lobbyists encounter high costs in influencing proposed FTAs, only those that enhance welfare are likely to be politically feasible. Additionally, Ornelas (2005), employing an oligopolistic-political economy model, argues that reducing the influence of special interest considerations in government decisions on trade regimes tends to strengthen support for further liberalisation on the multilateral stage. Overall, the literature review reveals that governments' political and economic motivations play a considerable role in forming and sustaining FTAs and RTAs.

Regionalism vs Multilateralism

The ongoing debate between regionalism and multilateralism gained particular significance within the context of the escalating dominance of RTAs and new agglomerations. As multilateralism and regionalism advanced concurrently, a pivotal inquiry emerged regarding the impact of the proliferation of regional agglomerations on the multilateral trading system.

The debate over regionalism versus multilateralism continues without a clear resolution. Bhagwati (1993, 1996) said that regionalism is a stumbling block to the progress of multilateral trade liberalisation. It was argued that simply focusing on global agreements would be the most effective way

for countries to enhance their overall welfare, but that subsumes the role of powerful trading countries as neutral; unfortunately, it is not so. On the contrary, proponents of regionalism or trade agglomeration, like Frankel (1997), view it as a building block. He believed that regional agreements supplement and complement the multilateral process, addressing specific regional needs and fostering cooperation. Proponents of multilateralism express concern that regionalism could fragment the global economy into various blocs, diverting political efforts away from collaborative global initiatives. Additionally, it is argued that PTAs may exacerbate discrimination by imposing higher tariffs on non-member countries, potentially hindering the principles of fairness and inclusivity inherent in the multilateral trade framework.

Almost at the same time, using the political-economy approach, Levy (1997) explains that a bilateral deal might give more advantages to the average voters in the countries involved, which could weaken the support for a possible multilateral trade agreement. Similarly, Krishna (1998) states that RTAs can make producers turn against a multilateral agreement they would have normally backed. This happens because the perks, like economic profits, created by the RTAs would be at risk if trade barriers were removed in a broader free trade arrangement. Both have argued that a regional trade deal can help some groups so much that they don't gain from more openness in trade. Other studies by McLaren (2002) also discover that RTAs can damage global free trade. He argued that businesses in each country within the bloc tend to invest and focus more on each other. In simpler terms, the anticipation of regional agreements creates its demand. Consequently, countries become less interested in efficient global liberalisation once they are involved in regional initiatives. Studies by Riezman (1999) and Yi (1996) reveal that regional agreements serve as a building block for free trade when they are open but act as a stumbling block when they are not open.

Some of the authors analysing the trade agglomerations suggested that the rise of regionalism is attributed to the stalled progress of the Doha rounds[5] and partly to recent economic uncertainties induced by dominant countries, as well as rapid protectionism and rising nationalism, pushing countries to form stronger regional agreements (Ruta, 2023). As regionalism becomes more prevalent, nations are prompted to sign agreements out of concern for exclusion from global markets. The idea is that small neighbouring countries sharing similar concerns enter trade agreements to access new markets and opportunities. At the same time, multinational corporations pursue such agreements to gain access to previously closed markets. Even protectionist countries engage in trade agreements, fearing that multilateralism would expose them to intense global competition. The prospect of heightened

[5] The Doha Development Agenda (DDA), initiated by the World Trade Organisation (WTO) in 2001, covering a range of topics such as agriculture, non-agricultural market access, services, intellectual property, and dispute resolution, is acknowledged as an ambitious and challenging trade negotiation effort. While it holds the potential for significant economic benefits, especially for developing countries, negotiations have been hindered by disputes among member nations over key issues like services, intellectual property, and agricultural subsidies. Additionally, the rise of regional agglomeration blocs in international trade has added complexity to the negotiation process. Finally, the failure of Doha rounds promoted acceleration of regional trade negotiations.

competition could also lead to a dilemma involving the relocation of production or a situation resembling a terms-of-trade prisoner's dilemma, both of which can be averted through RTAs (Kernohan and Edwards, 2006; Carpenter, 2009). Most studies analysing regionalism drew credence from the highly publicised gravity models of trade.

Review of Gravity Model of Trade

Over the last three decades, the gravity model of trade has become the workhorse for understanding the effect of regional trade flows. The intuition of the gravity model has been taken from Newton's law of gravitation force. This analogy has been applied in international trade to predict trade flows, particularly among the members of RTAs.

The gravity trade model considers the economic size, distance, and other trade barriers to analyse trade flows between countries. Over the past two decades, the gravity model has remained a consistent econometric tool for analysing factors affecting trade flows (Anderson & Wincoop, 2003; Bui & Chen, 2017; P. Egger, 2002; Mawusi, 2020; Yotov, Piermartini, Monteiro, & Larch, 2016). The conventional gravity model assumes trade between nations is inversely correlated with trade costs and directly associated with each nation's economic output (Borchert & Yotov, 2016);the Gross Domestic Product (GDP) is also frequently used as a proxy for economic size—and the distance between countries, measured in kilometres, is used as a proxy for transportation cost. Empirical research conducted by Tinbergen (1962) and Poyhonen (1963) was the first to introduce the gravity model to international trade. Empirical research by Leamer and Stern (1970) attempted to develop a theory consistent with the gravity model based on probability theory. His gravity equation incorporates demand and supply factors, eliminating price from gravity. Anderson (1979) was the first to provide a standard theoretical foundation for the gravity model. He derived the gravity equation by applying the Cobb-Douglas and Constant Elasticity of Substitution (CES) production functions based on Armington's assumption (1969). Erroneously, this was termed theoretical development, but it added only a new model specification in multiplicative form, arriving at elasticities. Later, Bergstrand (1985, 1989, 1990) proposed a micro-foundation gravity model with a monopolistic competition assumption and incorporated the effect of prices on trade flows. Helpman and Krugman (1985) justify the gravity model by assuming differentiated product markets and increasing returns to scale (IRS) in a monopolistic competition framework. However, with the induction of the WTO, the lifting of non-tariff barriers, and the regularisation of tariffs, the very credence of monopolistic behaviour disappeared.

Egger's seminal work discusses the selection of the appropriate estimation procedure and measuring trade potential based on panel data for explaining trade behaviour across countries (2002). Haveman and Hummels (2004) developed a multi-country, two-factor, two-good model based on the HOS theorem, derived a gravity equation for incomplete specialisation, and showed that the zero trade values are inconsistent with complete specialisation. Furthermore, Melitz and Ottaviano (2008) extensively developed a trade model based on heterogeneous firm behaviours. Chaney (2008) estimated that a firm's production depends on a proportion of the fixed cost of exporting. Further, Miltz and Ottaviano (2008) have applied the non-CESS function, and these heterogeneous firms are subject to the sunk cost of market entry. In his 2013 study, Novy developed another version of the gravity model grounded in a

Translog Demand System, enabling indigenous trade cost elasticity derivation. The findings revealed a nuanced relationship between trade costs and trade flow, demonstrating that the impact of trade costs on bilateral trade varies depending on the intensity of trade between the involved countries.

Incorporating firm heterogeneity, Chaney (2008) showed that changes in transportation costs could impact both the intensive and extensive margins of trade, affecting the number of exports and the number of firms participating in exports. Bergrstrand et al. (2013) formulated a structural gravity equation based on Krugman's (1980) study. The model demonstrates an alternative approach to account for the inward-outward resistance term without including a fixed effect. Additionally, this methodology is popularly used to account for the different policy variables for exporting and importing countries. Recently, Yotov et al. (2016) developed the structural gravity model to analyse trade policy in a general equilibrium framework that accounts for internal and external trade costs and considers domestic trade in the estimation procedure. Hence, it is clear from the review of literature that the central assumption of the gravity model is in accordance with trade theories such as the H-O model, Ricardian model, monopolistic competition, and new trade theory, etc., According to Head and Mayer (2014) and Sheperd (2016), the gravity model has become a workhorse empirical tool for the analysis of international trade flows and widely applied in trade literature.

Death of Distance and Emerging Distance Puzzle

The conventional rationale for the significance of distance in trade flows emphasises that transportation costs typically increase with greater distances. A study by Rauch (1999) found that less tangible trade-related costs, information about foreign markets and identification of suitable trade partners tend to hinder trade flows over a long distance. Anderson and van Wincoop's (2003) findings reveal that trade costs, averaging almost twice the magnitude of production costs, emerge as pivotal determinants of comparative advantage and trade flow. This suggests that the influence of trade costs on comparative advantage may even outweigh that of production costs. Other literature found that financial and trade integration through globalisation has led to the death of distance. In this regard, the well-researched study by Cairncross (1997) shows that distance is no longer important in the rapidly changing era of the communication revolution. However, Disdier and Head's (2008) comprehensive meta-analysis research, taking 1467 distance coefficients from 103 published papers, found that distance had a notably more substantial and adverse impact on trade volume. Still, the majority of those studies were conducted during the years when a major part of the trade took place through the sea route. Therefore, in the later years, many studies employing the gravity model produced inconclusive findings that have given rise to what is known as the "Distance Puzzle" in the literature.

In this context, Berthelon and Freund (2008) examine the intricacies of international trade dynamics, explicitly focusing on the evolving relationship between trade elasticity and distance. Using disaggregated bilateral trade data, the authors identify a noteworthy shift in the trade elasticity to distance, indicating a substantial increase of approximately 10% in absolute value since 1985. Furthermore, to unravel the reasons behind this observed shift, they decomposed the change in the

distance elasticity of trade. Intriguingly, their findings highlight those adjustments in the composition of trade that wielded limited impact.

The extensive body of prior research predominantly employed gravity models to assess and compare the impact of distance on trade dynamics over various periods. These studies typically estimate trade elasticity with respect to distance through gravity regressions conducted in different years. However, the outcomes of numerous gravity model studies have not yielded consistent or conclusive results. A few studies have demonstrated a decrease in the elasticity of trade to distance (Jacks, 2009; Carrere and Schiff, 2005), while most studies observed a modest increase (Disdier & Head, 2008). By taking long data observations, other studies found that trade elasticity to distance increased over the last 40 years (Brun et al.2005).

Critics of the Gravity Model

The empirical gravity model predicts bilateral trade flows between countries based on the intuition that trade between two countries is positively related to their economic sizes (measured by GDP) and negatively associated with the distance between them (a proxy for trade cost).Information and Communication Technology (ICT) has brought about a profound transformation in international trade, significantly influencing the traditional relationship between geographical distance and trade flows. The advancements in ICT have redefined the conventional notion that distances act as a barrier to trade. In this context, a study by Demirkan et al. (2009) examined 175 countries for 14,511 country pairs, employing a gravitational model to investigate the ICT on bilateral trade flows. The study revealed that increased bilateral trade flows are associated with countries exhibiting higher levels of internet use. This suggests that a shared digital infrastructure between nations enhances trade relationships and forms agglomerations.

Moreover, this study observed that the use of ICT by trading partners located at a greater geographical distance appears to have a more favourable impact on trade than in cases where countries are closer. Additionally, Xing (2018) and Yushkova (2014) reported that significant technological advancements, by reducing trade costs, should increase trade flows with distant countries. Similarly, Clark (2007) explores how geographical distance influences trade and foreign production. Particularly, industries involved in export and co-production across borders by examining their use of the Offshore Assembly Provisions (OAP) in the US. The study reveals that the distance effect does not influence trade and foreign production activities. Therefore, the literature contends that the growing technological advancements and interconnectedness among countries diminish the impact of distance on trade flows.

Globalisation has fundamentally altered the dynamics of international trade, redefining the traditional influence of distance on trade patterns. Trade agreements and market liberalisation, spurred by globalisation, have collectively weakened the negative influence of distance, fostering a climate conducive to international trade. Along similar lines, a study by Palan et al. (2021) studied the impact of globalisation on trade flows investigated over 50 years. The analysis encompasses 72 countries for the sub-period from 1967 to 1990 and 84 countries for the period from 1994 to 2016. The findings indicate

significant enhancements in all aspects of globalisation, leading to a decreased significance of distance in the entire period under examination.

Similarly, Larch et al. (2016) discovered that the elasticity of trade concerning distance diminished during globalisation, mainly attributed to technological advancements in transport and communication. Borchert and Yotov (2016) conducted an analysis of the impact of globalisation on manufacturing trade from 1986 to 2006. On a global scale, the overall effect of distance has decreased. Countries in the middle of the per capita income distribution experienced the most significant decline in distance coefficients. However, distance remains an important trade barrier for several low-income countries, suggesting that globalisation has not uniformly mitigated the impact of distance on trade for all nations.

Over a period of time, the emergence of a global production network altered the structure of trade. Moreover, it has challenged traditional trade theories and empirical models (gravity model). In these arrangements, various stages of the production process are distributed across different countries. The impetus for such organisational frameworks stems from the forces of globalisation, prompting companies to strategically reorganise their operations internationally. This restructuring often involves delegating specific activities through outsourcing and off shoring, contributing to contemporary global business practices of an interconnected and dynamic nature. In this context, research by Duan et al. (2022) shows that the distance coefficient declined over time after accounting for the influence of Global Value Chains (GVCs). Overall, the research indicates that globalisation and increasing global production networks help reduce the influence of distance on trade flows.

Agglomeration and Trade

Agglomeration and trade refer to the relationship between the spatial concentration of economic activities (agglomeration) and international trade patterns. The term "agglomeration" holds two distinct dictionary meanings. First, it refers to a process where elements come together or aggregate. Second, it describes a spatial concentration pattern of economic activity in certain goods or industries, influenced by factors like economies of scale and infrastructure advantages. In the early 1990s, scholars attempted to unravel why certain regions exhibited a disproportionate concentration of economic activities. The New Economic Geography (NEG) concept, pioneered by economist Paul Krugman in 1990, emerged as a groundbreaking framework. NEG shows the relationship between economies of scale and trade costs, identifying them as pivotal drivers for the agglomeration of economic activities in specific regions. Additionally, NEG postulates that producers and consumers strategically cluster their economic activities, creating agglomerations to capitalise on the benefits of plant-level economies of scale while concurrently mitigating trade costs.

A limited number of studies have explored the agglomeration of countries for trade and sources of agglomeration in economics. RTAs and FTAs are examples of forced agglomeration due to proximity and mutual trade interests. However, with the emergence of the WTO regime, the trading countries have come together due to various other economic factors. The example of BRICS can be taken for illustration that a few countries with huge geographical distances and diversified commodity trade came together as they felt a collective effort as an agglomerated group would enhance trade gains.

Earlier attempts have been made to understand the impact of economics of scale, product differentiation and imperfect competition on trade flows among the industrial economics by Balassa (1967), Grubel (1967,1970), and Kravis (1971) using the conventional trade models. However, Krugman (1980) argued that these factors can't be handled using the traditional trade models and proposed that the primary source of agglomeration force in international trade is the home market effect[6]. The home market effect originates from models incorporating returns to scale and transportation costs. When operating in a single country is more cost-effective for an industry due to returns to scale, that industry is likely to establish itself where a significant portion of its products is consumed, aiming to minimise transportation costs. This connection between market size and exports introduces a factor not considered in trade models relying solely on comparative advantage.

Fujita (1988) and Krugman (1991) developed a more sophisticated agglomeration of models. Mori and Nishikimi (2002) systematically investigate the dynamics of hub formation within a three-country case. Their empirical findings emphasise those advancements in economic integration, leading to increased cost efficiency in intra-regional trade and fostering the establishment of transport hubs within the integrated region. Notably, nations deeply engaged in significant trade activities will likely form such transport hubs. Head and Mayer (2004) sought to pinpoint the foundations of trade agglomeration through a theoretical lens of NEG. This framework highlights the relationship between transport costs and economies of scale at the firm level. It underscores the influence of both forward and backward trade linkages on the observed geographical concentration of economic activities, providing substantial backing for the NEG framework.

Emerging Trade Agglomerations

Trade agglomeration, a process preceding the formation of the WTO, witnessed the dominance of geographical distance in shaping global trade patterns. However, the establishment of the WTO marked a transformative phase, introducing rule-based trade agreements that significantly diminished the influence of conventional trade barriers like tariffs and non-tariff measures (NTMs). This shift empowered many nations to actively participate in the global trade landscape and challenged the historical supremacy of developed countries. Furthermore, countries dispersed across various continents inherently form natural trading regions. The variations in transport costs can stimulate increased trade among specific regions, even without formal RTAs. In this context, an expanding body of scholarly work has sought to quantify the influence of inherent factors, particularly geographical proximity, on regional trade dynamics (Engel and Rogers, 1996; Parsley and Wei, 1996). These investigations reveal a consistent trend wherein countries situated in closer geographical proximity exhibit increased trade volumes and reduced trade costs, underscoring the significant impact of spatial closeness on trade relationships. In contrast, Krugman (1991) noticed that countries spread across continents tend to naturally trade together. His idea is that differences in transportation costs can boost trade between specific regions, even without formal trade agreements. The study highlights that forming a trade

[6]Firms are inclined to export goods for which they possess comparatively extensive domestic markets, popularly known as home market effect. See, https://www.sciencedirect.com/science/article/abs/pii/S0022199608000871

agreement with a distant country might be more beneficial than with a nearby one, especially if both countries have similar economic sizes. Therefore, we propose employing the concept of trade agglomeration by incorporating the natural trading hypothesis and measuring both demand and supply side factors within a panel trade model. For evaluating supply side factors, we utilize the Trade Complementarity Index (TCI), which accounts for differences in factor endowments between trading partners, indicating the extent to which two countries can be regarded as "natural trading partners." In assessing demand side factors, we consider the disparity in per capita income between the two countries. The amalgamation of demand and supply factors indicates the extent to which market forces propel countries to establish trade agglomerations.

The emergence of trade partnerships in existing theories often relies on empirical factors, somewhat overlooking other crucial elements like political blocs. Many factors beyond traditional considerations influence the agglomeration of two or more countries. Trade agglomeration gained momentum post-WTO and the rise of trade blocs. Previously, individual countries operated like monomers in polymer chemistry. However, as nations established new connections, RTAs evolved into more structured agglomerations. While RTAs represent formal agglomerates, informal groups can also act as trade agglomerates. This shift highlights the dynamic nature of international trade relationships, expanding beyond conventional economic considerations and requiring further investigation. We define emerging trade agglomeration as the phenomenon where network trade activities concentrate not only in specific geographic regions or countries in the world but also in countries dispersed across various continents, inherently forming trade links. Clustering trade in these areas leads to more efficient trade due to market sharing and improved communication channels. Trade agglomeration, therefore, represents the synergy between concentration and dominance trade practices, demonstrating how certain countries form the trade network based on comparative advantage and market economy.

Conclusions

Recent changes in global trade require a closer look at theories explaining why nations trade and what advantages they gain. Despite our current understanding, a limited number of studies have systematically documented the historical and theoretical background of international trade and trade policies, along with their impact on international trade flows. Classical trade theories predominantly centre on disparities in factor endowments, serving as the primary drivers of comparative advantage. The majority of classical trade theories were grounded in supply-side factors. Linder (1961) suggested that similar demand structures prompt more intense trade in manufacturing goods between partners, as opposed to the supply-side arguments. Recent empirical studies highlight the growing intra-industry trade in the contemporary global trading system, indicating trade between similar countries. To comprehend intra-industry trade, new trade theories prioritise economies of scale and imperfect competition, departing from the assumptions of perfect competition and constant returns to the scale used to explain inter-industry trade. Paul Krugman's new trade theory stands out as widely accepted. In the 21st-century trade models, it is argued that a select few firms with higher productivity are more likely to engage in global trade.

From a trade policy perspective, the literature focused on reasons for participating in FTAs and RTAs. One strand of literature claimed that RTAs improve the member countries' trade flows, provide market access, and lower trade barriers. Another strand of literature is that RTAs can damage global free trade, and regional agreements serve as a building block for free trade when they are open but act as a stumbling block when they are not open. In the past three decades, the gravity model of trade has emerged as the primary tool for comprehending the impact on regional trade flows. Nevertheless, extended literature argues that the increasing technological advancements and interconnectedness among countries diminish the influence of distance on trade flows. The literature also argued that geographically dispersed countries across various continents naturally form trading regions, significantly reducing the role of distance over time.

In the early 1990s, scholars sought to understand why some regions displayed a disproportionate concentration of economic activities. The New Economic Geography (NEG) concept, introduced by economist Paul Krugman in 1990, emerged as a groundbreaking framework. NEG highlights the crucial role of economies of scale and trade costs in driving the agglomeration of economic activities in specific regions. They discovered that the agglomeration of activities across trading countries positively impacts trade flows.

Emerging trade agglomeration is the concentration of network trade activities in specific geographic regions or countries and countries dispersed across continents, naturally establishing trade links. This clustering enhances trade efficiency through market sharing and improved communication channels. Trade agglomeration embodies the synergy between concentrated and dominant trade practices, showcasing how certain countries build a trade network based on comparative advantage and market economy. Previously, the formation of trade blocs was explained using the gravity equation, emphasising GDP and distance as key determinants of trade flows, which may provide misleading results of global trade flows. Therefore, we suggest employing the theoretical framework of agglomeration emergence to understand how countries come together for collaborative trade instead of conventional trade theories of bloc formation as a natural process.

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