

The Coffee Market in Brazil: challenges and policy guidelines¹

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Resumo: Este estudo tem por objetivo analisar o mercado de café no Brasil pós-1990 (desregulamentação), destacando os principais desafios que essa cadeia produtiva tem enfrentado. Avalia-se a posição competitiva brasileira no mercado global de café frente a seus principais concorrentes e destacam-se algumas políticas que podem contribuir para o avanço desse mercado, tais como tecnologia, certificação, controle geográfico e melhorias de qualidade e marketing do produto.

Palavras-chave: Coffee; Value chains; Brazil

Abstract: This paper aims to analyze the coffee market in Brazil post-1990 (deregulation) highlighting the main challenges in this agrichain. We've evaluated the Brazilian competitiveness position of this crop towards the most important competitors in the global market and then we've drafted some policy guidelines to enhance the Brazilian competitiveness, such as technology, certification, geographical indication, traceability and Brazilian coffee quality and marketing strengthen.

Keywords: Café; Cadeias de valor; Brasil

JEL Code: Q02; L11; Q11; Q13

1. Introduction

Currently, Brazil is the most important player in the coffee market worldwide with the world's largest production of coffee and controlling more than 30% of the international production (USDA, 2018). According to the View metadata, citation and similar papers at CORE. produced by Biblioteca Digital de Periódicos da UFPR (Universidade Federal do Paraná) produced by the COPE production in the harvest of 2016 was 3,082 Mt – about 2,602.8 Mt of arabica coffee and 479.22 Mt of robusta coffee. This was an increase of 18.8% compared to the previous cycle, which was a historical record and affirmed Brazil as a top player

¹ This research was supported by Fundação Araucária de Apoio ao Desenvolvimento Científico do Paraná – Brazil and the U.C Berkeley's Department of Agricultural and Resource Economics. We thank Ryan Olver for his advices and Austin Gregory Olah for the review of the paper.

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in the global coffee market; coffee production has grown 100% in volume over the past 30 years in the world.

The foreign trade figure corroborates the importance of the Brazilian coffee industry for the world. The data from International Coffee Organization – ICO (2018), shows that the country's share in total exports of all exporting countries was about 29% for the year of 2016, affirming Brazil as the largest exporter in the world.

Another important aspect is the regional distribution of the coffee industry in Brazil, which comprises fifteen Brazilian states. The production is spatially spread throughout 2.2 million of hectares, 287 thousands of growers, in 1,900 municipalities in Brazil, mainly in mini and small farms. Minas Gerais, Espírito Santo, São Paulo, Paraná and Rio de Janeiro states are the largest and approximately 85.86% of the total production in the country. The product remains as one of the most valuable commodities of the country, and the competitiveness is primarily due to low production costs of labor, land, and water (CONAB, 2017; MAPA, 2018).

Several changes have impacted the global agricultural value chain over the last decades, such as the increasing importance of retail and its effects on developing countries, in addition to the liberalization of some markets. These changes have had large effects on the structure of the global coffee value chain and its actors (MINTEN *et al.*, 2019). Indeed, due to the influence of international competition and the growth of the demand of special coffees worldwide, the coffee industry in Brazil is undergoing a rapid transformation. The consumption expanded not only in such traditional markets as the US, Germany and France, but also in tea-driven markets, such as Japan, South Korea and China. However, despite the Brazil's importance in the world coffee market and its competitive position, the industry is still based on high quantitative targets, and therefore the country's production is labeled as bad quality coffee (ALMEIDA; ZILBERSZTAJN, 2017; ICO, 2018).

In Brazil, the population is much resistant to leaving their day-to-day black coffee behind. Even the machine coffee finds some resistance from Brazilians, and the massive majority of domestic consumers do not care about the type of coffee that they are drinking as long as it's strong and black. The domestic market absorbs about 40% of the total production, and the niche market of expensive high-quality coffees is growing in some parts of the country, which

is revealing a potentially promising area for growth where several companies are already investing and succeeding (ABIC, 2017).

The gourmet/special coffee market is concentrated in the largest cities of the country, and it is mainly fed by multinational franchise coffee machine sellers that managed to well-advertise their products to the point of creating a new culture of coffee in Brazil, but still with restricted range to a specific consumer profile (ABIC, 2017; CECAFE, 2017). Furthermore, the area of certified coffee, which has strict sustainability standards worldwide, has grown in some exporting countries like Colombia, Kenya, and Ethiopia in order to access preferential prices among buyers and sellers, but not in Brazil (HAGGAR *et al.*, 2017). Therefore, it is important to better understand the dynamics of this market in Brazil by evaluating the prevalent challenges and opportunities.

The article aims to analyze the Brazilian coffee market evolution post-1990 (deregulation), evaluating the new dynamics of the supply chain and the transformation of demand, specifically, the growth of the demand for special coffees, certified and gourmet coffees discussing the transformation caused by the expansion of the global coffee chains market and its impacts for Brazil.

2. A Brief Story of Coffee in Brazil

The coffee market expansion in Brazil was a crucial factor of the capitalistic transformation in 19th century of the Brazilian economy, and subsequently was an essential part of the history in the country (FURTADO, 2007; FONT, 1987).

The species *coffea* was introduced in Brazil around 1727 in the North region of the country (Belém do Pará) and came from French Guiana. The integration of coffee in Brazil accelerated economic growth around 1825 in the Southwest, mainly Rio de Janeiro, Minas Gerais, São Paulo, and Espírito Santo State. In the second half of 19th century, coffee became the most exported commodity from Brazil. The money earned from coffee exports was essential capital that has altered the country's society, economy, and culture (FURTADO, 2007).

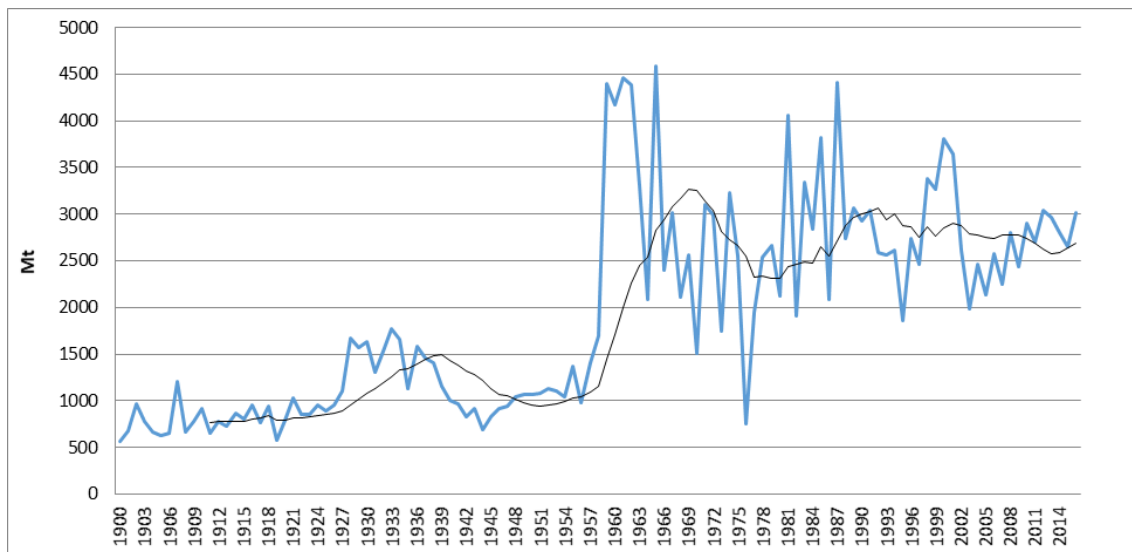
During the initial expansion of the crop, the coffee cultivation process used slave labor, and in the first half of 19th century alone almost 1.5 million slaves were imported from Africa. This process changed drastically in 1850 when the slave trade was abolished (Eusébio de Queirós) and in 1888, with

slavery now prohibited in Brazil during the greatest expansion of the Brazilian coffee crop, production and exports nearly collapsed. Indeed, the immigrants had a pivotal role, primarily the Italians, Germans and Japanese, who reinforced a capitalist transition to a market economy based on wage labor. The wage workers had accelerated the country's urbanization and have increased the internal market, which led to the growth of the national industry in Brazil (PRADO JR, 2011; FONT, 1987).

Different stages have characterized the coffee crop and market in Brazil throughout the 19th and 20th centuries. The introduction of coffee as an economic activity in Brazil occurred between 1727 and 1800, with the first export in 1779. During the period of 1800-1870, there was marked acceleration in the growth of coffee production and exportation; this period comprises the apogee of the culture in Brazil. In the last quarter of the 19th century, a production crisis and lower price level characterized the coffee market in Brazil and the beginning of a crisis for the production of coffee (FONT, 1987).

Figure 1 shows the evolution of the coffee production in Brazil throughout the 20th century. In the early 1900's, there was a slowdown that could be described as period of crisis, overproduction, and low price levels. However, despite the crisis period, exports of coffee have still been relevant for the Brazilian economy. Since the early 1900's its producers gradually lost leadership in the Brazilian economy with the growth of other economic activities, mainly industry. The production had remained stagnated until late the 1950's (FONT, 1987).

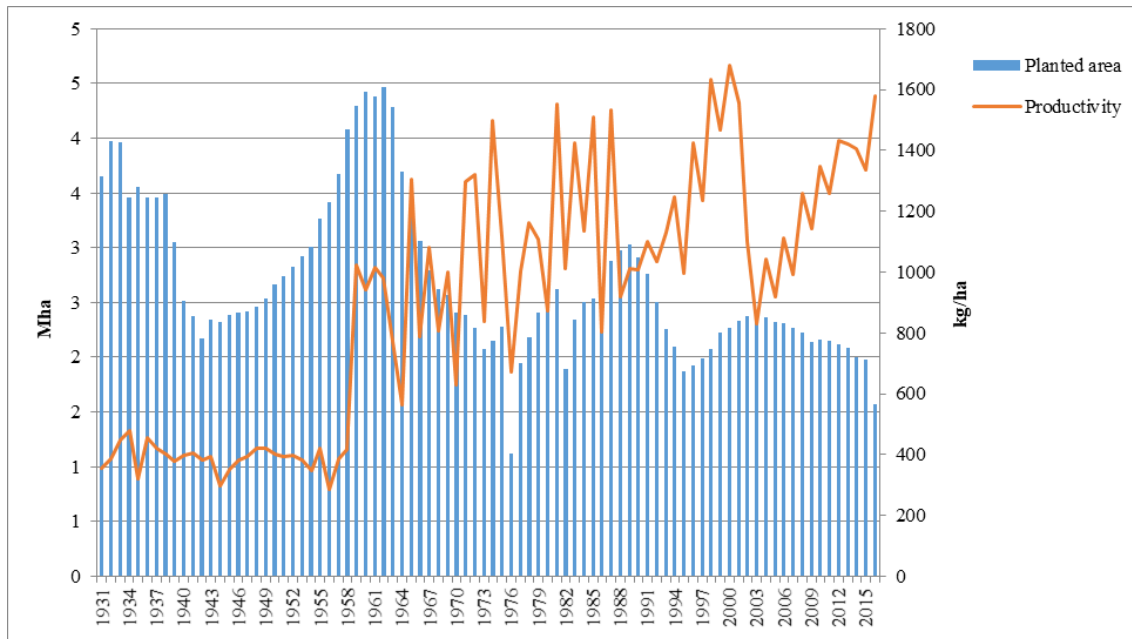
Figure 1 – Evolution of coffee production in Brazil (Mt), 1990 to 2016



Source: Brazilian Institute of Geography and Statistics – IBGE (2017).

Coffee production had a new expansion phase from 1956 to 1965. This rapid growth was driven by two main factors: first, the growth in cultivated lands in west of São Paulo, north of Paraná and Goiás State, and second, the gains in productivity and efficiency (Fig. 2). Despite the rise in coffee production in the late 1950's, the Brazilian economy was diversified at that moment as opposed to the 19th century. Furthermore, the international market for commodities was characterized as more competitive, where different players existed in the international coffee market. Therefore, the Brazilian production was now faced with a new competitive reality (FONT, 1987).

Figure 2 – Planted area (millions of hectares) and productivity (kg per hectare) of coffee in Brazil, from 1931 to 2016



Source: Brazilian Institute of Geography and Statistics – IBGE (2017); International Coffee Association – ICO (2018).

From 1960 to the present, the production, planted area, and productivity of coffee in Brazil have demonstrated an erratic pattern which highlights the great challenges of the crop (Fig. 1 and 2). Since this time, the main bottleneck of the supply chain and coffee industry in Brazil is quality management. As the largest producer of coffee in the world, comprising more than 30% of the international production, its bases of competitiveness is historically the low cost of production and quantitative parameters which gave the country the label of bad quality coffee. Contrastly, Brazil’s competitors have invested in quality and certified labels, such as producers in Colombia, Kenya, Ethiopia and recently Costa Rica, Jamaica and Cuba (BARJOLLE *et al.*, 2017; ICO, 2018; CECAFE, 2017).

After 1990, with the end of the International Coffee Agreement (ICA) and the dissolution of the Brazilian Coffee Institute (IBC), a global movement of coffee market liberalization ushered a period of deregulation. As part of this movement, the coffee industry experienced a long period of crisis that drove down the prices, the income of producers, and re-organized the global supply chain (COULIS, 2011). With this deregulation, the Brazilian coffee sector has been exposed to the free market. Several producing countries have improved their institutions in order to hold their positions in the global coffee value chain,

but this is not the case in Brazil (MEHTA; CHAVAS, 2008; RUSSELL; MOHAN; BANERJEE, 2012).

The lessons learned from the history of coffee in Brazil should contribute to discussions on contemporary challenges. Although this market has an important contribution as one of the most valuable commodities in the country, the choice to explore the low cost of production as an element of competitiveness, instead quality, has been underestimating the potential gains of the crop (ALMEIDA, ZYLBERSZTAJN, 2017). Countries like Colombia, Kenya, Ethiopia, and recently Costa Rica, Jamaica and Cuba have developed different approaches and distinct kinds of public intervention. They also continue to explore a common strategic line, which consists of strengthening the quality management system. Thus, given the high competition on the aforementioned market and the performance of the large transnational companies, this industry in Brazil still has room for improvement (MEHTA; CHAVAS, 2008; RUSSELL; MOHAN; BANERJEE, 2012; MINTEN *et al.*, 2019).

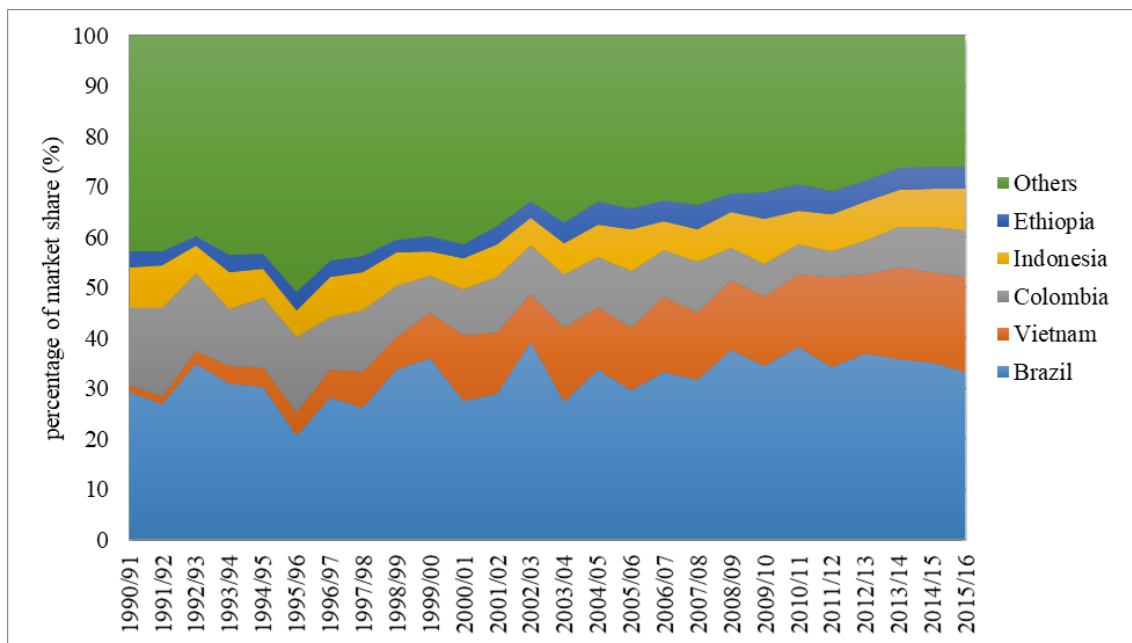
3. Coffee Market of Brazil and the Supply Chain

Over the past thirty years, Brazil has remained the most dominant producer of coffee on the world market, but the country's share of the market has remained relatively constant despite vast increases in production. In 1990, Brazil held approximately 29% of the world market as measured by total production, and increased market share to approximately 36% by 2016 due to vast increases in production (Figure 3). The market share has fluctuated yearly over this time, primarily due to the success of the coffee harvests in Brazil and other exporting countries, and the entry into the market by new exporting countries, especially Vietnam (ICO, 2018).

Production has expanded relatively rapidly over this time, and especially over the past decade as world demand for high quality coffee varieties continues to rise (COULIS, 2011). From 2005 to 2016, for example, the Brazilian production of coffee increased from 1,977 Mt to 3,082 Mt (CONAB, 2017). The majority of the expansion in production is of the arabica variety, which is high quality and in high demand by large retailers, as it increased from 1,493 Mt to 2,603 Mt. The other major variety of coffee that Brazil produces is robusta, which is a relatively low quality variety, and production slightly decreased over this time from 548 Mt to 479 Mt. This does not demonstrate the full story,

however, as the production in 2015 of robusta coffee was 671 Mt (CONAB, 2017; IBGE, 2017). The approximately 29% drop in robusta production in one year demonstrates what the taste is for low quality varieties of coffee is in high income countries as they have been plagued by chronically low world prices. Furthermore, it shows how Vietnamese robusta coffee has altered the global market.

Figure 3 – Brazilian Market share – percentage of global production (%) – 1990/91 to 2015/16



Source: International Coffee Association – ICO (2018).

Despite these rapid gains in production, the demand for high quality coffee has increased by such an amount that Brazil’s market share has not significantly rose as mentioned before. Exporters of coffee have had to adjust to the increasing prevalence in taste for high quality coffee by expanding production of arabica coffee and other high quality varieties, but this has left room for new exporters enter the market and to supply the crop at a high price given the increasing world demand (ICO, 2016).

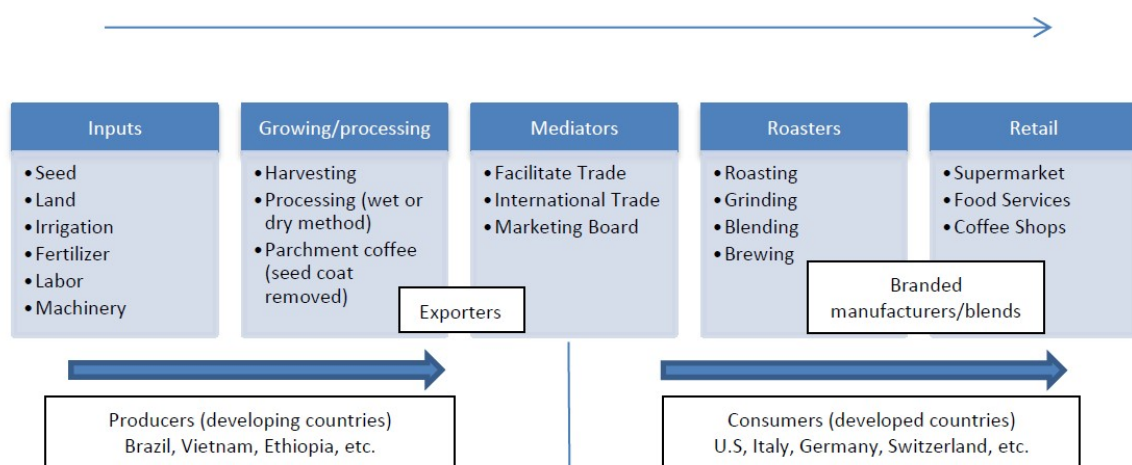
The market adjustment to the increases in demand has primarily been to increased production, but some countries have entered the world stage, and none have paralleled to the rapid ascension of Vietnam since 1990. In 1990, Vietnam only accounted for 1% of the world’s coffee exports. However, by 2016 Vietnam had become the second largest exporter of coffee accounting for 23% of all world

exports, second only to Brazil at approximately 29%. However, this production is mostly of the robusta variety which Vietnam is able to produce given exceptionally low labor costs. To remain competitive, Brazil has continued to expand production of arabica varieties given the comparative advantage of established production of this variety (ICO, 2018).

We summarize the global coffee supply chain on the flowchart in Figure 4, which is important to note that it is split in two parts. On the left side there are the producers of coffee, mostly located in developing countries. It is especially important to note that for most of the developing countries, coffee is a valuable commodity and important for their economies. These markets are very competitive and the prices are extremely volatile as the competitiveness is based on the cost of production (PANHUSYEN; PIERNOT, 2014).

When we look on the right side of the supply chain, we can find the main roasters and retailers represented by huge transnational companies from the United States and Europe. These companies are responsible for roasting, blending, and selling the final products. This industry is an especially concentrated market and the competitiveness is based on the differentiation strategy and establishment of brands (MINTEN *et al.*, 2019; BARJOLLE *et al.*, 2017; PANHUSYEN; PIERNOT, 2014). The concentration ratio **CR(3)** of the 3 largest companies in 2013 was 49.9% of the global market (EUROMONITOR, 2017).

Figure 4 – Global Coffee Supply Chain



Source: International Coffee Association – ICO (2018), USDA (2018) e UNCTAD (2011).

This structure requires efforts from the countries on the right side of the supply chain to ensure its global position in the market by incorporating mechanisms that ensure a high level of prices (USDA, 2018; UNCTAD, 2011). In Brazil, on the processing side the market structure is quite concentrate, with 10 companies representing almost 75% of the volume produced (ALMEIDA; ZYLBERSZTAJN, 2017).

Specific strategic efforts made by some countries have been very successful, such as Geographical Indication (GI) and regional strategies of differentiation, quality labels, traceability, environmental labels, and some fair trade agreements. A key element that arises for coffee producing countries is to enhance ways to differentiate their commodity by some characteristics, such as quality, regional or geographical label/brands that target the final consumers. In the Brazilian case the stakeholders – public and private agents – need to improve the quality and marketing strategies to migrate from the left side of the global supply chain to the right side (Fig. 4), ameliorating the coffee value chain.

4. Discussion and Policy Suggestion

Coffee is one of the world's most traded products (second in value only to oil) and its market is characterized by a high level of competition. This crop is labor intensive, and 70% of the world production is from small coffee farmers. Recently, a declining trend of trade and increasing price volatility have worried coffee producers worldwide (PANHUSYEN; PIERNOT, 2014). The world coffee supply chain is primarily controlled by three transnational companies (Nestlé, Mondelez and D.E Master Blenders 1753; Jacob Dowe Egbert is a Joint Venture between Mondelez and D.E Master Blenders 1753) and a few big roasters (Smuckers, Strauss, Starbucks and Tchibo). Thus, the international companies take advantage of their position to create their brands and to better organize the supply chain worldwide, such as coordination and vertical integration among different actors (BARJOLLE *et al.*, 2017).

In general, large roasters tend to buy huge amounts of green coffee through trade, wherein over 80% of the coffee produced in the world is traded internationally. On the other hand, the coffee growers are not well organized, and as a consequence they lack market information and bargaining power (ICO, 2018; PANHUSYEN; PIERNOT, 2014). Table 1 summarizes the market power

in the global coffee retail market; the concentration ratio **CR(3)** of the 3 largest companies in 2013 was 49.9% of the global market.

Table 1 – Global coffee retail Market share by value, 2013

Company	Country	Percentage market share by value (%)
Nestlé	Switzerland	22.7%
Jacob Douwe Egberts	Netherlands	16.3%
Mondeléz	United States	10.9%
D.E Master Blender 1753	Netherlands	5.4%
Green Mountain	United States	3.4%
Tchibo	United Kingdom	2.5%
J.M Smucker	United States	2.3%
Lavazza	Italy	1.9%

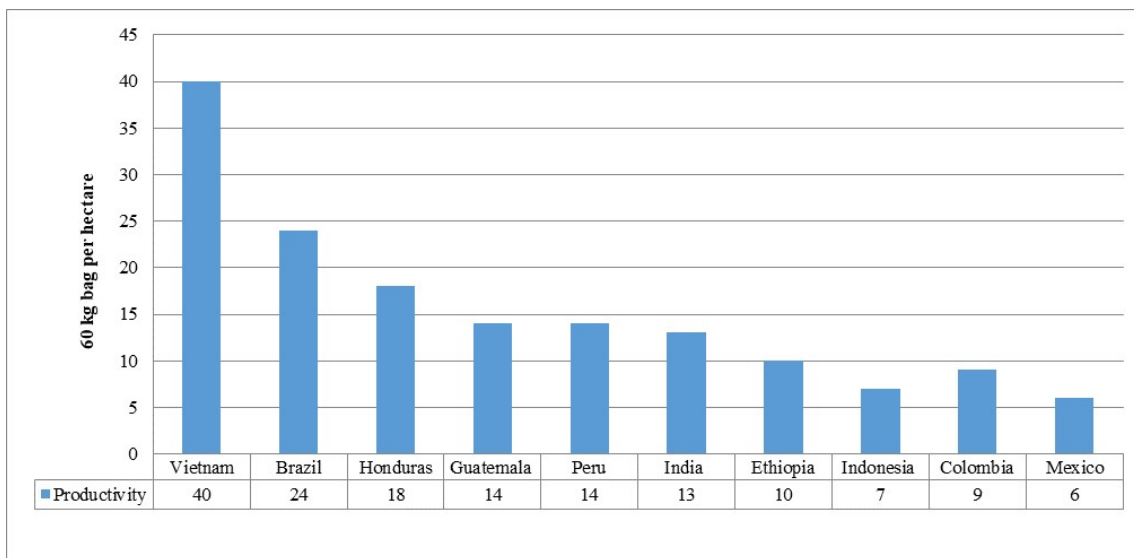
Source: Euromonitor (2017).

Global coffee retail market share by value, 2013 The general deregulation of the international coffee market post-1990 was very disastrous for its main producers. The prices dropped by nearly 75% in the subsequent 5 years (from US\$ 177.25 per 60 kg bag in 1989 to US\$ 101.85 in 1995) and harmed thousands of small producers (COULIS, 2011). In an unregulated market, such large corporations were able to control the price of coffee as they purchased more, and the strategies of quality and differentiation have played a pivotal role in aggregating value. Furthermore, asymmetric price transmission at the retail level helps roasters and retailers benefit from upstream price (MEHTA; CHAVAS, 2008).

After the initial effects of the deregulation some countries were very successful in their differentiation strategies, generally based on the governance of the value chain protecting their geographical names since the origin of the coffee matters for its total value. Colombia and Kenya, for example, have been recognized as price leaders in the world since 1997 (BARJOLLE *et al.*, 2017). Other countries such as Ethiopia and Costa Rica have been improving their markets in terms of traceability and certification, but this has mostly been by local public initiatives. Some progress to increase welfare has been made on the world stage, however the share of the profit to farmers relative to the final export price is still low (MINTEN *et al.*, 2019).

In the case of Brazil as the largest coffee producer, as discussed earlier, the country specializes in low quality coffee and its base of competitiveness is the low cost of production. The consequence of this level of production is a low level of prices, which results in a small share of the export prices to farmers. Nevertheless, the competition in this niche market is higher in the last few years relative to the past as some countries such as Vietnam, Indonesia, India, and China are competing in the market and improving its overall productivity (MORAES *et al.*, 2017; USDA, 2018; NISHIJIMA; SAES; POSTALI, 2012). Figure 5 summarizes the data related to the productivity of coffee for the top 10 coffee producing countries in 2013.

Figure 5 – Coffee production countries productivity in 60kg bag per hectare, 2013



Source: Panhunsyen, Piernot (2014).

Vietnam is Brazil’s main competitor in the global coffee market. Over the past several decades, coffee production in Vietnam has developed as a major export-oriented industry and that country has invested in highly intensive production of robusta to become the largest and most efficient producer in the world (Figure 5).

A series of papers have discussed the relationship between costs and profitability in the production of coffee worldwide. Based on these findings, we conclude that production costs (per kg) increases with cost per hectare, so a low input strategy can be profitable (low cost per hectare). Therefore, it is concluded that a producer can only be profitable with high yields or high prices in intense

competition (HAGAR, 2008, 2012; ECHAVARRÍA *et al.*, 2015). It seems that coffee production in Brazil is ensuring profitability by yield even if the cost per hectare is high. Meanwhile, yield strategy is uncertain because extra yield will not necessarily compensate for the extra cost invested to reach a higher level of yield (MONTAGON, 2016). Nevertheless, we must also take into account that there is a considerable difference in the cost structure and profitability among producing regions in Brazil (ICO, 2016).

Some implications of the low input strategy were documented by (ICO, 2016, p. 1)

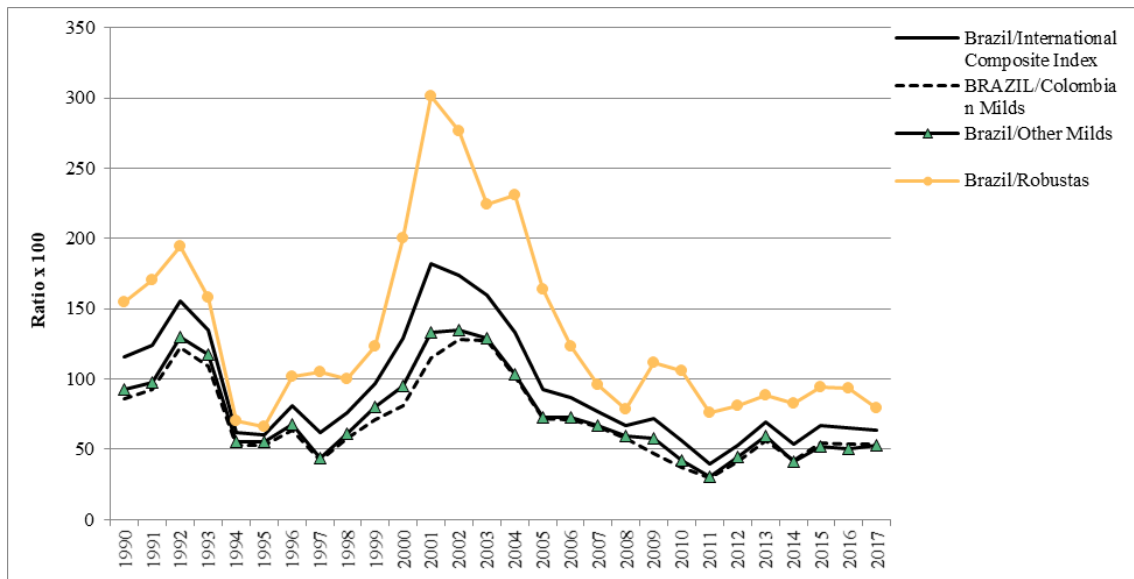
Prolonged periods of low prices strain liquidity at the farm level, resulting in less than optimal input use during the following production cycle, negatively affecting yields and quality.

The expectation of future coffee prices too low to cover full costs of production can hamper important investments in renovation of coffee plantations [...]. Finally, low or negative profitability may lead to the abandonment of coffee production as farmers may switch to other more profitable agricultural crops. As a result, there is a widespread concern in the coffee sector that a prolonged phase of low coffee prices could negatively affect the supply of high quality coffee beans and could have adverse effects on household incomes in coffee growing communities.

Furthermore, as stated by Barjolle *et al.* (2017) and Panhunsyen and Piernot (2014), it is important to point out that roasters and retailers (transnational companies) hold an intermediate position in the global coffee supply chain and are thus both sellers and buyers, establishing an oligopoly and an oligopsony at the same time, controlling the prices.

In the context of prices dynamics, the deregulation on the global coffee market on early 1990's completely changed the prices pathway and for Brazilian's growers the impact was very substantial. According to Karp and Perloff (1993), Brazil and Colombia been pivotal in the price determination on the global market until 1990, these countries were competitors, but their prices levels were close (Fig. 6); the ratio between Colombian milds and Brazilian milds in the early 1990 was around 92% (Brazilian milds was 92% of the price of Colombian milds). As mentioned before, the situation in the post-deregulation period has completely changed and this market can be characterized by low-levels of prices and price volatility, mainly for Brazilian producers.

Figure 6 – Brazilian coffee price ratio among different kinds of coffee and International Composite Index, 1990 to 2017



Source: ICO (2018).

Currently, despite the importance of Brazilian production for world (quantity), on the global market post-deregulation the country is a price taker. The low quality of the Brazilian coffee and the market concentration in roasting/grinder levels, controlled by transnational companies, has switched the Brazilian position in the global coffee market. At this point is important to highlight the lack of Brazilian stakeholders to rebuild the supply chain and the institutional environment (NISHIJIMA; SAES; POSTALI, 2012). In its turn, Colombia and Kenya have reorganized the coffee supply chain and the effort has changed the stakeholders' actions and those countries have organized a value chain for their coffees (BARJOLLE *et al.*, 2017). Fig 6 shows that price ratio between Brazilian milds and Colombian milds decreased across time, in the last five years (2013 to 2017) the ratio is around 51.85%.

Nishijima, Saes and Postali (2012), using a Multinomial Logit model as approach, estimated the world green coffee demand for the period from 1988 to 2009. The study has presented the price-demand elasticity and the Brazilian cross-price elasticity among different types of coffee. The results suggested an increase in competition for the Brazilian coffee from the side of demand and pointed out that Brazilian arabica green coffee has a higher rate of substitution rate related to robusta green coffee from Vietnam; the cross-price elasticity is 0.273, higher than the values for Colombian milds and Other milds, respectively, 0.168 and 0.169. As shown in Fig 6 the Index Price ratio between Robusta and

Brazilian milds in the last decade is 89.64% (lower than the ratio 149.55% in the early 1990's).

The price dynamic (Fig. 6) shows that in the context of the post-deregulation there is a challenge for making the coffee market recognize and reward quality of the green coffee before blending and then paying according to quality. In this context, some countries were successful, but not Brazil. The price ratio evolution among Brazilian milds and other kinds of coffee (origin) and the substitution rate (cross-price elasticity) between Brazilian coffee and Vietnamese coffee have corroborated that competition between Robusta from Vietnam and Arabica from Brazil is a market recognition of the low quality of the Brazilian coffee. The low level of prices for the coffee from Brazil is a kind of negative reward revealed by the prices.

The huge amount of coffee produced in Brazil is transacted by the aforementioned transnational companies who control the prices for the growers by their oligopoly power. The retailers and roasters worldwide have gained high negotiating power, with their deepening knowledge of their needs and of different consumer preferences and the development of their own brands. In this concentrated market the share of income to producers of final prices is low and there is a lack of rewards for quality at the producers' level (MORAES *et al.*, 2017; BARJOLLE *et al.*, 2017; PANHUSYEN; PIERNOT, 2014).

Given the above analysis, we conclude that policy guidelines for the Brazilian coffee market need to emphasize some main issues focusing on the improvement of the coffee agrichain in Brazil.

First, the sector needs to emphasize the intensive use of agriculture modern tools – drones, mechanization in flat areas, modern systems for quality control and decisions about pest control –, management techniques, productivity management and the use of skilled labor. We can summarize these elements as technology and productivity package. A key element concerning to this issue is the adoption throughout the agrichain, so the information has a central role; at this point a multistakeholder governance model is important to support the farmers – agents such as cooperatives, governments entities, universities and research institutes could integrate this system improving technology process transfer (ALMEIDA; ZYLBERSZTAJN, 2017; BARJOLLE *et al.*, 2017; MORAES *et al.*, 2017).

Second, given the high competition on global coffee market, quality and commercialization strategies are essential. In the case of Brazil, the processing side and the exporting sector are quite concentrated, therefore quality management and efficient commercialization strategies could improve smallholder coffee growers' potential, increasing prices providing higher income and introducing Brazil on high quality coffee market. We can highlight some important issues in this area, like institutional infrastructure to trace and monitor coffee bean origin as a pre-condition for Geographical Indicator (GI) systems; fair trade agreements associated with smallholder coffee growers' and some regions promoting better trading conditions for marginalized producers professionalizing producers and cooperatives for direct trade; improvements on quality control and intensive marketing using the quality as a label, such as Colombia international campaign for quality reputation and; certification strategy using marketing to promote coffee from Brazil. In this case, beyond the technology adoption and marketing, the post-harvest processing has a pivotal role for quality and profitability (ALMEIDA; ZYLBERSZTAJN, 2017, BARJOLLE *et al.*, 2017).

Related to quality and commercialization the cases of Colombia and Kenya are emblematic and provide some lessons because their coffees are both recognized at global level for its high quality and have been international price leaders since 1997. The coffee agrichain of these countries are based on quality and reputation instead quantity, associated with a heavy international marketing strategy (BARJOLLE *et al.*, 2017; MINTEN *et al.*, 2019). For Brazilian case, taking into account the complexity of coffee agrichain throughout the country and the heterogeneity of the coffee growers, the policy suggestion is the mix between Colombian and Kenyan model. According to Barjolle *et al.* (2017, p. 107) in Colombia and Kenya

[...] the governance of their value chains is completely different; in Colombia, management is delegated to the Federación Nacional de Cafeteros de Colombia, a private body in which the state also has a say, while in Kenya, the State is the primary managing body, operating throughout the Coffee Directorate.

Another important factor is the sustainability and social questions. About these issues Brazilian coffee agrichain needs to consolidate new drivers of change increasing the adoption of sustainability and social certifications on fair trade status and the deepen of discussions about social questions in this market,

such as slavery labor (modern slaves) and child labor. The sustainability/social standards – such as Organic, Fairtrade, UTZ, Rainforest etc. – differ in the aspects they emphasize, each one such to reduce or eliminate negative environmental and social factors and could be interesting alternatives (HAGGAR *et al.*, 2017; ICO, 2018).

Concerning to sustainability, coffee with diverse shade trees is recognized as conserving greater biodiversity than intensive methods and the certified farms received better prices than non-certified, but these alternative systems are generally less productive and the economic incentive may be required; specialized support and incentives are strongly recommended, such as information and special lines of credit financing to support the adoption of new sustainable technologies (HAGGAR *et al.*, 2017). Brazil is the world's leading exporter of sustainable coffees. However, most sustainable sales come from a few highly efficient producers; the main challenge of policy is the specialized support for adoption – financing and information (ICO, 2018). There is a potential discussion about the use of national standards involving some key stakeholders finding synergies in collaboration to broaden the sustainability agenda, beyond social and environmental sustainability and to make coffee farming an attractive business.

For social questions, mainly child labor and modern slavery, is recommended the sector to develop a robust and comprehensive monitoring and remediation system that covers all actors in the coffee agrichain on Brazil. The model should be a collective effort among government, industry, cooperatives and traders. The monitoring should include labor standards and premium payments. Companies should map the nature of labor recruitment in coffee supply chain. This by far will be the biggest challenge but also the one with greatest returns. The programs and results also should be independently externally verified. The results comprise beyond better labor conditions and higher prices levels a better reputation for Brazilian coffee.

Finally, the better access to governmental rural credit and alternative financing options are important issues for the coffee agrichain in Brazil. Taking into account the Brazilian structure of coffee production, is really important to design specific credit lines such as credit for smallholders/family agriculture (PRONAF); for special and/or gourmet coffees; credit for sustainable initiatives like shade coffee; alternatives to improve the credit for small exporters,

incentivizing their participation on direct trade and; special credit for modern technology adopters (ALMEIDA; ZYLBERSZTAJN, 2017; ICO, 2018).

As a part of efforts to explore practical measures on quality-based competitiveness in the production of coffee in Brazil instead comparative advantage based on low cost and economies of scale in this agrichain, the issues and policies discussed above should be structured in a multistakeholder model involving producers, government actors, private sector, traders, research institute and universities working together – governance model. The policy guidelines proposed in this paper are more efficient engaging a great number of stakeholders. Some successful experiences in the coffee market in Brazil provide some lessons and an optimistic perspective for the sector in spread new drivers of change throughout the agrichain.

5. Final remarks

Some crucial issues were discussed in this paper as policy guidelines for the development and competitiveness of the Brazilian coffee agrichain within and outside Brazil in the long run. Our analysis reveals that coffee agrichain in Brazil has some room to improvement and main contribution of this paper is summarize what is significant.

One of the most important contributions of this paper is show that Brazilian coffee agrichain is productive and the competitiveness of the Brazilian coffee is recognized internationally and for this reason the country hold first position among the global exporters and a large market share of global exportations. However, the bases of the Brazilian coffee competitiveness are low costs of labor, water and land and the economies of scale, resulting, in a context of a deregulated and with high level of competition market, low prices and income for smallholders. In addition, the roaster segment is quite concentrated, which is a serious problem for small growers.

Thus, a set of policies seeking improvements in the Brazilian coffee quality and high levels of prices as a positive reward for the quality and a good reputation are discussed in this paper, such as adoption of modern technologies – production and post-harvest –, more efficient quality control systems and marketing – having good reputation both on product quality as in social and environmental questions – and standards/certification. The issues above also required efforts in questions related to financing – public and private – and

specialized support both incentivizing the use of modern management tools as better technology information and diffusion – incentive to adoption of new technology.

Nevertheless, to enhance the effects of the set of policies proposed in this paper a multistakeholder governance model is required with an integrated use of these policies in which actors – growers, industry, roasters and traders – working integrated. This paper discusses the whole agrichain coffee in Brazil with main policy guidelines for the sector, but the specificities in this market in different regions in Brazil are very relevant. So, for future researches we suggest analysis for specific regions and the coffee regions comparative analysis.

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