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The Legacy of Conventional Textbook Trade Theory in the Light of Globalization

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The term "globalization" designates the rapidly advancing international economic integration through substantial growth in trade of goods and services as well as surging cross-border factor mobility from the early 1990s onwards. This acceleration in the liberalization of world trade and capital movements is largely attributable to technological progress which significantly curtailed the expenses for transport as well as communication. In conjunction with the progressing opening of major newly industrializing economies endowed with abundant and cheap labor forces, it has reinforced a geographical fragmentation of production processes according to cost considerations. This phenomenon termed as "vertical specialization", "outsourcing" or also "slicing the value chain" in turn has translated into a hike in FDI and international trade of intermediate products. The main objective of this paper is to identify adequate trade models for assessing the corresponding effects of those developments. In this context, textbook trade theories spanning from comparative advantage à la Ricardo to the new-new trade theory are examined. Subsequently, we expand on globalization-induced new forms of trade (intra-firm trade, trade within the value chain) and finally conclude with our findings to properly account for those trends.

Keywords: economic integration, international trade, globalization, outsourcing, trade theory

Introduction

According to Held and McGrew (1999), the term "globalization" designates the set of processes that have stretched authority, participation, activity, and resolution beyond the physical borders of the national state. In sharp contrast to the preceding Cold War era, the capture of other nations' economies has acquired greater significance than the conquest of actual physical territory in today's world (Strange, 2000). Threats concerning military force were in this sense supplanted by instruments, such as trade and macroeconomic policy (Kaya, 2006). Humankind has been witnessing an unprecedented surge in international trade and foreign direct investment (FDI) from the early 1990s onwards (Goerg, Klein, Pflueger, & Krebs, 2015). This trend was not only evoked by plummeting costs for transport as well as substantial technology leaps in digital communication technologies (Jacks, Meissner, & Novy, 2011; Francois, 2010) but also diminishing tariff and investment barriers throughout the globe within the framework of the WTO (Baier & Bergstrand, 1997; Cooper, 1995). Above all, the steady opening of NIEs (newly industrializing economies) endowed with their abundant and

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cheap labor forces has bolstered the geographical fragmentation of production processes in the light of cost considerations (Boehmer & Funke, 2016). The conception of Baldwin (2006) concorded these claims as he partitioned the globalization process into a first and second "unbundling". While the "first unbundling" signified the spatial separation of consumers and still entirely vertically integrated factories, the "second unbundling" heralded in a relentless vertical disintegration of the manufacturing process as such. It engendered geographically separated but yet interconnected subunits around the world connoting an inflated volume of foreign trade as intermediate goods and services cross borders multiple times. To underpin this assertion with a few figures, world merchandise trade skyrocketed from USD 6 trillion in 2001 to about USD 16 trillion in 2016 (WTO, 2014; 2017). This spell of growth was merely interfered by two adverse temporary events in the form of the financial crisis in 2008/2009 as well as the extraordinary drop in energy prices by 45% accompanied by a strong appreciation of the USD in 2015, only after world trade figures indicated an unbroken climax of over USD 18 trillion in 2014 (WTO, 2016). On the contrary, world trade in commercial services proliferated steadily from USD 1.8 trillion in 2003 to USD 4.8 trillion in 2016 (WTO, 2004; 2017).

In a nutshell, the main objective of this paper is to analyze the suitability of various trade models for assessing the implications of the globalization process. In the pursuit of this goal, we examine at first conventional textbook trade theories ranging from comparative advantage à la Ricardo to the new-new trade theory within the scope of Sections 3 to 5, after having briefly outlined the concept of mercantilism in Section 2. Section 6 then completes this endeavor by addressing globalization-induced new forms of trade (trade within the value chain, intra-firm trade, etc.) before we eventually delve into the conclusions of our study.

Mercantilism

Mercantilism denotes the prevailing economic policy in the epoch of early capitalism from the 16th to the 18th century. This incipient stage of an economic theory was clearly premised on the necessity of those absolutist-governed European states to fund their standing armies as well as augmenting official apparatus. Intriguingly, the term "mercantilism" was in fact coined posthumously by its supreme critics, primarily Adam Smith who acknowledged Thomas Mun's (1664) *Treasure by Foreign Trade* to constitute the manifesto of this paradigm. Mun advised to achieve a positive balance of payments through appropriate foreign trade. Thus, there was the notion to accomplish an excess in the overall balance of foreign trade. Mun specifically advised to constrain all imports to raw materials while finished goods were ought to be exported and foreign trade only allowed to be conducted by domestic carriers. Similar recommendations had already been developed by Jean Bodin (1576) in his *Les six livres de la république 1576*. He pledged a trade surplus by means of export duties on goods whose importation is indispensable to foreign countries, low import duties on required raw materials, and high import tariffs on foreign finished products (Kolb, 2017; Tilly, 2015; McGuire & Ohta, 2005).

The ultimate objective of mercantilism was the enrichment and empowerment of the state to the maximum degree through acquiring as well as retaining as much economic activity as possible within the nation's borders. Notably, a high population growth was striven for since it was supposed to entail a high potential of labor concurring with a low wage level. This promotion of price competitiveness against foreign production would in turn evidently foster domestic demand. Mercantilists sought the creation of an internal market by abolishing domestic duties as well as unifying weights, measures, and coinage. The endorsement of domestic production was meant to suppress the import of finished products tantamount to preventing the efflux of money abroad. On top of it, even the export of gold as well as silver for payments was banned. Above all, a trade surplus was

aimed for because it was alleged to yield enhanced domestic employment and demand. On the one hand, this aim was predominately attained by imposing high tariffs on the importation of finished goods accompanied by curtailed or no tariffs at all on the importation of raw materials. On the other hand, a policy of marginal or no taxes on the export of finished goods coinciding with high duties on the exportation of raw materials was pursued. This dogma was even underpinned by subsidies on exported manufactured products. Colonization was ought to satisfy the relentless craving for new markets to position domestic products whereas those colonies were forbidden to trade with other nations (Gömmel, 2010; Magnusson, 2003; Blaug, 1985).

The founders of classical economics Adam Smith and John Ramsay McCulloch reckoned mercantilism as both a confusion of wealth with money and a meaningless endeavor to seek trade surpluses. They imputed mercantilism with a policy that only serves to support privileged and monopoly obsessed merchants. In the debates of the early 19th century, mercantilism was therefore considered as the protectionist's counterpoint to free trade ideas of classical economics (Magnusson, 2015). Also, the contemporary sentiment equates mercantilism with a zero-sum game in which one country can only profit at the expense of another. Today's school of thought declares that international trade is not a zero-sum game but welfare effects existing for all countries involved (Dietrich, 2014). However, we would be misguided by a belief that Mun's concept is obsolete and completely loses its relevance in in modern days as the current protectionist stance of the Trump administration inevitably reminds us of some mercantilistic tendencies.

Comparative Costs

As described above, international trade was characterized until the 19th century by mercantilism equivalent to a zero-sum game where the overall economic benefit is not maximized. It was only Adam Smith's concept of absolute cost advantage which ushered in an emerging economic liberalism by explaining trade of two countries with their absolute differences in production costs (Sen, 2010). In his work *On the Principles of Political Economy and Taxation*, David Ricardo (1817) poured Smith's notions into an influential model which elucidates the occurrence of trade between two economies due to their productivity differences in manufacturing individual goods. In its simplest form, his model postulates two countries, two goods, and only one factor of production (or short: 2×2×1 model), namely, the human labor force measured in working hours. The chief principle of Ricardo's model is a comparative advantage which states that the benefit of trade between two countries does not depend on the absolute production costs (absolute advantage) but on the relative costs of the goods created. It suggests that international trade is still beneficial for Country 1 even if it faces absolute cost handicaps in the production of all goods while Country 2 is blessed with all-encompassing absolute cost advantages (Beck, 2014). Hence, it is primarily premised on the existence of different production cost structures for both trading partners meaning that Country 1 has to renounce for good *A* fewer units than for commodity *B* vis-à-vis Country 2. Additional simplifications presume free foreign trade, no expenses for transport, perfect competition in all markets (price on par with marginal costs), full employment, immobility of labor force between countries, an identical wage rate in both sectors of a country, and goods being generated at constant returns to scale (Krugman, Obstfeld, & Melitz, 2011). Founded on these preconditions, the model concludes that each state is supposed to specialize in the merchandise which demands the comparably lower opportunity costs. Hence, the superior country focuses on generating goods where its absolute advantage is relatively greater while the inferior country concentrates on fabricating goods where its absolute disadvantage in efficiency is relatively smaller. Since this principle involves a double comparison across both goods and

states, it is purely impossible by definition for a country to bear a comparative disadvantage in every commodity (Demmler, 1997; Weeber, 2014). This consequentially evokes trade of inter-industry kind implying a state's exports and imports belonging to different sectors. It prompts a raise of both countries' living standards because the resulting world pattern of production is more efficient than in the case of each country serving exclusively for its own market (Krugman et al., 2011; Dietrich, 2014). Their respective residents are hereby able to import foreign merchandises at a lower and export domestic goods at a higher relative price (Deardorff, 1980; 2005b). Despite its simplicity, the Ricardo model proves pertinent for assessing the impact of one trading partner's advancement in technological progress which indeed represents a warrantable issue in the light of the contemporary productivity growth of diverse emerging economies.

Factor Endowments

While the Ricardian model highlights technological differences (labor productivity), the Heckscher-Ohlin model developed in the twenties of the 20th century ascribes comparative advantage to differences in factor endowments (Max, 1994). Since this concept rests upon the interaction between the proportions of production factors' availabilities in different countries and their usage in manufacturing different goods, it is also termed factor proportion theory (Krugman, Obstfeld, & Melitz, 2015). Its eponymous founders Heckscher and Ohlin extended Ricardo's doctrine of divergent labor productivity as single source for inter-industry trade by introducing capital as a second factor of production (Beck, 2014). The simplest as well as most original version of factor proportion theory is therefore called "2×2×2 model". This version comprises two factors (labor and capital), two countries (domestic and foreign) of dissimilar endowment with these factors, and two goods (correspondingly labor and capital intensive in production). Additional premises are presented in the following: The factors are fully mobile between the two sectors of one country but immobile across countries; perfect competition exists domestically for these two factors under full employment in equilibrium as their supply remains inelastic, i.e., independent of the factor prices; manufacturing revenues are not affected by scale; impediments of trade by tariffs or non-tariff measures and transport costs are neglected (Chacholades, 1992; Krugman, 1993b; Shiozawa, 2009; Morasch & Bartholomae, 2017; Borchert, 2001; Frances, 1989). The "2×2×2 model" provides insights into the structure of foreign trade, stemming from the key precondition of two countries being virtually identical apart from those differences in relative factor endowment. The relative abundance in capital enables the capital-abundant country to fabricate the capital intensive good cheaper than the labor abundant nation and vice versa. Initially, production of both products is equivalent to consumption in each state akin autarky. Once trade is permitted, each nation will produce its relatively factor intensive good even more extensively in order to export this surplus as profit seeking firms to exploit those initial price differentials between the markets. In a nutshell, a country has a comparative price advantage for the good whose manufacturing makes use of the relatively abundant production factor. The Heckscher and Ohlin theorem congruously states that the relatively capital abundant country therefore exports capital intensive goods but imports labor intensive goods and vice versa. This way, scarce factors are imported while abundantly offered factors are exported indirectly. Apart from the Heckscher-Ohlin theorem, another three theorems (Stolper-Samuelson, Factor-price equalization and Rybczynski) were derived from this basic model (Krugman et al., 2015).

The Stolper-Samuelson theorem suggests that trade leads to higher remuneration of the abundant factors and vice versa (Stolper & Samuelson, 1941). To be more precise, the following exemplary chain of effects transpires: As the relative price of Good 1 increases upon the implementation of trade, the value of marginal product of the factors rises in Sector 1 but declines in Sector 2; Sector 1 demands more capital and labor whereas Sector 2 lays off both production factors; however, factor demand in Sector 1 and supply from Sector 2 are incompatible due to different factor intensities; Sector 1, e.g., requires a lot of labor but little capital to increase its production whereas Sector 2 releases a lot of capital but little labor when reducing production. Thus, a surplus demand for labor but a surplus supply of capital emerges; it follows that the price of labor (wages) increases while the price of capital (interest) descends.

The closely linked factor-price equalization theorem by Samuelson (1948) postulated that the prices of identical production factors (e.g., wage rate of labor and the rent of capital) converge across countries along with good prices as a result of international trade. Curiously enough, the same notion was independently conceptualized by Lerner in 1933 even though not published till 1952 (Lerner, 1952). The trade in goods therefore entirely compensates for the mobility of production factors, such as migration of labor or capital flows (Rose & Sauerheimer, 1999). In other words, once the prices of the output goods converge between two nations as an outcome of free trade, then the prices of input factors (labor and capital) will be equalized between them, too (Borchert, 2001).

Overall, the Heckscher and Ohlin model serves to elucidate specialization, efficiency gains, and ultimately inter-industry trade between countries which have in harsh discrepancy with Ricardo the very same access to technology (Ethier, 1991). The robustness to relaxing the key simplifications of the model was buttressed by Ethier (1974), Jones and Scheinkman (1977), Balassa (1986), as well as Bowen, Leamer, and Sveikauskas (1987). They showed that even when several goods and factors come into play, altering trade policy (opening of markets, tariff changes, etc.) in any case increases the return of at least one factor and yet impairs the return of at least one other factor. Despite of emphasizing the potential for distributional conflict over trade policy, this general assertion does not object international trade theory’s mantra asserting that economies benefit at the bottom line from tariff curtailments (Neary, 2004).

Imperfect Competition and Economies of Scale

The theories described earlier accredit the driving force of foreign trade to countries profiting on their differences through sectorial specialization. While the Ricardian doctrine stresses technological differences in terms of labor productivity, the Heckscher-Ohlin model postulates differences in factor endowments as the root cause of comparative advantage. The notion of comparative advantage is however rather suited to predicting inter-industry trade between developed and emerging economies since the former is relatively capital abundant and additionally most likely have easier access to more advanced technology (higher labor productivity). Au contraire, resembling goods account for the vast majority of today’s foreign trade taking place between barely distinguishable industrial countries which are virtually identical in their technology, skill level, as well as endowments in capital and labor. The “new trading theory” has been committed itself since the 1980s to explaining this intra-industry trade synonymous with reciprocal imports and exports of sophisticated goods belonging to very same economic sector (Pelkmans, 2006; Beck, 2014; Dixit, 1984; Krugman, 1993a).

In brief, product differentiation and economies of scale serve as elementary impetuses for intra-industry trade (Krugman, 1979; 1980; 1981). Companies perceive product differentiation as an opportunity to obtain a unique selling proposition in its product's distinctive market segment. Such coexistence of similar variants of a product is conceptually referred to as a monopolistic competition. Companies in such an industry characterized by imperfect competition produce individual variants in a monopolistic fashion (Dixit, 1984). They have a certain extent of market power which is why they are able to extract profits by dint of charging prices in excess of marginal cost (Sen, 2010). Under these circumstances, each company deems itself rather as a price setter than a price taker. Since their products are nevertheless imperfect substitutes they still face indirect competition with other product variants which consumers could potentially fall back on. Cross-border trade intrinsically emerges as foreign companies offer different product varieties than domestic ones fitted to the specific needs of diverse consumer groups. Hence, each country functions as an exporter as well as an importer in all sectors of the economy. Trade liberalization accordingly implies an immediate welfare gain in form of an enlarged selection of product varieties on the domestic market through the entry of foreign producers (Dixit & Stiglitz, 1977). Simultaneously, consumers derive advantage from intensified competition in variants, which exerts pressure on firms to curtail prices.

Concurrently, companies reap scale economies by means of a growing integrated sales market (Krugman & Obstfeld, 2003b). Economies of scale essentially come into effect since incurring fixed costs are spread amongst an increasing number of units, which results in a decline of average unit costs. Thus, they arise when an additional unit is manufactured less expensively than the average of all preceding units which is why these lower marginal costs lead to a reduction of long term average cost (Pelkmans, 2006). According to Krugman and Obstfeld (2003a), "economies of scale can be internal (depending on the size of the firm) or external (depending on the size of the industry)", albeit both of them signify a crucial cause for international trade (Krugman et al., 2015). Referring to the latter, average production costs depend on the output volume of a sector composed of several individual firms. Reduced costs are realized through synergies across a geographically concentrated industry via technology transfer, human capital formation in the form of specific qualification, and the evolution of intermediate sectors (Dieckheuer, 2001). Firstly, the spatial concentration as well as the augmented size of a sector fosters vertical disintegration in the sense of a growing interwoven specialized intermediary and investment goods industry (Holmes, 1999). This in turn provokes enhanced competition amongst these specialized suppliers, rendering their goods and services more affordable (Maennig, 1999). Secondly, knowledge spillovers are soaring with the size of an industry which unmistakably promotes technology leaps concerning the production process and thus favorably impacts average costs. Thirdly, a rising geographical density of specialized workers enables employers to tap into labor market pooling (Maennig, 1999). Market size impacts the state of equilibrium since a large market basically supports more companies where each on top produces at larger scale and hence lower average costs as compared to a small market (Krugman, 1995a). Hence, significant external economies of scale favor well established patterns of inter-industry trade to sustain because countries which have always been large producers in certain industries are historically advantaged to retain their status. Ethier (1979; 1982b) was amongst the vanguard of those who receded from the standard competitive model, solely grounded on comparative advantage. His Marshallian approach on the premise of increasing returns which are entirely external to companies concluded that market integration through international trade exerts the same impact analogous to market growth within a single economy (Ethier, 1982a). Internal scale effects occur when the average cost per unit is overridingly dependent

on the size of the individual company (Krugman et al., 2015). Technical and organizational efficiency gains as well as higher personnel qualifications are generally speaking attainable through mass production (Dieckheuer, 2001; Kantzenbach & Mayer, 1993). It also increases the likelihood of associated learning curve effects which translate into additional savings due to progressively improving processes (Soellner, 2011; Wittig & Zentes, 2005). Moreover, larger companies are inter alia also rewarded with more favorable credit conditions and discounts by suppliers (Kubosch, 2008). This cost degression is evidently positively correlated with the size of an individual firm (Frensch, 1993). Internal economies of scale thus infer an increased propensity towards predatory competition and development of an oligopolistic market structure, indicative of imperfect competition as large companies exploit their cost advantage to squeeze out smaller businesses (Krugman et al., 2015; Tarver, 2017).

Monopolistic competition models assume that enterprises act as individual monopolist in terms of setting prices, yet without having the ultimate privilege of a really unchallenged monopoly (Krugman & Obstfeld, 2003a). Incidentally, the theoretical literature distinguishes between horizontal and vertical product differentiation involving similar and divergent qualities of product variants, respectively (Reitzes, 1992). Lancastrian and Chamberlinian denote two distinct approaches towards modelling horizontal differentiation (Greenaway, Hine, & Milner, 1995). While the former suggests that consumers aim for a particular combination of attributes in their preferred variety (Lancester, 1979), the latter contends that they aspire to purchase as many varieties as possible of a given product class (Dixit & Stiglitz, 1977; Spence, 1976). The diverse methodologies were explicitly incorporated in the models of intra-industry trade by Lancester (1979) and Krugman (1979), respectively. Most notably, both deduce a final equilibrium of manifold differentiated products, made by enterprises which enjoy monopoly power but do not generate monopoly profits (Krugman, 1985). A landmark contribution of Helpman and Krugman (1985) reflects the interaction of intra-industry with inter-industry trade as their Chamberlin-Heckscher-Ohlin derived model synthesizes factor endowments, economies of scale, and horizontal product differentiation. Apart from Krugman (1980), the modelling pursuits expanded on earlier are based on the assumption that all enterprises are placed symmetrically in each country's market. Though, this is contradicted by empirical observation since especially transportation costs as well as distorting tariff and other trade policies engender companies to concede different market shares in their diverse countries of operation (Rauch, 1993). Veneables (1987) availed himself of the model proposed by Krugman (1980) in order to investigate the impact of changes in technology, different country sizes, and trade policy on net trades as well as the equilibrium allocation of the monopolistically competitive industry between two economies.

The trade models having been described so far altogether take in a simplistic manner only homogenous sectors into account but omit empirically essential differences among enterprises within a sector. The so-called "new-new trade theory" arose in the quest to also factor in firm-level heterogeneity which proved pivotal in evaluating the gains from foreign trade as well as its allocation across businesses and factors of production. As a matter of fact, the corresponding models unveiled that a country's opening to global markets triggers an aggregated productivity boost through redistribution of resources and market share towards the more productive enterprises in each sector (Bernard, Jensen, Redding, & Schott, 2007; Melitz, 2003; Bernard, Redding, & Schott, 2006). Bernard, Redding, and Schott (2007) for instance incorporated firm heterogeneity in the model of intra- and inter-industry trade published by Helpman and Krugman (1985). According to Manteu (2008), this merger now:

> Combines factor endowment differences across countries, factor intensity differences across industries, and heterogeneous firms within industries and is able to simultaneously generate inter-industry trade (countries are net exporters in their industries of comparative advantage), intra-industry trade (even within an industry where a country is a net importer, two-way trade happens), and selection into export markets (within both net exporting and net importing sectors, some firms export while many others do not). (p. 83)

Globalization Induced New Forms of Trade

The current wave of globalization distinctive for its financial and economic integration of different parts of the world has been pressing forward for over two decades now (Goerg et al., 2015). Several underlining causes elicited an unprecedented surge in international trade in goods and services as well as foreign direct investment (FDI) during this period. To begin with, economic activity has been promoted by dwindling costs in transport as well as the rapid pace of innovation in information and communication technologies (Goerg et al., 2015). Another key feature represents the dismantling of tariff and investment barriers throughout the world within the framework of the World Trade Organization (Baier & Bergstrand, 1997; Cooper, 1995). Above all, large emerging markets exemplified by China or India have been becoming increasingly integrated within the global economy via political and economic reforms, which has significantly increased their proportion of global exports over the last 20 years (Boehmer & Funke, 2016; Ehrl, 2013). Notably, this liberalization movement of NIEs (newly industrializing economies) concurred with the wide spread of internationally intertwined value chains (Fenestra, 1998). It induced the phenomenon labelled as “vertical specialization”, “outsourcing”, “offshoring”, “kaleidoscope comparative advantage”, or also “slicing up the value chain” which buttressed the global optimization of production processes in the light of cost consideration (Krugman, 1995b; 1996; Bhagwati & Deheja, 1994). Firstly, mounting pressure is inevitably exerted on low skill labor in developed countries since less demanding manufacturing activity is understandably relocated towards low-wage NIEs (Grantham, Ware, & Williamson, 2007; Rodrick, 1998; Samuelson, 2005). Intriguingly, some service industries (call centers, etc.) suffer the same fate (even though not as pronounced as for manufacturing), predominantly attributed to those development leaps in information and communication technology mentioned earlier (Amiti & Wei, 2005). Secondly, this figurative splitting of the vertical production line into geographically separated but yet interconnected subunits around the world connotes an inflated volume of foreign trade as intermediate components cross borders multiple times (Yi, 2003; Antweiler & Trefler, 1997). It inarguably underscores the great significance of trade barriers since in modern supply chains the effects of tariff-based and non-tariff trade barriers are amplified.

International fragmentation of production basically arises when a company either awards a foreign supplier with an outsourcing contract or even launches its own subsidiary abroad via FDI (Grossman & Helpman, 2005; Helpman, 2006). Indeed, the latter frequently holds true as MNEs (multinational enterprises) in particular split their manufacturing processes into a proliferating number of individual steps which are then shifted to the more cost efficient locations worldwide (Goerg et al., 2015). Consequentially, intra-firm trade not only in intermediate inputs but also intangible assets emerges between the firm’s affiliates (Helpman, 1985). Krugman and Obstfeld (2003b) claimed that these international corporations often act as agents for the translocation of both labor intensive production from developed economies to labor-abundant NIEs and capital flows from capital-rich countries to capital-scarce nations.

The internalization theory states that FDI ensues when a company's value appreciates by means of exploiting its intangible assets amongst its subsidiaries (Morck, 1991). Instead of licensing their knowledge to independent local producers, MNEs in effect internalize the market for some of their intangible assets and provide them to their foreign branches via intra-firm trade where they are combined with local factors of production. The degree of international involvement is henceforth alleged to positively correlate with a corporation's value since it is able to leverage intangible assets, i.e., patents, special know-how, management skills, or customer loyalty on a larger scale (Confernce-Board, 2017). Verdin and Williamson (1994) subcategorized intangible asset into five main classes:

(1) Customer assets: e.g., brand recognition, customer base and loyalty;

(2) Channel assets: e.g., established channel access, marketing infrastructure, and distributor loyalty which are in particular key for goods which pass through middlemen before reaching the end consumer. Push marketing in this context constitutes a fascinating case where manufacturers direct their marketing efforts not to end users but distributors exemplified by pharmaceuticals which depend on a physician's prescription;

(3) Input assets: e.g., discounts by supplier, access to financing and knowledge of imperfect factor markets;

(4) Process assets: e.g., organizational systems, human capital, patents, superior production technology, platform knowledge, R&D and design skills;

(5) Market knowledge assets: e.g., information on competitors, customer preferences, and price elasticity of demand.

Other incentives for international fragmentation on the grounds of intra-firm trade are opportunities for tax avoidance and access to lower input costs abroad (Morck, 1991). This is especially applicable to the shift of less skill demanding but labor-intensive production stages towards low-wage NIEs (Feenstra & Hanson, 1996). In addition, Markusen (2002) asserted a MNE's substantial superiority over domestic enterprises when the overall market is large and when firm-level economies of scale outweigh plant-level economies of scale. Risk reduction through the diversification of the real asset portfolio represents yet another rationale for FDI which ultimately guarantees MNEs more stable earnings in comparison with purely domestic firms (Rugman, 1975). If barriers to international capital flows moreover deny investors an optimum level of international diversification, MNEs offer shareholders a substitute means via their direct investments abroad which in turn boosts their stock prices (Adler & Dumas, 1983; Fatemi, 1984). Last but not least, attracting regulatory or trade policies in a foreign country is not to be neglected, either (Fenestra, 1998).

Irrespective of empirical research advocating a positive relationship between the degree of international involvement and excess market value in general (Errunza, 1980), the location of the respective business activity is universally perceived to be decisive.

Table 1 summarizes the four overarching modalities of FDI as well as the respective variables which influence the locational choice of FDI destination according to Dunning (1998). Interestingly, FDI catalyzes the spatial bunching of companies engaged in related activities (e.g., science and industrial parks) since shared service centers, distribution networks, specialized factor inputs, and access to localized support facilities unleash external economies of scale (Maskell, 1996; Rees & McLean, 1997). Furthermore, the rising role of M&A's (mergers and acquisitions) demonstrates the mounting relevance of strategic asset seeking FDI. In fact, several contributions on the geographical distribution of R&D and registered patents reveal that MNEs increasingly seek locations with access to knowledge-intensive assets, learning experiences, management expertise, and organizational competence (Almeida, 1996; Kuemmerle, 1996; Cantwell & Harding, 1998).

Those locations which expand a company's ownership specific advantage usually tend to be concentrated on advanced industrial countries or larger NIEs. Ultimately, it is a tradeoff between infrastructure (human and physical), institutional framework, market access, existence of regional clusters for external scale economies on the one hand and access to inexpensive natural resources as well as a low cost labor force on the other hand, which determines the locational choice of FDI destination (Dunning, 1998; Grabher, 1993).

Table 1

Major Types of FDI and the Variables Which Influence the Locational Choice of FDI Destination

Type of FDI	Variables influencing the locational choice of FDI destination
Resource seeking	Availability, price and quality of natural resources Infrastructure which enables exploitation of resources and export of finished products Investment incentives such as subsidies or tax concessions by host government Presence of local partners to jointly pursue capital-intensive resource exploitation
Market seeking	Preferably large and growing domestic or preferably even regional markets (NAFTA, EU, etc.) Availability and price of skilled labor Presence of leading industrial suppliers Quality of infrastructure and institutional competence Macroeconomic and macro-organizational policies as imposed by host government Increased need for close proximity to consumer in knowledge-intensive sectors Growing importance of promotional activities by local development agencies
Efficiency seeking	Costs of real wages, materials and transport Tariff and non-tariff trade barriers Availability of spatial clusters (e.g., science and industrial parks) to yield external economies of scale Investment incentives such as tax breaks, accelerated depreciation, grants and subsidized land
Strategic asset seeking	Availability of affordable knowledge-related assets and need of companies to harness such assets from foreign locations Regulations impacting the ease or difficulty at which such assets can be acquired Opportunities offered for exchanging localized tacit knowledge and ideas Access to different cultures, institutions and different consumer preferences

Note. Source: Dunning (1998).

The trade models described in Sections 3 to 5 assume for the sake of simplicity that all tasks engaged in the production of a good or service are condensed within a country's territory. Numerous authors embedded international fragmentation of production into some of those preceding models through breaking the entire value chain down to the level of intermediate inputs and services which are now admitted to be geographically separated (Arndt, 1997; Venables, 1999; Deardorff, 2001; 2005a; Bhagwati, Panagariya, & Srinivasan, 2004; Jones & Kierzkowski, 1990). The key insight from these diverse contributions is that "vertical disintegration" opens up new possibilities for generating gains from specialization and foreign trade (Baldwin & Robert-Nicoud, 2007). G. Grossman and Rossi-Hansberg (2006a; 2006b) conceptualized an alternative model where production hinges on foreign trade in tasks, equivalent to individual steps which are executed either domestically or abroad by various factors (inter alia capital, unskilled- and skilled-labor, etc.). In analogy to the Heckscher-Ohlin model, it presupposes two goods and two countries of different factor intensities and factor endowments, respectively. Nonetheless, adaptions to globalization evolve here at the task rather than the sector level, i.e., the tasks selected to be offshored may be performed within a broad spectrum of sectors. Even though, this implicates an inherent complexity owing up to the empirical evidence that independent on the demanded skill level not every task is principally transferable (Blinder, 2006), e.g., a taxi driver (low skill job) versus a primary care physician (high skill job). After all, Grossman and Rossi-Hansberg showed that "in contrast to the distributional conflict that results from reductions in the cost of trading goods in traditional trade frameworks like the H-O-S model, reductions in the cost of trading tasks may generate gains for all domestic factors" (Manteu, 2008).

Conclusion

Comparative costs and factor endowments are long-serving principles of foreign trade as they still prove pertinent today to expound the effects of the globalization process which has been unraveling the economic order of the past. The Stolper-Samuelson theorem has been popularly applied whenever delving into the sensitive “trade and wages” debate (Neary, 2004). Firstly, the observed widening differential between skilled and unskilled wages in first world countries upon intensification of trade with low wage NIEs can be explained when the two factors of the simple 2×2×2 version of the model are reinterpreted as skilled and unskilled labor. Secondly, more sophisticated models which take multiple classes of worker productivity into account also show to generate the Stolper-Samuelson effect within each class of labor. They clearly indicate that an unskilled worker in a developed country will be worse off when facing trade liberalization since he embodies a scarce factor in the production of high skill demanding and capital intensive domestic exports (Leamer, 1998; Neary, 2006). The notion of the Heckscher-Ohlin model therefore assorts well with the actual empirical evidence concerning technological advance facilitated outsourcing of unskilled-labor intensive stages of production into low wage NIEs what simultaneously slashes and raises wages of unskilled and skilled workers in industrial countries, respectively (Samuelson, 2005; Jones, 2000).

Intriguingly, also Samuelson’s factor price equalization theorem seems to be underpinned by the most recent facets of globalization as the era of cheap Chinese manufacturing may be drawing to a close. Soaring wages, land prices, taxes, as well as environmental and safety standards are in fact increasingly dampening China’s viability as a low-cost manufacturing center (Economist, 2012). McKinsey research even suggests that rising salaries will catapult more than half of its urban households into the upper middle class by 2020, a barely existing category just at the turn of the millennial (Eloot, Huang, & Lehnich, 2013), resulting in China’s vanishing endowment with cheap labor.

From the principle of comparative advantage, we may moreover infer that a trade opening engenders a productivity-enhancing experience for the industrial state. Given the fact that in the context of trade between higher and lower developed countries, typically the former has a Ricardian style comparative advantage in the high technology sector, we might deduce that NIEs would be trapped in the production of little knowledge demanding low-value consumer goods or natural resources. Besides, external economies of scale favor long-established patterns of inter-industry trade to endure because countries which have always been big players in certain sectors are historically advantaged to preserve their dominance. Alternatively, foreign trade could also elicit imitation-triggered growth effects through procedures like reverse engineering of imported high technology goods what China is commonly suspected of. The NIEs catching-up then exerts additional pressure on enterprises in the industrial state to salvage their technological superiority by means of enhanced research efforts (Grossman & Helpman, 1989). This way, a trade opening encourages developed countries to even more specialize in knowledge-intensive goods, promoting continuous technological progress and thus long-term growth for both parties involved (Lucas, 1988).

Irrespectively, today’s globalized world is hardly characterized by sectorial specialization but rather intra-industry trade since modern industrial goods are not only distinctively differentiated but also they assembly hinge on a vast array of specialized intermediate inputs. Large enterprises reaping on internal scale economies due to an extended integrated sales market, welfare gains through an enlarged selection of differentiated products on the domestic market and consumers benefiting from slashing prices attributed to the

intensified competition in variants—Those aspects appear even more symptomatic for the highly interwinded economies of the present than the 1980s when the "new trading theory" and its monopolistic competition models sprung up. Helpman and Krugman (1985) even managed to reconcile factor endowments with economies of scale and horizontal product differentiation as their Chamberlin-Heckscher-Ohlin derived model accommodates both inter-industry and intra-industry trade. On top of that, the so-called "new-new trade theory" ushered in further sophistication by also taking firm-level heterogeneity into account as inter alia exercised by Bernard, Redding, and Schott (2007). Notably, the corresponding models disclosed that a country's opening to global markets improves aggregated productivity through redistribution of resources and market share towards the more productive enterprises in each sector. Hence, globalization entails prices of goods to drop, which means a direct welfare gain for all factors of production.

As elucidated earlier, the volumes of international trade and FDI have drastically proliferated from the early 1990s onwards. This unparalleled phenomenon was not only induced by plummeting costs for transport as well as technological advances in digital communication technologies but also ubiquitously falling tariff and investment barriers. In conjunction with the resolute opening of major NIEs endowed with their abundant and cheap labor forces, it has reinforced a geographical fragmentation of production processes according to cost considerations. As companies realize this by either awarding a foreign supplier with an outsourcing contract or launching their own subsidiaries abroad by means of FDI, NIEs are increasingly challenging the Western World's superiority in economic terms. Albeit not the entire value chain lumped together is relocated to these NIEs but only deliberately selected production activities based on their specific needs for infrastructure (human and physical), institutional framework, market access, existence of regional clusters for external scale economies on one side and access to inexpensive natural resources as well as a low cost labor on the other side. In fact, the econometric investigation of Fontagné and Mayer (2005) dealing with German, French, and Swedish firms unveils that a strong incentive exists to "slicing up the value chain" among diverse geographically separated subsidiaries because enterprises are despite of high wages still guided by the desire of being close to consumers in large and rich countries in order to retain these very vital market shares. Unsurprisingly, the right balance between market access and low-cost aspiring motives is pretty much also dependent on the industry concerned, exemplified by clothing vs. car industry (Fontagné & Mayer, 2005). For instance, Germany has coped remarkably well on the global market over the last 20 years since its economy is largely composed of high technology sectors which have been hardly exposed to the shifts of globalization so far (Boehmer & Funke, 2016). This assertion is proved by strong exports in automobiles, machinery, chemicals, and pharmaceuticals. Most importantly, it tallies with those models reflecting international fragmentation of production, which shows that this trade mediated "vertical disintegration" may generate gains for all parties involved.

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