Governance and Asymmetry in Global Value Chains of the Coffee Industry: Possibility for Catch-Up by Emerging Economies

Uallace Moreira Lima and Keun Lee

This paper analyzes the global value chains (GVC) of the coffee industry, particularly in the emerging economies of Vietnam, Colombia, and Brazil, which are the largest producers and exporters of unprocessed coffee in the world. However, value-added or processed coffee exports are equally dominated by advanced countries, such as Switzerland, Germany, and Italy. Thus, to upgrade the coffee sector and the GVC, the challenges for latecomers not only lie in strengthening their productive structures via technological upgrading but also in changing the governance structure, including the asymmetry in global value distribution and the tariffs and no-tariffs barriers, in international coffee trade. This paper discusses the structural and artificial barriers associated with monopoly in brand power and marketing channels as well as the protectionist tariff and non-tariff barriers in advanced country markets.

Overcoming such barriers requires targeted interventions in the form of industrial policies, including capability building and export taxes against unprocessed coffee in emerging countries, countermeasures against trade barriers, and even M&A of foreign brand incumbents. Another radical option is to form a coffee cartel, similar to the OPEC for crude oil, that unites the top three or five coffee-producing countries. A pre-condition to form such cartel is consolidating the coffee industries of emerging countries into several large procuring companies in order to gain certain market power. Even without a cartel, imposing common and coordinated export taxes on unprocessed coffee would increase the amount of coffee beans remaining in the domestic market and processed by domestic firms in order to be exported as processed coffee.

Keywords: Coffee, GVC, Cartel, Tariff, Non-tariff barriers; Value-added

JEL Classification: F02; F23; F51; L1; L52; O13; O3

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I. Introduction

The world economy has undergone an intense globalization process over the last three decades and saw a deep shift in its international production paradigm. Production processes now go beyond the national boundaries and have evolved into a fragmented and dispersed network of companies, both at the regional and global scales, that are connected via outsourcing and offshoring, thereby leading to the formation of global value chains (GVC).

These value chains can be described from two different perspectives. On the one hand, the conventional view tends to embrace a premise that further integration into GVC may benefit all participating countries as doing so can lead to trade liberalization, lower trade barriers and restrictions, and liberalization of foreign direct investments (FDI) (Baldwin, 2016; Baldwin and Robert-Nicoud, 2014; Gerreffi *et al.*, 2001; Gerreffi and Fernandez-Stark, 2011; Frederick, 2014). The GVC would allow businesses to organize the production and sourcing activities

most efficiently according to the competitive advantages of different actors and locations. On the other hand, the alternative and critical view to GVC, which incorporates a neo-Schumpeterian approach (Lee *et al.*, 2017; Morrison *et al.*, 2008; Pietrobelli and Rabellotti, 2011), points out to the limits of the mainstream or the linear view that the more GVC, the better.

This paper takes the critical perspective toward GVC and puts forward that the simple openness of an economy does not guarantee the automatic upgrading and catching up of emerging countries (Ramanayake and Lee 2016). Special attention is given to the possibility of non-linearity in GVC participation or the so-called "in–out–in again" thesis of Lee *et al.* (2018), which posits that countries can benefit from joining the GVC at its earlier stage of development but should reduce their degree of GVC participation by building up domestic value chains and then return to the GVC after building up a certain degree of domestic value chains in high-end segments. This paper also builds up on the theoretical insights of Lebdioui *et al.* (2020), who argued that upgrading in resource-sector GVC becomes possible owing to the long-term industrial policies in Chile and Malaysia. For instance, Malaysia successfully shifted from exporting unprocessed palm oils to exporting processed palm oils due to its countermeasures, such as imposing export taxes on unprocessed oils to counter the import tariffs imposed by the European market and the hostile takeover of British plantations in the London Stock Market by the public agency of Malaysia.

Under this theoretical framework, we analyze the GVC of the global coffee industry with a specific focus on the emerging economies of Vietnam, Colombia, and Brazil, which are the three largest producers and exporters of unprocessed coffee in the world but have limited participation in value added or processed coffee exports or in upgrading their value distribution. Therefore, in the case of the coffee industry and GVC, challenges for latecomers not only lie in strengthening their productive structures via technological upgrading but also in changing the governance structure, including the asymmetry in global value distribution and the tariff and no-tariffs barriers, in international coffee trade. The discussion will revolve around the structural and artificial barriers that prevent emerging countries from upgrading, which are associated with monopoly in the brand power of coffee retail and roasting, and the market protection afforded by tariff and non-tariff barriers in advanced country markets. Overcoming these barriers

is difficult unless a targeted intervention is present in the form of industrial policies, countermeasures against trade barriers, and even M&A of foreign brands or marketing channels.

The rest of this article is organized as follows. Section II reviews the literature and proposes an alternative approach to coffee GVC. Section III discusses the evolution of the coffee value chain and identifies and analyzes the asymmetry in the GVC according to production and trade data for processed versus unprocessed coffee. Section IV identifies the sources of such asymmetry by focusing on the tariff and non-tariff barriers imposed by northern economies on the processed coffee exports of southern or emerging economies. Section V presents the policy options and strategies that address the aforementioned barriers and help emerging countries catch up. Section 6 summarizes the article and presents some concluding remarks.

II. The Literature and an Alternative Approach

One of the main representatives of conventional literature on GVC is Gereffi (1994 and 1999), who argued that the formation of GVC is associated with the same factors that lead to productive fragmentation, including (i) technological advances in transport services and telecommunications systems that have dramatically reduced the cost to coordinate complex activities in companies and between companies located far apart in the world; and (ii) the liberalization of international trade and FDIs that have resulted in lower trade barriers, particularly tariff barriers, thus further diminishing production and commercialization costs and allowing companies to disperse their activities according to their strategies for gaining competitive edges and accessing new markets through the expansion of GVC. According to Sturgeon *et al.* (2013) and Baldwin and Robert-Nicoud (2014), developing countries can greatly benefit from the new production structures in the GVC because the trade, investments, and knowledge flux that sustain the value chain also stimulate fast learning, innovation, and upgrade for the industrial structure of these countries. The authors state that GVC can provide local companies better access to information, facilitate their entry into new and more sophisticated markets, and introduce additional opportunities for technological learning and knowledge acquisition.

This conventional view of international trade via GVC is still confined

to the old perspective of product life cycle, according to which the North (central or developed countries) serve as leaders in charge of designing, marketing, and branding, whereas the South (peripheral or developing countries) inherit mature or low-value-added segments from the North. However, this approach does not say much about how national and regional institutions condition the upgrading opportunities for entrepreneurial activities by indigenous actors.

From the Schumpeterian standpoint of technological capabilities, Morrison *et al.* (2008) state that the conventional theory of GVC fails to discuss its connections to innovation and knowledge in the context of developing countries, which would involve diverse levels of complexity, tacitness, and appropriability of knowledge as well as diverse opportunities for upgrading in value chains. Relatedly, Lee *et al.* (2017) and Lee *et al.* (2020) argue that GVC participation is not an end but an entrance to building capabilities and achieving upgrade by enhancing the local value chains and promoting knowledge creation, thus leveraging a larger part of profits generated in the GVC. Therefore, for these authors, entry into a GVC without the construction of national capabilities may trap emerging countries in activities of lesser added value, which in turn would lead them to the middle-income trap. These authors have elaborated the processes and strategies in the manufacturing sectors of South Korea, Taiwan, and China, whose domestic capabilities and value chains have strengthened after learning from their GVC participation, and eventually moved to technology-intensive segments and sectors in global markets, thereby escaping the middle-income trap.

However, the technological catch-up and upgrading in GVC not happen only in manufacturing sectors but also in natural resources. *Lebdioui et al.* (2020) explored the cases of Chile and Malaysia, which successfully caught up in their natural-resource-based sectors and their exports of high value-added, processed products by developing upstream and downstream linkages and involving a considerable amount of knowledge and technological resonation. By analyzing the cases of Chile (salmon, fruits, wine, and wood products) and Malaysia (oil, rubber, and palm oil), they observed that technological development and strengthening national capabilities alone are not sufficient; the asymmetry in political and economic power and the entry barriers against latecomers also need to be addressed.

Lebdioui *et al.* (2020) also noted the costs of dominance of

multinationals, such that these multinationals imported high-tech machinery and equipment but did not contribute to the strengthening and building of the domestic capabilities and value chains in Malaysia by continuously producing and exporting unprocessed resources to be processed and re-exported by firms in advanced countries. Furthermore, European countries charged tariffs against Malaysian products after starting to export processed products. For Malaysia to overcome the limits imposed by multinational companies, the Malaysian government adopted the following measures: (i) established a state-owned enterprise, Petronas, in 1974, which became possible after the proclamation of the Petroleum Development Act; (ii) introduced an industrial policy that combined local content requirements, tax incentives, skills transfer (through technical and specialized universities), state-led investments, and opportunities for learning; (iii) nationalized and consolidated domestic firms to achieve a scale economy and engaged in a hostile takeover of three British palm oil and rubber plantation conglomerates listed in the London Stock Exchange through the Malaysian public capital; (iv) introduced an export duty on crude palm oil products; and (v) initiated government-supported R&D programs, ranging from oleo-chemical byproducts to environment-friendly cultivation and manufacturing methods.

These instruments used by the Malaysian government are just part of a set of fundamental public policy measures for emerging countries to gain more benefits from participating in GVCs as discussed in Pietrobelli *et al.* (2021). In this sense, the authors show that public policy interventions, as those adopted by Malaysia, are fundamental to eliminate the market distortions that inhibit local GVC activities from reaching their envisioned goals. Furthermore, public interventions correct the externalities in GVCs that interfere with the achievement of policy objectives, such as externalities related to risks, uncertainties, and incomplete information, which limit private investments by companies to enter GVCs, carry out transactions with suppliers, and invest in innovation and learning activities aimed at updating.

III. Some Asymmetry in the GVC of the Global Coffee Industry

A. Evolution of the Coffee GVC and Concentration

Previous studies have used the term “coffee waves” to refer to several

or four waves of significant changes in the global coffee industry and markets. The International Trade Center (ITC) 2019 recognizes the occurrence of four coffee waves, with each wave representing changes in how coffee beans are obtained, cultivated, harvested, packed, and transported and how fresh beans are toasted. Each wave begins with a strong disruptive change that permanently affects the dynamics of the coffee industry.[1] According to Daviron and Ponte (2005), after the World War II, coffee was the second most valuable commodity in the world after oil and was the first commodity to be regulated. Accordingly, many governments treated coffee as a strategic commodity, thereby pushing them to directly control the domestic marketing operations and quality of coffee or establish strict regulations for this commodity. After the market liberalization in the 1990s, the corporate strategies for dominating the markets of roasted and instant coffee by governing international coffee trade were intensified by large international traders, roasters, and retailers.

International coffee trade has undergone a considerable reorganization over the past two decades following a wave of M&As. More than 80% of green coffee beans are traded internationally, and trading companies play a fundamental role in the coffee GVC. Green coffee beans have a highly concentrated segment, where the six largest coffee retailers control about a half of the total volume of coffee being traded internationally. Moreover, the official price of coffee is based on the New York Stock Exchange and is influenced by a series of factors.[2] Therefore, coffee prices are known to float daily, but in recent years, these prices have shown a stable trend (Bamber *et al.*, 2014; Daviron and Ponte, 2005).

[1] The first wave is defined by the growing availability and commercialization of coffee, that is, the transformation of coffee into an international commodity; ii) the second wave is characterized by a growing demand for quality and for a more socializing character in the consumption of coffee, hence resulting in a more diversified market; iii) the third wave brought new interest in complex flavors, higher level of acidity, and how fermentation can be used to highlight unique flavors and satisfy individual preferences. The investment in research and technical upgrades allowed the development of new products; iv) the fourth wave added more value to the entire value chain through a wider marketing of concepts, such as quality and sustainability.

[2] Coffee price is defined by a series of factors, including production costs, economic policies, and even climate factors.

When discussing the GVC of coffee industry, processed coffee should be clearly distinguished from unprocessed coffee. Processed coffee has a higher value added and is mostly roasted (including instant or decaffeinated coffee). By contrast, unprocessed coffee has a lower value added and refers mostly to raw coffee beans, including dried and seedless coffee that has not been processed otherwise. The transformations in the coffee market can be represented by the GVC depicted in Figure 1, where the producer and exporter countries of coffee beans are on the left side (two boxes). These countries are in charge of the production and primary processing of coffee, including the production of raw materials and the selection, drying, and removal of seeds. Meanwhile, the right side of Figure 1 (two boxes in the right) is dominated by those countries that import unprocessed coffee and export roasted coffee and those segments of value chains that are dedicated to the manufacturing, branding, marketing, and R&D of coffee, hence adding more value to the commodity (Caldarelli *et al.* 2019; Bamber, *et al.* 2014; Daviron and Ponte 2005).

Table 1 shows the dominant firms in the roasting segment of the coffee GVC. Among the 10 main roasters in the world, very large companies dominate the coffee market, all of them headquartered in Europe or the United States. The leading companies are Nestlé (Switzerland), JDE Peet's (the Netherlands), The J. M. Smucker Company and Starbucks (USA), Lavazza (Italy), and Melitta (Germany). The only two companies that are located elsewhere in the world are Strauss Coffee (Israel) and UCC Ueshima Coffee Co. (Japan). These companies are responsible for the roasting 35% of the coffee in the world, which amounted to US$55 billion in 2019.

Among the top 10 companies in terms of revenue, Nestle, Starbucks, and JDE Peet account for 77.7% of the total, which highlights their substantial market power. Some of these roasters have higher shares in values than shares in volume, which again demonstrates their dominant position in segments of high value added in the coffee GVC, such as single-serve capsules or the out-of-home market. In many cases, these players also control the commercialization of their products, selling roasted coffee by means of internal retail operations or exclusive distribution agreements with supermarket chains (Panhuysen and Pierrot, 2020; ITC, 2021; Bamber *et al.* 2014).

The high concentration of companies in the roasting segment is a result of recently intensified M&As. Some of these M&As have received

attention, such as when Nestlé acquired the high-end cafeteria chains Blue Bottle and Chameleon Cold Brew, which increased the visibility of the brand in the specialties and premium segments. Nestlé also signed a contract with Starbucks to manage the latter's sales in conventional retail. JAB Holding Company, which gathers famous international brands, such as DE Master Blenders, MondelezCoffee (Jacob, Tassimo, and Gevalia), Keurig Green Mountain, and Peet's Coffee, also started acquiring minor and less specialized brands, such as Intelligentsia and Stumptown Coffee Roasters. Lavazza diversified its traditional quality brand by acquiring higher-end or niche brands, such as Carte Noire and Merrild, and third-wave brands, such as Kicking House. Another significant acquisition took place at the end of 2018, when Costa Coffee was acquired by the Coca-Cola Company. Through this transaction, Coca-Cola took hold of one of the largest cafeteria chains in the world (ITC, 2021).

These companies are active on a global scale, and with their brand portfolio, they can be present in all main coffee markets. According to the Panhuysen and Pierrot (p. 13, 2020), in 2019, only 5 companies traded a total of 62.5 million bags, which was equivalent to half of the total green coffee beans produced that year. In the roasters sector, the retail segment is also concentrated in European countries, with leading companies including Neumann Kaffee Gruppe (Germany), Louis Dreyfus Company (Netherlands), ECOM Coffee Group (Switzerland), and ED&F Man (England). The only non-European company among the top five is OLAM Group, which is located in Singapore. In the last decade, Switzerland emerged as an important spot for global coffee trade probably due to a combination of fiscal and commercial regulations that proved favorable to the country's companies. Most trade houses now have their head office—or at least a trade administration office—in this landlocked country. They usually buy future coffee contracts from foreign sellers and resell them to foreign clients, which means that the coffee never touches Swiss soil. Therefore, members of the Swiss Coffee Trade Association deal with more than 50% of the global coffee exports.

Oxfam International (2002) argued that coffee-bean-producing countries are vulnerable not only to price floating but to an asymmetric distribution of value along the productive value chain. According to Oxfam (p. 20, 2002), in 1992, producers earned US $10 billion in a market then valued at US $30 billion. In 2002, producers earned less than US $6 billion with exports in a market that had more than

doubled its size, indicating a fall in their shares from more than 30% to less than 10%. Moreover, coffee farmers receive only about 1% or less of the price charged for a cup of coffee in a cafeteria and receive about 6% of the price charged for a pack of coffee sold in supermarkets and convenience stores.

Developed countries dominate the productive chain of processed coffee due to their dominance over the various links along this chain, such as in machines and equipment for processing and in certain activities, such as packaging, blending,[3] and other factors[4]. Unlike in Brazil, Colombia, and Vietnam, innovation is a well-known characteristic of the manufacturing sector in Germany. In terms of technology, Germany is a world leader in machines and equipment in many areas, including coffee production. Global coffee production mainly concentrates on two types of beans, namely, Arabica and Robusta, of which the former is more valuable than the latter due to its richer flavor and smell. In fact, 100% Arabica beans are being used for finer coffees or the so-called specials or gourmet. Meanwhile, Robusta is more valued for blending and in the soluble coffee industry (Daviron and Ponte, 2005; Saes *et al.* 2002). Brazil mainly produces and exports Arabica beans, whereas Vietnam specializes in Robusta beans.

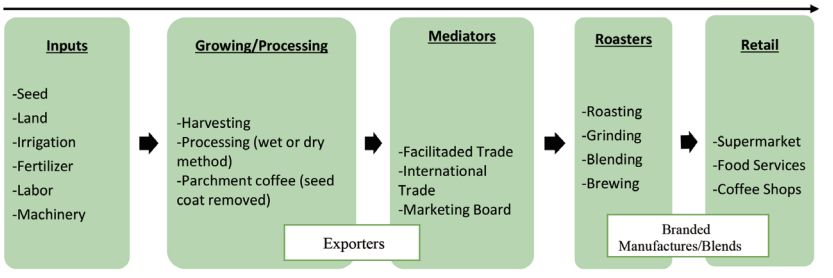

Figure 1

[3] Blending involves mixing different species, types, origins, or varieties of coffee beans with the goal of balancing the drink and leaving a specific taste and aroma. This process is used as a mechanism to create differentiated coffees, thus adding value to the product (Sório *et al.*, 2015. p. 39)

[4] Other factors play a role, such as a vision over the market of selected countries and coffee equipment, flavoring companies, packaging and accessories, traders, laboratories, support and regulation entities, and transport companies (Sório *et al.*, 2015; Freitas, 2008).

Table 1
Total Coffee Production - In thousand 60kg bags and % World Market - 2008 and 2020

Countries	2008/09	(%)	2019/20	(%)
Brazil	51,491	38.2	58,211	35.3
Viet Nam	18,438	13.7	30,487	18.5
Colombia	8,664	6.4	14,100	8.5
Share (%)	**78,593**	**58.3**	**102,798**	**62.3**
Indonesia	9,612	7.1	11,433	6.9
Ethiopia	4,949	3.7	7,343	4.4
Honduras	3,450	2.6	5,931	3.6
India	4,072	3.0	4,988	3.0
Uganda	3,335	2.5	5,509	3.3
Mexico	4,651	3.5	3,985	2.4
Peru	3,872	2.9	3,836	2.3
Total	134,800	65.4	165,053	69.2

B. Asymmetry in Unprocessed versus Processed Coffee

The analysis of production and trade data reveals an asymmetry between coffee-bean-producing countries and roaster and retailer countries.

First, Table 1 shows that emerging or developing countries are in charge of coffee production. Brazil commands a leading percentage of 35.3% of total production in 2019/2020, followed by Vietnam (18.5%), Colombia (8.5%), Indonesia (6.9%), and Ethiopia (4.4%). In 2020, Brazil, Vietnam, and Colombia together produced 62.3% of all coffee in the world, hence solidifying their positions as key players in unprocessed coffee production. Coffee-bean-producing countries are also the largest exporters of coffee beans. As shown in Table 2, Brazil is the leading exporter of coffee beans, accounting for 31.7% of the total trade, followed by Colombia (15.6%) and Vietnam (12%). In 2020, exports of unprocessed coffee from Brazil, Colombia, and Vietnam accounted for 59.3% of the total exports, thereby showing their importance in the both the production and export of unprocessed coffee.

Comparing the data on the production and exports of coffee beans with the data on the exports, imports, and retail sale of roasted coffee

also reveals evident asymmetries in the GVC. Table 3 shows that while developed countries are the main exporters of roasted coffee in the world, they import coffee beans from emerging economies.[5] In 2008, the leading countries in exports of processed coffee were Germany, Italy, and Switzerland. In 2020, Switzerland took the front and accounted for 23.1% of total exports, followed by Germany (16.5%), Italy (13.4%), France (11.2%), and the Netherlands (11.2%). In 2020, Switzerland, Germany, and Italy accounted for 53.1% of all processed coffee exports in the world, which highlights their dominance in the processed coffee industry.

Meanwhile, the trade balance data show the surplus or deficits of all countries in their coffee trade. In terms of roasted coffee trade, Table 4 shows that in 2020, developed countries incurred the largest trade surplus, with Switzerland (47.8%), Italy (25%), and Germany (22.2%) reporting the largest trade surplus among the top 10 roasted coffee exporters. These three countries altogether account for 95.1% of the global roasted coffee trade surplus. Meanwhile, among emerging countries, only Vietnam and Colombia have reported a trade surplus in their processed coffee and account for less than 1.6% and 1.3% of the global total surplus, respectively.

The asymmetries in international coffee trade become more evident as we compare indicators related to both processed and unprocessed coffee for emerging and developed countries. The pyramid in Figure 2 shows that the emerging countries Brazil, Colombia, and Vietnam have a wide pyramid base and a considerable share in unroasted coffee production (58.7%) and exports (59.3%). Meanwhile, emerging countries are placed at the top of the pyramid, with considerably small shares of just 1.5% and 2.9% in processed coffee exports and trade balance, respectively.

By contrast, the developed countries Switzerland, Germany, and Italy are less represented on the lower section of the pyramid, with a 0% share in the coffee bean production and 4.1% share in the exports of unprocessed coffee. However, on the top of the pyramid, these three countries enjoy a dominant position, which highlights their power in the sector as reflected in their 53.1% share in processed coffee exports and 95.6% share in processed coffee trade balance.

[5] The United States emerges as the leader in imports, accounting for 24.1% of all unroasted coffee imports, followed by Germany (14.8%), Italy (7.1%), and Japan (6.2%) (data from 2020).

TABLE 2
EXPORT - UNPROCESSED COFFEE - US$ BILLIONS AND
% World Market - 2008 and 2020

	2008	(%)	2020	(%)
Brazil	4.1	31.5	5.0	31.7
Colombia	1.9	14.3	2.4	15.6
Vietnam	2.1	16.1	1.9	12.0
Share (%)		**61.9**		**59.3**
Indonesia	1.0	7.5	0.8	5.2
Ethiopia	0.2	1.6	0.8	5.1
Guatemala	0.6	4.9	0.7	4.2
Peru	0.6	4.9	0.6	4.1
Germany	0.5	3.8	0.6	3.8
Uganda	0.4	2.8	0.5	3.3
India	0.4	3.0	0.5	2.9
Total	11.9	90.4	13.8	87.8

Source: UN Comtrade Database – Coffee, not roasted or decaffeinated - HS 90111- Authors' Elaboration

TABLE 3
EXPORT - PROCESSED COFFEE - US$ BILLION AND
% World Market - 2008 and 2020

Countries	2008	(%)	2020	(%)
Switzerland	0.8	12.8	2.8	23.1
Germany	1.4	23.6	2.0	16.5
Italy	0.9	15.9	1.7	13.4
Share (%)	**3.1**	**52.4**	**6.5**	**53.1**
France	0.2	3.6	1.4	11.2
Netherlands	0.3	4.6	0.7	5.8
USA	0.5	8.9	0.6	5.2
Canada	0.2	1.8	0.5	3.7
Poland	0.1	1.8	0.3	2.8
United Kingdom	0.1	1.3	0.3	2.4
Spain	0.1	2.2	0.2	2.0
Total	4.6	77.5	10.4	86.2

Source: UN Comtrade Database - Coffee; Roasted and Instant Coffee (including decaffeinated) - HS 090112 090121 090122 - Authors' Elaboration

TABLE 4

TRADE BALANCE - UNPROCESSED COFFEE - US$ - 2008 AND 2020

Countries	2008			(%)	2020			(%)
	Export	Import	Trade Balance		Export	Import	Trade Balance	
Brazil	4,130,759,350		4,130,759,350	35.8	4,973,689,488	33,012	4,973,656,476	37.1
Colombia	1,883,221,314	16,225,841	1,866,995,473	16.2	2,446,598,173	98,641,364	2,347,956,809	17.5
Viet Nam	2,108,148,265	9,845,969	2,098,302,296	18.2	1,886,972,064	82,808,405	1,804,163,659	13.5
Share (%)	**8,122,128,929**	**26,071,810**	**8,096,057,119**	**70.2**	**9,307,259,725**	**181,482,781**	**9,125,776,944**	**68.2**
Indonesia	988,828,918	12,718,844	976,110,074	8.5	809,164,192	31,478,316	777,685,876	5.8
Ethiopia	208,440,757	1,106	208,439,651	1.8	795,764,663	20,190	795,744,473	5.9
Guatemala	646,192,875	7,914	646,184,961	5.6	651,964,282	41,346	651,922,936	4.9
Peru	643,799,922	52,945	643,746,977	5.6	639,889,788	202,185	639,687,603	4.8
Uganda	366,307,139	206,227	366,100,912	3.2	514,191,018	14,155,242	500,035,776	3.7
India	389,331,366	58,084,828	331,246,538	2.9	461,425,707		461,425,707	3.4
Nicaragua	268,457,699	1,648,467	266,809,232	2.3	438,202,082	13,304	438,188,778	3.3
Total	11,633,487,605	98,792,141	11,534,695,464	100.0	13,617,861,457	227,393,364	13,390,468,093	100.0

Source: UN Comtrade Database – Coffee, not roasted or decaffeinated - HS 90111- Authors' Elaboration

TABLE 5

TRADE BALANCE - PROCESSED COFFEE - - US$ BILLION AND % WORLD MARKET - 2005 TO 2020

Countries	2008			(%)	2020			(%)
	Export	Import	Trade Balance		Export	Import	Trade Balance	
Switzerland	753,442,748	101,123,967	652,318,781	26.0	2,848,043,958	192,672,933	2,655,371,025	47.8
Germany	1,388,486,574	430,303,794	958,182,780	38.2	2,037,338,307	802,619,427	1,234,718,880	22.2
Italy	937,296,740	162,938,779	774,357,961	30.9	1,656,716,688	268,573,690	1,388,142,998	25.0
Share (%)	**3,079,226,062**	**694,366,540**	**2,384,859,522**	**95.1**	**6,542,098,953**	**1,263,866,050**	**5,278,232,903**	**95.1**
Viet Nam	20,698,797	243,819	20,454,978	0.8	89,363,272	2,146,064	87,217,208	1.6
Colombia	34,096,705	4,176,928	29,919,777	1.2	76,132,108	2,382,917	73,749,191	1.3
Sweden	128,027,522	52,621,082	75,406,440	3.0	135,239,882	97,588,264	37,651,618	0.7
Mexico	59,408,478	17,293,383	42,115,095	1.7	54,278,084	25,468,204	28,809,880	0.5
Bulgaria	17,700,422	28,590,631	-10,890,209	-4.0	90,006,714	63,805,075	26,201,639	0.5
Slovakia	62,728,912	104,572,525	-41,843,613	-1.7	133,678,634	118,258,026	15,420,608	0.3
Netherlands	267,582,966	258,975,611	8,607,355	0.3	713,458,108	708,449,897	5,008,211	0.1
Total	3,669,469,864	1,160,840,519	2,508,629,345	100.0	7,834,255,755	2,281,964,497	5,552,291,258	100.0

Source: UN Comtrade Database - Coffee; Roasted and Instant Coffee (including decaffeinated) - HS 090112 090121 090122 - Authors' Elaboration

Table 6
Top 10 roasters' volumes and revenues, 2019

Ranking	Companies	Country	Volume (x 1000mt)	Revenue (US$ Billion)
1º	Nestle	Switzerland	907	19.5
2º	JDE Peet's	Netherlands	730	8.7
3º	The J. M. Smucker Company	USA	360	2.0
4º	Starbucks	USA	310	16.0
5º	Strauss Coffee	Israel	282	1.0
6º	Lavazza	Italy	267	2.5
7º	Melitta	Germany	195	0.7
8º	UCC Ueshima Coffee Co.,Ltd.	Japan	190	3.0
9º	Tchibo Coffee International Ltd	Germany	180	2.2
10º	Massimo Zanetti Beverage Group	Italy	153	1.3
				56.9

Ranking	Companies	Country	Revenue (US$ Billion)	Marke Share (%)
1º	Nestle	Switzerland	19.5	34.3
2º	Starbucks	USA	16.0	28.1
3º	JDE Peet's	Netherlands	8.7	15.3
4º	UCC Ueshima Coffee Co.,Ltd.	Japan	3.0	5.3
5º	Lavazza	Italy	2.5	4.4
6º	Tchibo Coffee International Ltd	Germany	2.2	3.9
7º	The J. M. Smucker Company	USA	2.0	3.5
8º	Massimo Zanetti Beverage Group	Italy	1.3	2.3
9º	Strauss Coffee	Israel	1.0	1.8
10º	Melitta	Germany	0.7	1.2
Total				

Source: Coffee Barometer 2020/ Autors' Elaboration

A possible proxy variable for the asymmetry in processed and unprocessed coffee exports would be the ratio of the total value of exports to the total volume exported, which indicates the so-called unit prices of exports. Table 6 compares these ratios for developed and emerging countries. In 2008 and 2020, the export prices per volume of processed and unprocessed coffee for emerging countries are smaller than those for developed countries. The average export price per volume of unprocessed coffee by emerging countries was US$ 2.8 in 2020,

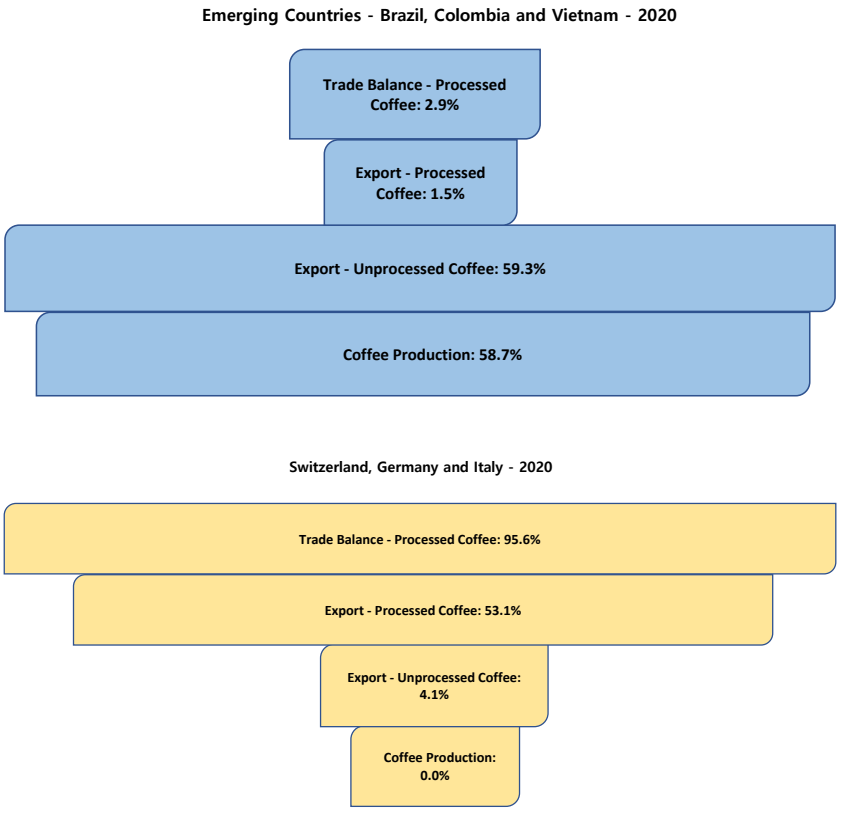

FIGURE 2
ASYMMETRIES IN INTERNATIONAL COFFEE TRADE

whereas the same ratio for developed countries was US$ 3.7. As for processed coffee, the average export price was US$ 6.0 for emerging countries but US$ 9.9 for developed countries.

Therefore, the ratio of the unit prices of unprocessed coffee from advanced economies to that from emerging countries is 1.32 (=3.7/2.80), whereas the same ratio for processed coffee is 1.65 (=9.9 /6.0). These numbers imply that the unroasted coffee produced by advanced economies is 1.32 times more expensive than that produced by emerging economies, whereas the roasted coffee produced by advanced economies is 1.65 times more expensive than that produced by emerging economies. While the higher prices for coffee products produced by advanced economies are not surprising, the relatively large

premium for roasted coffee is interesting. Such additional premium may reflect some degree of market power of those goods produced by advanced economies given their dominance in brands and markets (Table 1). By contrast, in the exports of unroasted coffee, although the top 3 emerging countries accounted for approximately 60% of the global exports, the actual volume of exports are scattered around many firms and agencies from these countries and thus convey no market power.

IV. Some Structural Barriers as Sources of the Asymmetry

Behind the asymmetry in GVC in the coffee industry lies some trade and non-trade barriers. Saes *et al.*(2002) identified four barriers or obstacles for emerging countries to enhance their status and position in the coffee GVC: (1) the cost to purchase coffee beans in the market to make the blends; (2) the tariffs imposed by the European Union and the United States in their home markets; (3) national taxation issues; and (4) difficulties in accessing and developing technologies that are employed in coffee processing. The point is that apart from technological innovation and upgrade per se, such asymmetry may result from brand strengthening and other variables that are beyond the control of emerging countries, including global chain governance and the tariff and non-tariff barriers imposed by developed countries. According to the International Coffee Organization (ICO, 2020), tariff and non-tariff measures that affect the production, trade, and consumption of coffee are put in place in its member and non-member countries.

A. Protective Tariffs by Advanced Countries

Trade tariffs have been considerably reduced along the years, but many importer countries protect their roasting industries by tariff-escalating schemes. Specifically, these countries tend to charge increasingly higher tariffs to each stage of production, from green coffee beans to half processed coffee and to the final roasted or decaffeinate product. Nassar *et al.* (2007) observed that countries resort to tariff escalation to prevent their processed products from being imported into their own territories, thus protecting their local industries. The European Union and other countries, such as Canada, Japan, and China, have the most significant protections on roasted and soluble coffee. Therefore, these countries use escalation to stimulate their coffee

and cocoa processing. According to ICO (2010), the European Union imposes an ad valorem tax of between 7.5% and 9% against processed coffee, US imposes 10% to 15%, and Japan imposes 20% (Gonzalez-Perez and Gutierrez-Vianna, 2012). However, these countries impose zero tariffs on unprocessed coffee.

However, escalation also helps non-competitive producers become competitive in processed products. Their wide access to raw materials with international prices, combined with the possibility to serve domestic markets without competition from foreign products, gives local producers an additional incentive to manufacture and even export processed products. For instance, the European Union is a net importer of soy and soy cake and a net exporter of soy oil. The European Union imports soy with zero tariff, smashes the beans to obtain sufficient amounts to feed cattle, and then exports its byproduct (soy oil). Without escalation, part of these smashing and crushing activities would not be economically viable for the European Union. The same situation applies to both processed and unprocessed coffee (Nassar *et al.*, 2007).

ICO (2020) viewed these export tariffs as obstacles to market growth given their inevitable impact on the difference between export and production prices. Emerging countries also impose tariffs. For instance, Brazil imposes a 10% tariff on imports of unprocessed and processed coffee, Vietnam imposts 15% and 30% taxes on unprocessed and processed coffee, respectively, and Colombia imposes 10% and 15% tariffs on the imports of unprocessed and processed coffee. This situation may be viewed as fair game because both advanced and emerging countries are charging tariffs. However, such zero-sum game in coffee tariffs tend to preserve the "unfair" asymmetry in value distribution in the global coffee industry as discussed in the preceding section. Specifically, firms from emerging countries do not command any market power in selling unprocessed coffee, whereas firms from advanced countries enjoy market power associated with the oligopolistic structure of the processed coffee market. This situation may justify the possible formation of a cartel among unprocessed coffee exporters, most of which are emerging countries.

B. Non-Trade Barriers

In general, while tariff barriers have been progressively reduced in many countries, non-tariff barriers keep affecting international coffee

trade. Non-tariff measures (NMTs) are actions that restrict or distort trade by means other than imposing tariffs. Among the main NMTs are quantitative restrictions, customs procedures and administrative practices, anti-dumping sanitary and phytosanitary measures (SPS), and technical barriers to trade (TBT). (ICO, 2020).

As of December 31, 2019, more than 578 NMTs were recorded, of which 47 are still in place and 531 are at their initial stages. WTO members who use non-tariff measures include the exporter and importer members of ICO. All these procedures are related to sanitary and phytosanitary measures. Some of them can also be framed as TBT (ICO, 2020).

According to the Trade Analysis Information System of the United Nations Conference on Trade and Development,[6] the United States and European Union have NMTs in place on processed and unprocessed coffee from Vietnam, Colombia, and Brazil. These NMTs mostly include sanitary and phytosanitary measures, such as importer register requests and microbiological criteria for the final product. Other technical measures, such as technical barriers and tolerance limits for residuals or contaminants, have also been imposed.[7] Developed countries, particularly the United States and Europe, impose a much larger number of non-trade barriers against emerging countries, such as Brazil, Colombia, and Vietnam in this case, as shown in Tables 7 and 8.

Table 7 shows that Europe has imposed 12 measures against unprocessed coffee from Brazil, 17 against Colombia, and 18 against Vietnam, whereas the United States has imposed 30 non-trade measures against Brazil, 25 against Colombia, and 24 against Vietnam. By contrast, Brazil only imposed 1 non-tariff barrier against Europe and the United States, whereas Colombia and Vietnam imposed 11 and 20 barriers, respectively.

Table 8 shows that Brazil imposed only 1 non-tariff barrier measures against Europe and the United States, whereas Colombia and Vietnam imposed 35 and 20 barriers, respectively. By contrast, Europe imposed 45 measures against processed coffee from Brazil and Vietnam, and

[6] See: TRAINS Online https://trainsonline.unctad.org/home?mode=modify&action=search

[7] Main measures used by all countries - Processed Coffee and Unprocessed Coffee - International Classification of Non-Tariff Measures - 2019/UNCTAD.

TABLE 7

PRICE/QUANTITY RATIO - PROCESSED COFFEE AND UNPROCESSED COFFEE - 2008 AND 2020

Latecomers	2020 US$/Q[1] Unprocessed	2020 US$/Q[2] Processed	2008 US$/Q[1] Unprocessed	2008 US$/Q[2] Processed	Developed	2020 US$/Q[1] Unprocessed	2020 US$/Q[2] Processed	2008 US$/Q[1] Unprocessed	2008 US$/Q[2] Processed
Brazil	2.1	3.5	2.6	5.3	Germany	2.8	6.6	2.9	5.3
Colombia	3.5	6.1	3.2	6.9	Switzerland	4.1	29.5	3.6	32.3
Viet Nam	1.6	5.1	2.0	2.6	Italy	3.5	6.8	4.2	8.7
Average	2.4	4.9	2.6	4.9	Average	3.5	14.3	3.6	15.4
Indonesia	2.2	3.5	2.1	6.7	USA	5.2	7.9	3.0	5.7
Peru	3.0	5.2	2.9	7.1	Belgium	3.1	7.0	2.9	7.4
Uganda	1.6	9.4	2.0	2.6	Netherlands	3.4	7.3	2.9	6.0
India	2.2	4.9	2.5	4.4	United Kingdom	5.4	10.5	7.6	13.6
Costa Rica	4.8	7.2	3.1	6.4	Spain	1.9	8.6	*	6.7
Mexico	2.3	8.6	3.0	7.1	Canada	3.3	8.6	2.4	7.0
Kenya	4.8	5.4	3.5	4.9	Sweden	4.4	5.9	3.5	5.1
Average	2.8	6.0	2.7	5.4	Average	3.7	9.9	3.3	9.8

Table 8

Number of Non-Tariff Barriers - Unprocessed Coffee - Measures Imposed

by Emerging Countries and Development Countries

Year	Europe			USA			Brazil		Colombia		Vietnam	
	Unprocessed Coffee			Unprocessed Coffee			Unprocessed Coffee		Unprocessed Coffee		Unprocessed Coffee	
	Brazil	Colombia	Vietnam	Brazil	Colombia	Vietnam	Europe	USA	Europe	USA	Europe	USA
2005									3	3		
2006							1	1	2	2		
2007				1	1	1						
2008		1		6	5	6						
2009	10	11	11	1								
2010	1	3	3	2					1	1		
2011				4	4	4			2	2		
2012			2	2	2						4	4
2013		1	1	3	2	2			1	1		
2015				4	4	4					12	12
2018				5	5	5					2	2
2019	1	1	1	2	2	2			2	2	2	2
Total	12	17	18	30	25	24	1	1	11	11	20	20

TABLE 9
NUMBER OF NON-TARIFF BARRIERS - PROCESSED COFFEE - MEASURES IMPOSED

by Emerging Countries and Development Countries

Year	Europe			USA			Brazil		Colombia		Vietnam	
	Processed Coffee			Processed Coffee			Processed Coffee		Processed Coffee		Processed Coffee	
	Brazil	Colombia	Vietnam	Brazil	Colombia	Vietnam	Europe	USA	Europe	USA	Europe	USA
2005												
2006							1	1	9	9		
2007				3	3	3			17	17		
2008				3	3	3			2	2		
2009	33	22	33						6	6		
2010	8	5	8	1	1	1						
2011				3	3	3					4	4
2012				6	6	6						
2013	3	2	3	6	5	6			1	1		
2015				12	12	12					12	12
2016			1	15	16	14						
2017	1	1		3	4	3						
2018											2	2
2019											2	2
Total	45	30	45	52	53	51	1	1	35	35	20	20

30 against Colombia, whereas the United States imposed 52 measures against Brazil, 53 against Colombia, and 51 against Vietnam. In sum, the United States and Europe have imposed a much larger number of non-trade barriers against Brazil, Colombia, and Vietnam than the other way around.

The ICO (2020) argued that non-trade barrier records prevent the sustainable development of the coffee industry as well its international trade and consumption. The main export destinations for coffee-bean-producing countries are the traditional import markets of the European Union, United States, Japan, Russia, and Canada and some emerging markets, such as South Korea and Algeria. The non-trade measures in these countries are critical to the development of world coffee trade. These measures hinder the growth of the market given their impact on price leveraging between farms and export markets, thereby making producers from those countries less competitive in the world market compared with their peers in countries where such tariffs are not imposed.

Hoekman and Kostecki (2009), Disdier *et al.* (2008), Moenius (2004), and Murina and Nicita (2014) observed that many countries use instruments, such as the *Agreement on SPS*, the *Technical Regulations and Standards*, and the *Agreement on TBT*, and found that some of these instruments actually promote goods trade by reducing transactions costs and holding on to product standards. However, some of these instruments also hinder the exports of agricultural and food products by emerging economies, most of which are not advanced enough to fulfill the requirements.

V. Policies and Strategies to Overcome the Barriers and to Realize Some Catch-Up

Following the above discussion about the nature of asymmetry in coffee GVC and the sources of barriers, we propose several policy measures and strategies that would allow emerging countries to catch-up in high-end or processed coffee segments.

A. Overcoming Non-Tariff barriers by Enhancing Qualities and Capabilities

Measures are necessary to overcome non-tariff or technical barriers

to trades, such as SPS. These measures may include (i) investments in better techniques in farming and processing so as to fulfill the requirements for maximum pesticides residuals applicable to coffee; (ii) robust policies, especially environmental and social sustainability certificates, to certify the quality of coffee; and (iii) improving methods for processing, production, packaging, and labeling in order to fulfill the preferences of consumers.

While easily identified, devising and implementing effective policies are challenging in the context of emerging economies, which often lack the relevant infrastructure, skills, and knowledge. Success requires a long-term commitment to nurture as demonstrated in the experiences of natural resource sectors of Chile and Malaysia (Lebdioui *et al.*, 2020). In these cases, governments have taken a holistic approach that combines industrial promotion, innovation initiatives, and fiscal incentives, such as local content requirements, transfer of capabilities (through universities and specialized labs), and setting up SOEs and public agencies to provide learning opportunities.

The coffee industry in emerging countries requires a public agency that can play a role similar to that of Fundación Chile (FCh) in the salmon industry of Chile. FCh was instrumental in arranging technology transfer from Norway to Chile and experimented with the farming of various salmon species so as to make salmon farming commercially viable in the country. Salmones Antartica, the company created by FCh, transmitted knowhow to potential entrepreneurs and nascent firms. The mandate of FCh as a nonprofit semi-public agency enabled this firm to treat R&D and technology as "public goods" to be widely diffused among local entrepreneurs. As the capabilities of local firms grow, they started to develop their own knowhow and technologies, file patents for salmon vaccines and bio-testing, and establish quality control labs. The salmon industry of Chile is thoroughly internationalized with the strong presence of both local and foreign firms.

B. Incentives and Disincentives

Some measures that need to be adopted by emerging countries include charging tariffs against the exports of unprocessed coffee and providing financial incentives, or at least no taxes, for the production and export of processed coffee. The same measure is being practiced in the palm oil and rubber industry of Malaysia in order to discourage

the exports of raw materials for them to be processed by domestic producers instead (Lebdioui *et al.*, 2020). In addition, a free trade zone may be established to import specific types of unprocessed coffee that are needed to make special blends that can gain better acceptance in international markets and high-end local markets (Sório *et al.*, 2015; Sereia *et al.*, 2012).

C. Domestic and International M&As

The effort and experience by latecomers to achieve upgrading in GVCs suggest that upgrading is not just a matter of increasing productivity but also involve rivalry and interference with incumbent brands and marketing channels that are positioned in high-end segments. In manufacturing, upgrading from assembly or own equipment manufacturing (OEM) to own brand manufacturing (OBM) using one's own brand and marketing channel tends to encounter many challenges, including cancelling of OEM orders, IPR litigations, and predatory pricing, which drive out latecomers (Lee, 2019: Ch. 4; Shin *et al.*, 2016).

Similarly, Malaysia's efforts to stimulate industrial upgrading were met with counterattacks from incumbent firms. For example, Malaysia's exports of processed palm oil in the 1970s were blocked by the European common market, which practiced tariff escalation to make sure that the refining capacity would remain in Europe. In order to counter the import duty structure of the European Union, the Malaysian government charged an export duty on crude palm oil. After further tariff escalations in the European Union in the 1990s from about 100% in the 1970s to more than 200% in the 1990s (Gopal, 2001), most of the market deals for Malaysian processed palm oil were signed through government-to-government partnerships under so-called barter arrangements.

The final stage of upgrading into exporting processed palm oil, rather than crude oil, was marked by the change of ownership from foreign to local. The plantations in both the rubber and palm oil industries used to be all foreign owned in the early days going back to the colonial period and had no interest to increase their domestic value added. The largely European-controlled plantation companies preferred to export crude palm oil and did not see much gain in relocating their vegetable oil processing facilities to Malaysia. Malaysia then broke up these foreign-led GVCs through nationalization of ownership after executing a hostile

takeover of three British palm oil and rubber plantation conglomerates listed on the London Stock Exchange through the Malaysian public capital in 1981 (Lebdioui, 2019).

An implication of the Malaysian experience is that coffee production countries in the South can also try a similar M&A of incumbent brand firms in advanced countries. Such M&A would circumvent tariffs and other protection measures in the advanced West. Moreover, building one's own brand power and market channels as well as technologies in overseas or advanced countries would require much time and resources. Given such challenge, acquiring incumbent companies may make more sense, which is one of the typical strategies adopted by the Chinese companies (Lee *et al.* 2011). For instance, Geely acquired Volvo, whereas Renovo acquired ThinkPad, a PC brand and division of IBM.

To make a move as aggressive as foreign M&A, emerging economies need to consolidate their industrial structure in order to command sizable economic entities, such as state-owned entities in Malaysia. They may also conduct domestic M&A to expand in size before attempting a foreign M&A. Leading large-sized firms also need to concentrate their domestically available resources and competences in order to command a high level of competitiveness in international markets.

The leading emerging economies, such as Brazil, Vietnam, and Colombia, tend to have a large number of small or medium-sized companies who process coffee that may undergo a merging process to achieve the economy of scale and scope needed in the international market. For instance, in Colombia, the government can promote M&A among its three main private coffee companies, namely, Colcafé – Grupo Nutresa (market share of 30.1%), Buencafé, which is part of the Federación Nacional de Cafeteros de Colombia (FNC; market share of 18.6%), and Procafecol (market share of 22.6%).

In Brazil, the leading coffee company is 3 Corações, whose 50% equity share is owned indigenously and the other 50% is owned by the Dutch company Strauss Coffee. The Brazilian consortium may try to acquire Strauss Coffee in order to take over the Strauss brand and the marketing channels in Europe and to obtain full control over 3 Corações. In Vietnam, the government can promote an M&A between the state company Vinacafe (with a market share of 22.3%) and the private company Trung Nguyen (with a market share of 18.7%) to enjoy a better bargaining power in international markets.

D. Possible Formation of an Export Cartel Similar to OPEC

As discussed in Section 2, the global market of processed and branded coffee is dominated by large international oligopolies from developed countries. For example, the top 3 processed coffee makers, Nestlé (Switzerland), JDE Peet's (Netherlands), and Starbucks (the United States), have a combined revenue that accounts for 77.7% of the total revenue of the top 10 processed coffee makers in the world (Table 1), which means that these companies tend to command the market prices and enjoy some price premiums. The same thing can happen to unprocessed coffee markets given that the three countries Brazil, Vietnam, and Columbia produce and export about 60% of the unprocessed coffee in the international market. However, a pre-condition is to have a large, state-owned, or public-private jointly owned company in each of these economies that occupies a dominant position in the procurement of coffee beans from farmers. Therefore, Brazil, Vietnam, and Colombia can collaborate with several emerging countries to form a cartel for coffee beans similar to OPEC for crude oil.

In 1960, Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela took the initiative to form the OPEC. In the beginning, the combined market share of OPEC in the global oil production was only 37.58%. Nowadays, OPEC members altogether produce 40% of all crude oil in the world, and their exports account for about 60% of the internationally traded oil. Pindyck (1978), Gately (1984), and Loutia *et al.* (2016) found that the creation of OPEC in 1960 did not affect oil prices as the cost of a barrel of oil remained at US $14.92 (at 2013 prices). In 1973, OPEC unilaterally increased its prices in search of a higher oil revenue. This event marked the first oil shock in history as oil prices skyrocketed to US $17.25 per barrel (in 2013 dollars) in 1973 and to US $54.73 in the following year. The influence of OPEC is partially derived from its key members' ability to constrain the level of investments in their oil industries, thus limiting oil supply expansion and coordinating production schedules (Fatouh and Mahadeva, 2013).

The formation of a coffee cartel uniting the top three or five coffee-producing countries would create a considerable market power and offer these countries several conditions to negotiate the lowering of non-trade barriers with the United States and European Union in the WTO/DSU framework. Even without a cartel, imposing common and coordinated export taxes on unprocessed coffee can increase the prices

of coffee beans, hence increasing the amount of coffee beans remaining in the domestic market to be processed and exported by domestic firms, thereby generating a higher value added.

VI. Summary and Concluding Remarks

This paper analyzes the GVC of the coffee industry with a focus on the emerging economies of Vietnam, Colombia, and Brazil, which are the largest producers and exporters of unprocessed coffee in the world. However, the value added or exports of processed coffee are equally dominated by advanced countries, such as Switzerland, Germany, and Italy. Latecomers that are trying to upgrade their coffee industry and GVC face challenges not only in strengthening their productive structures via technological upgrading but also in changing the governance structure, including the asymmetry in global value distribution and tariff and no-tariffs barriers, in coffee international trade. This paper discusses the structural and artificial barriers associated with monopoly in brand power and marketing channels as well as the protectionistic tariff and non-tariff barriers in advanced country markets.

Overcoming such barriers requires targeted interventions in the form of industrial policies, capability building and export taxes against unprocessed coffee in emerging countries, countermeasures against trade barriers, and even the M&A of foreign brand incumbents. Another radical option is to form a coffee cartel similar to OPEC that unites the top three or five coffee-producing countries. A pre-condition to form such cartel is consolidating the coffee industries of emerging countries into several large procuring companies in order to have some power in the international market. Even without a cartel, imposing common and coordinated export taxes on unprocessed coffee can increase the amount of coffee beans remaining in the domestic market to be processed and exported by domestic firms.

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