

THE COFFEE MARKET IN GLOBAL TERMS: PRODUCTION AND TRADE CONSIDERATIONS

Magdalena Jaworska 

[magdalena.jaworska@up.poznan.pl](mailto:magdalenajaworska@up.poznan.pl)

Weronika Majchrzak 

Poznań University of Life Sciences, Poznań

Abstract. The importance of coffee as one of the key agricultural food commodities on the international market is constantly growing, making it a subject of study not only by economists, but also by specialists in various fields, i.e. sustainability, food security or international relations. The aim of this paper is to carry out an in-depth examination of the global coffee market, focusing on the factors determining the level of production and the directions and intensity of international trade in this commodity. It also aims to identify quantitative and structural changes in coffee exports, imports and production. The study covers the period 2013–2023 and focuses on assessing the volume, dynamics and structure of production, exports and imports, using statistical data from the FAOSTAT database in addition to reports from international organizations (e.g. ICO, WTO). It uses selected macroeconomic measures and statistical methods, including descriptive, comparative and structural analysis. The indicators used made it possible to assess the role of raw material in international agri-food trade. The main conclusion points to the market's strong geographical concentration and the need for diversification and adaptation in the context of changing climatic and market conditions in individual countries. The results show that the supply to the global coffee market is currently in relative stagnation, while trade values of the commodity are continuously increasing.

Keywords: coffee, coffee production, global coffee market, international trade, agriculture, macroeconomics

INTRODUCTION

As one of the most consumed beverages in the world, coffee plays an important role both socially and economically (Andrzejuk, 2016). The modern coffee market is characterized by an extremely complex structure and a high level of dependence on many factors, from climatic conditions to geopolitical situation to changing consumer preferences (Smith, 1985; Cowan, 2005). Although numerous studies have addressed those specific aspects of the global coffee market, the literature lacks a complex data-driven analysis that integrates these dimensions within a unified macroeconomic and trade-oriented framework. Thus, this paper seeks to fill this research gap by offering a holistic overview of production, export and import values over a ten-year period, thereby providing a broader understanding of dynamics and structural shifts in the international coffee market.

Coffee grows naturally only under specific geographical conditions – in the tropics and subtropics, around the so-called ‘Coffee Belt’, where the optimal combination of temperature, sunshine, rainfall and altitude make it possible to grow this demanding plant (Thurber, 1889; Bozzola et al., 2021). Although more than 500 types of coffee plant exist worldwide, almost all world production is based on just two (Grzelak, 2021; Mishra and Slater, 2012). Arabica, valued for its milder flavor

Accepted: 16.05.2025

Published: 30.06.2025

Cite as: Jaworska, M., Majchrzak, W. (2025). The coffee market in global terms: production and trade considerations. *J. Agribus. Rural Dev.*, 2(76), 177–186. <http://dx.doi.org/10.17306/J.JARD.2025.00015R2>



Copyright: © 2025 by the authors. Licensee Wydawnictwo Uniwersytetu Przyrodniczego w Poznaniu. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

and higher aromatic qualities, requires a cooler climate and cultivation at higher altitudes. Robusta, on the other hand, grows in warmer climates, at lower altitudes and is characterized by higher disease resistance, but also higher caffeine content and a more bitter taste (Smith, 1985; Cowan, 2005; Soares Ferreira et al., 2022).

Coffee cultivation is an extremely labor-intensive and time-consuming process. It takes about 3–4 years from sowing to the first harvest. It requires manual planting, tending, fertilization, pruning and pest management (Nguyen, 2020; Ahmed et al., 2021). A key stage is also manual harvesting (hand-picking), which selects only ripe coffee berries. This has a direct impact on the quality of the finished product, even though the roasting of the beans only takes place after export, that is, at the level of the roasted coffee producers, not the plantations (Ahmed et al., 2021; Borém and Andrade, 2019).

Most agrotechnical processes can also be performed with the help of machinery, but in the majority of coffee-producing countries, particularly in Africa and Latin America, traditional processing still prevails (Barbosa et al., 2018). The coffee industry itself is constantly evolving thanks to technological advances, such as the use of advanced methods i.e. applications that monitor the quality and origin of the beans (Mawardi et al., 2019). Sustainability and innovation, i.e. genetic engineering to improve plant resilience, are gaining prominence, enabling higher crop productivity and adapting production to changing climatic conditions (Mishra and Slater, 2012; Nanyang Technological University, 2024). The impact of social and physical capital is also significant – appropriate resource management, farmer education and integration into the global value chain are key to the competitiveness of small and medium-sized growers (Haryono et al., 2024; Morales et al., 2022).

The development of the international coffee trade is inextricably linked with economic, geographical, institutional and technological conditions (Ponte, 2002; ICO, 2020, 2024). The coffee trade operates within a complex system of exchanges between developing countries – which are the main producers – and highly developed countries, which are responsible for processing, distribution and consumption (Abafita and Tadesse, 2021). An important point of reference is Irving Kravis's theory of advantage from the disposition of products and factors of production, according to which countries engage in trade in those products for the production of which they have the most favorable natural and resource

conditions (Sanghro, n.d.; Misala, 2005; Rymarczyk, 2006; Bożyk et al., 2002). In the context of coffee, this means that only countries in the Coffee Belt – which includes Brazil, Colombia, Vietnam or Ethiopia – can efficiently produce this commodity on a global scale (NCA, n.d.; Teixeira and Samora, 2025; Tiemann et al., 2018; Worku, 2023).

The international coffee trade is also developing due to organizational and institutional support. The International Coffee Organization (ICO), whose mission is to promote market sustainability by increasing trade transparency, supporting producers and monitoring market trends, plays a special role (Leavitt, 2009; ICO, n.d., 2020, 2024). Its activities are based on the International Coffee Agreement (ICA), which introduces such aspects as mechanisms for controlling exports and buffering stocks to stabilize prices (ICO, n.d., 2021, 2022). The World Trade Organization (WTO), on the other hand, through the GATT and GATS agreements, seeks to liberalize trade and eliminate tariff barriers, thereby encouraging further growth in international coffee trade (WTO, 1947, 1994, n.d.; Ahnlid, 1996; Abdul-Aziz and Tan, 1998). Contemporary challenges, i.e. price volatility, inequalities in producers' income structure or climate and environmental changes in the coffee market necessitate constant observation and adaptation (Cowan, 2005; Morales et al., 2022; Utrilla-Catalan et al., 2022). In response to these challenges, initiatives to support sustainability are emerging, including certification schemes (e.g. Fairtrade certification by Fair Trade International) that aim to improve producers' livelihoods and protect the environment (Writer, 2018; Bush, 2019; Farooq, n.d.; Fair Trade Poland, n.d.).

The purpose of this study is to conduct a comprehensive analysis of the global coffee market from 2013 to 2023, with a particular focus on the factors determining the level of production and the directions and intensity of international trade in this commodity. The work also aims to identify quantitative and structural changes in coffee exports, imports and production, as well as to assess the importance of this product in the context of global agri-food trade, using the tools of macroeconomic and statistical analysis. The paper deals with the global coffee market, considered in geographical and economical terms, covering both the main coffee-producing countries (including Brazil, Vietnam, Colombia) and key importers and consumers (the United States, Germany, Italy, among other countries).

THEORETICAL BACKGROUND

Issues related to trade, agricultural production and production ethics are of interest to several disciplines, including international economics, environmental science, sociology, and management science (Andrzejuk, 2016; Ponte, 2002; Pawlak and Poczta, 2011; Krugman, Obstfeld, Melitz, 2012). A growing body of research focuses on analyzing global linkages between developing and highly industrialized countries, particularly in the context of value-added sharing, social justice and environmental responsibility (Nachum, 2021; Raynolds et al., 2007). In the context of international economics, the study of the global coffee market considers the impact of trade policy on market structure, while macroeconomic analysis, focusing on production and trade values, allows the impact of a product's exports on countries' trade balances to be determined (Frost, 2019; Pawlak, Poczta, 2011; Rymarczyk, 2006). In addition, agricultural science focuses on the relationship between environmental conditions and productivity and quality of production. Particular attention is paid to climate change, natural resource availability, and sustainable use of land and water in agriculture. Coffee, being a commodity with high environmental requirements, is one of the key case studies in analyses of agricultural adaptation to global change (Mishra and Slater, 2012; Soares Ferreira et al., 2022).

Discussions on the ethical dimensions of production and consumption are also playing an increasingly significant role. Heightened consumer awareness in developed countries is elevating the importance of certified products (e.g. Fair Trade) (Raynolds et al., 2007; Farooq, 2019). In turn, companies operating in the coffee sector are increasingly declaring their commitment to improving producers' livelihoods, minimizing environmental impacts and supporting local communities (Moraes et al., 2022; Fairtrade Poland, n.d.).

METHODOLOGY AND DATA

This study provides an analysis of the global coffee market from 2013 to 2023, focusing on three key areas: production, exports and imports. Descriptive, comparative and structural analysis methods were applied to capture the dynamics and structure of these processes, using statistical data from the FAOSTAT database and reports from international institutions (ICO, WTO, USDA). The paper focuses on a value (nominal) analysis of the coffee

market, rather than volume (tonnes), since the trade values better reflect the true economic importance of this commodity in international trade in goods. Coffee prices are highly volatile over time and influenced by many factors, which means that the same quantity can generate completely different revenues depending on the period. The study was based on a time series analysis, and to measure these changes, indicators of dynamics were used based on single-basis indices (1), where 2013 was taken as the base period, as well as an annual rate of change index using chained dynamics indices (2):

$$i_{SB} = \frac{y_t}{y_n} \cdot 100\% \quad (1)$$

$$i_{CH} = \frac{y_t}{y_{t-1}} \cdot 100\% \quad (2)$$

where:

i_{SB} – is the single-based dynamic index

i_{CH} – is the chained dynamic index y_t is the value of the phenomenon under study in the period under study

y_n – is the value of the phenomenon under study in the base period.

In addition, to deepen the analysis, the geometric mean (3) was also used to calculate the average rate of increase or decrease of specific values:

$$\left(\prod_{i=1}^n x_i \right)^{\frac{1}{n}} = \sqrt[n]{x_1 x_2 \dots x_n} \quad (3)$$

where:

\prod – is the geometric mean

n – is the number of values

x_i – is the value for calculating the mean.

Particular attention was also paid to the share of coffee export and import values in the agri-food goods trade and general merchandise trade of the selected countries (structure indicators), which allowed to access the role of this commodity in the international trade of the countries listed in the study.

RESULTS AND DISCUSSION

According to FAO data, the value of green coffee beans production was 19.4 billion USD in 2023, and this was 4.4% less than a decade earlier (Table 1). In the analyzed

Table 1. Value, annual rate of change and dynamics (2013=100) of green coffee production from 2013 to 2023

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Coffee production value (bil USD)	20.3	19.6	16.2	17.3	17.1	19.5	18.5	20.0	18.1	18.8	19.4
Annual rate of change (%)	x	96.8	82.5	107.0	98.3	114.2	94.8	107.8	90.7	103.6	103.1
Single-base index (%)	100.0	96.9	80.0	85.6	84.3	96.3	91.3	98.5	89.5	92.7	95.6

Source: own calculations based on FAOSTAT data.

period, contrary to appearances, a clear upward trend is not evident, as large fluctuations are observed between years. The largest increase took place in 2018, which, as indicated by ICO (2020), was influenced by sudden increases in coffee prices on international markets between 2016 and 2018. A comparable situation was observed in 2020, when market prices were influenced by significant disruptions in logistics and unpredictable fluctuations in supply and demand, stemming from the onset of the COVID-19 pandemic (ICO, 2024). The geometric mean (\bar{I}) of the reported annual rate of change values of 99.6% means that the value of production is declining by 0.4% per year on average, indicating an overall stagnant market in terms of production value, despite periodic increases associated with fluctuations in raw material prices and demand structure.

In 2023, Brazil was the leading country in coffee production, accounting for over 40% of the value of beans produced globally (Fig. 1), thus confirming its dominant position in the coffee market. In second place was Vietnam with a value of just over 16%, and Colombia in third place with 9.1%. The remaining countries

where coffee is grown play an important, albeit much smaller role, not exceeding 6% of the global value of coffee production. The implication is that the market is highly concentrated, with the top three countries generating almost 70% of the global production value, which reflects the superiority of a narrow group of producers and therefore the limited production potential in the rest of the world.

The next stage of the analysis brings in coffee export values, which, combined with production data, allows the general trade trends over the period under review to be captured. In years of lower production, the limited supply of coffee beans translated directly into fewer opportunities to sell them on foreign markets. Table 2 shows a sharp increase in the value of exports, which reached a record 30.8 billion USD in 2022, an increase of 45.4% from the previous year and 62.7% from the base year. As indicated by the ICO (n.d.) and the USDA (2022), the main factor responsible for this trend was the significant increase in global coffee prices due to supply constraints resulting from adverse weather conditions in key production regions, as well as increasing

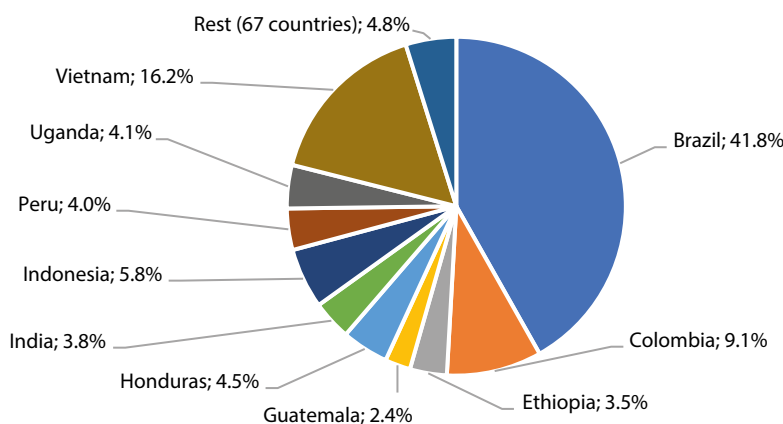


Fig. 1. Geographical structure of green coffee production value in 2023 (%)
Source: own calculations based on FAOSTAT data.

Table 2. Value, annual rate of change and dynamics (2013 = 100) of green coffee exports from 2013 to 2023

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Coffee export value (bil USD)	19.0	21.7	20.5	19.7	21.1	18.8	18.3	18.7	22.5	30.8	26.4
Annual change of rate (%)	x	99.0	98.8	98.1	108.4	95.1	93.7	102.8	112.9	145.4	86.3
Single-base index (%)	100.0	114.6	108.1	103.8	111.2	99.4	96.7	98.5	118.8	162.7	139.5

Source: own calculations based on FAOSTAT data.

inflationary pressures in commodity markets triggered by the geopolitical destabilization precipitated by Russia’s invasion of Ukraine, which affected the prices of energy and fertilizers that are also necessary for coffee production (Polansek and Mano, 2022). Additionally, the geometric mean (\bar{I}) of 103.0% indicates an average annual increase of 3% in the global value of coffee exports.

The data presented in Figure 2 show a strong concentration of the coffee market around just a few leading countries again. Brazil, the undisputed leader for years, accounts for just over a quarter of the world’s export value, which correlates strongly with this country’s volume of production.

To further analyze the importance of coffee in the economies of coffee-producing countries, its share in the export structure of these countries was also explored. The highest percentage was found in Ethiopia, where, in 2018, coffee accounted for more than 80% of the value of agri-food exports and 35% of the country’s total value of merchandise exports (Table 3). Although these figures stabilized in 2023, coffee remained one of Ethiopia’s key export commodities, generating significant

revenues in international trade. Similar trends can also be seen in other countries i.e. Uganda, Honduras or Colombia, but their coffee exports are less important to the overall economy, with values oscillating below 15% of total merchandise trade. An interesting phenomenon is that of Brazil and Vietnam, where, despite high production values, the significance of this raw material in their foreign trade structure is relatively low.

The final stage of the study focuses on analyzing the value of coffee imports, including the geographical distribution of the importers, who are the main recipients of this commodity internationally. The overall trend of imports is not uniform, with the dynamics of this process being characterized by the presence of annual fluctuations (Table 4). The largest rise in value occurred in 2022, which is directly underpinned by the previously discussed increase in exports over the same period. The geometric mean (\bar{I}) of imports was close to the average export dynamics, at 103.7%, implying a 3.7% increase in the value of coffee imports worldwide on average each year.

The highest-value coffee-importing country is the United States of America, contributing almost a quarter of the geographical share of coffee imports worldwide

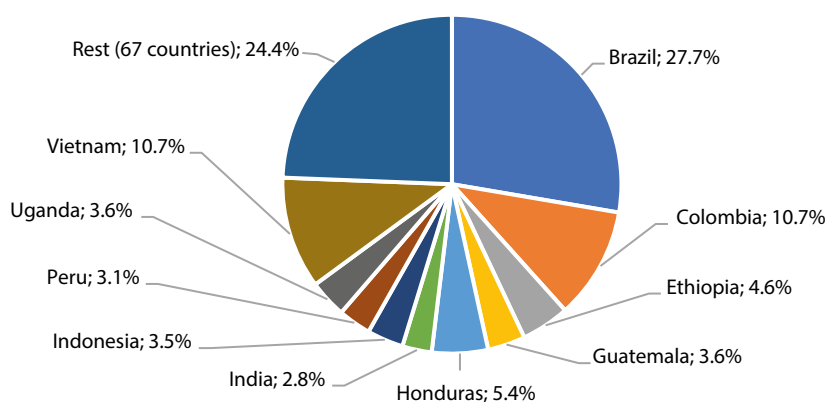


Fig. 2. Geographical structure of green coffee export value in 2023 (%)
Source: own calculations based on FAOSTAT data.

Table 3. Share of coffee export value in agri-food and total merchandise trade of green coffee producing countries in 2013, 2018 and 2023

Country	Coffee export value (bil USD)			Agri-food export value (bil USD)			Total merchandise export value (bil USD)		
	2013	2018	2023	2013	2018	2023	2013	2018	2023
Brazil	4.6	4.4	7.3	83.8	82.9	146.7	242.2	239.9	339.7
%				5.5	5.3	5.0	1.9	1.9	2.1
Colombia	1.9	2.5	2.5	6.4	7.1	9.8	58.9	41.8	49.5
%				29.7	35.2	25.5	3.2	6.0	5.1
Ethiopia	0.8	1.0	1.0	3.4	1.2	2.6	4.1	2.8	3.6
%				23.5	83.3	38.5	19.5	35.7	27.8
Guatemala	0.7	0.7	0.9	4.7	5.3	7.1	10.0	10.8	14.2
%				14.9	13.2	12.7	7.0	6.5	6.3
Honduras	0.8	1.1	1.4	2.0	2.4	3.8	7.8	8.7	11.4
%				40.0	45.8	36.8	10.3	12.6	12.3
India	0.6	0.5	0.7	37.5	30.7	42.2	313.2	324.8	432.0
%				1.6	1.6	1.7	0.2	0.2	0.2
Indonesia	1.2	0.8	0.9	34.6	36.1	48.2	183.3	180.2	258.9
%				3.5	2.2	1.9	0.7	0.4	0.3
Peru	0.7	0.7	0.8	4.1	6.7	10.2	42.2	49.1	60.8
%				17.1	10.4	7.8	1.7	1.4	1.3
Uganda	0.4	0.4	0.9	1.3	1.6	2.3	2.4	3.1	6.2
%				30.8	25.0	39.1	16.7	12.9	14.5
Vietnam	2.5	2.9	2.8	10.2	19.1	19.6	132.0	242.7	353.8
%				24.5	15.2	14.3	1.9	1.2	0.8

Source: own calculations based on FAOSTAT data.

Table 4. Value, annual rate of change and dynamics (2013=100) of green coffee import from 2013 to 2023

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Coffee import value (bil USD)	20.1	21.5	21.6	20.2	22.0	20.5	19.5	19.6	22.9	33.4	28.6
Annual change of rate (%)	x	107.1	100.3	93.5	109.2	93.2	94.9	100.5	116.7	146.1	85.7
Single-base index (%)	100.0	107.1	107.4	100.5	109.8	102.3	97.1	97.6	113.8	166.3	142.6

Source: own calculations based on FAOSTAT data.

(Fig. 3). The main reasons for this are primarily consumption motivations, traditions, culture or simple social needs arising from the consumption of the finished beverage (NCA, n.d.). Similar factors are also driven by the Japanese, where a cultural evolution has been observed in recent decades, i.e. the addition of traditional tea drinking with the widespread rise in popularity of coffee and coffee shops as social and relaxation (Grinshpun, 2013). In contrast, other rationales are suggested by

Germany and Italy, as their coffee is mainly imported for the processing industry (Venus et al., 2024; CBI, 2024). These countries are the largest importers of green coffee in the whole of Europe, as they have extremely sophisticated technological facilities for efficient and quality processing of coffee beans and re-export of finished products to the markets of other European countries.

Although the United States is among the largest importers of coffee in terms of nominal value (6.1 billion

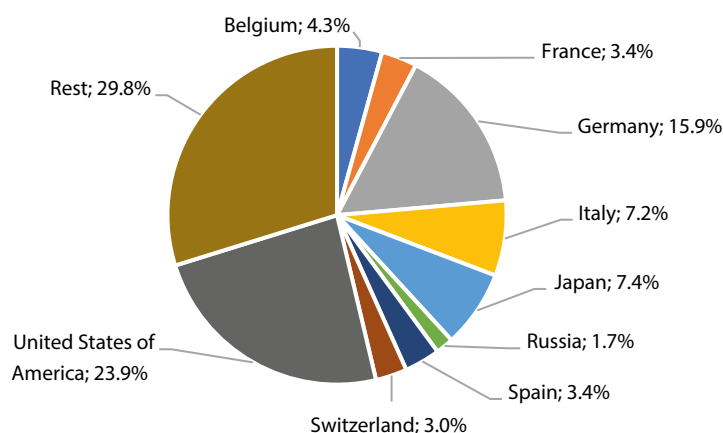


Fig. 3. Geographical structure of green coffee import value in 2023 (%)
Source: own calculations based on FAOSTAT data.

Table 5. Share of coffee import value in agri-food and total merchandise trade of green coffee-importing countries in 2013, 2018 and 2023

Country	Coffee import value (bil USD)			Agri-food import value (bil USD)			Total merchandise import value (bil USD)		
	2013	2018	2023	2013	2018	2023	2013	2018	2023
Belgium	0.9	0.7	1.2	38.6	38.6	48.1	450.7	450.1	546.8
%				2.3	1.8	2.5	0.2	0.2	0.2
France	0.7	0.6	1.0	56.5	57.6	72.3	681.0	672.5	785.9
%				1.2	1.0	1.4	0.1	0.1	0.1
Germany	3.2	2.8	3.6	92.7	95.1	117.1	1188.9	1285.7	1462.6
%				3.5	3.0	3.1	0.3	0.2	0.2
Italy	1.5	1.5	2.2	46.5	45.1	61.9	477.4	500.8	639.6
%				3.2	3.3	3.6	0.3	0.3	0.3
Japan	1.5	1.2	1.4	60.9	58.4	59.5	833.2	748.5	785.6
%				2.5	2.1	2.4	0.2	0.2	0.2
Russia	0.3	0.4	0.3	39.9	27.5	25.2	343.0	248.7	303.8
%				0.8	1.5	1.2	0.1	0.2	0.1
Spain	0.7	0.7	0.9	31.4	34.3	50.1	338.9	388.0	470.3
%				2.2	2.0	1.8	0.2	0.2	0.2
Switzerland	0.6	0.6	1.1	12.0	12.1	15.4	200.9	279.5	364.1
%				5.0	5.0	7.1	0.3	0.2	0.3
United States of America	4.8	4.8	6.1	112.3	138.6	195.6	2329.1	2612.4	3172.5
%				4.3	3.5	3.1	0.2	0.2	0.2

Source: own calculations based on FAOSTAT data.

USD), its share in total merchandise trade remains marginal. In terms of agri-food items, it is characterized by an above-average value compared to other countries at the beginning of the period but stabilizes in 2023

(Table 5). Germany and Italy remain at a high level, with a share of 3.1% and 3.6% respectively in agri-food trade, confirming their particular role in processing in the global coffee market. Switzerland has also emerged

as an important player in the years under review, attracting global coffee companies thanks to favorable tax conditions, in effect turning the country into an operational hub and logistical intermediary in the global supply chain, concentrating the activities of companies involved in purchasing, processing and re-export of raw material (Hutfilter, 2013). Despite the lack of its own coffee production, in 2023 the level of its import value there was as high as 7.1 per cent in agri-food trade.

CONCLUSIONS

The analysis indicated that the global coffee market is based on a close interdependence between producing and consuming countries. It is characterized by a complex structure, influenced by both natural and economic, trade and social factors. Production is concentrated in the ‘Coffee Belt’, comprising tropical and subtropical regions with optimal climatic conditions for coffee cultivation. It is dominated primarily by Brazil, Vietnam and Colombia, which together account for more than 60% of the global supply of this product. Although technological advances, i.e. mechanization of harvest or precise agriculture, are improving productivity, the sector remains vulnerable to external factors, including price fluctuations, extreme weather events or geopolitical crises affecting supply chains.

International trade in coffee is a significant factor creating the economy of many developing countries. In some cases, such as Ethiopia and Uganda, coffee exports account for a significant share of foreign trade earnings, reaching up to 35% of the value of total merchandise exports. The market structure is heavily dominated by a few countries, increasing the risk of unequal distribution of profits and dependence on global price fluctuations. During the period under review, there was an increase in the value of exports and imports, but without clearly visible trends of a linear nature. An example of fluctuations is the sudden record increase of nearly 45% in 2022, mainly stemming from supply constraints due to price increases and inflation, as well as the COVID-19 pandemic’s consequences in global value chains and the war in Ukraine, which inflated transport costs and further disrupted global supply chains. The main importers are highly developed countries, i.e. the United States, Germany or Italy, which use coffee not only for consumption but also for processing.

In conclusion, the coffee market continues to play a key role in the global economy, but its future will depend on the adaptability of producers, their use of technological innovations and, above all, the possibility and existence of international cooperation between market players. Sustainable practices, crop diversification and increased resilience to climate change will also be critical to maintaining the long-term sustainability of the sector.

REFERENCES

- Abafita, J., Tadesse, T. (2021). Determinants of global coffee trade: Do RTAs matter? Gravity model analysis. *Cogent Econ. Fin.*, 9(1). <https://doi.org/10.1080/23322039.2021.1892925>
- Abdul-Aziz, A., Tan, A.C. (1998). GATT, GATS and the global construction industry. *Eng. Const. Architec. Manag.*, 5, 31–37. <https://doi.org/10.1108/EB021058>
- Ahmed, S., Brinkley, S., Smith, E., Sela, A., Theisen, M., Thibodeau, C., Warne, T., Anderson, E., Van Dusen, N., Giuliano, P., Ionescu, K.E., Cash, S.B. (2021). Climate Change and Coffee Quality: Systematic Review on the Effects of Environmental and Management Variation on Secondary Metabolites and Sensory Attributes of *Coffea arabica* and *Coffea canephora*. *Front. Plant Sci.*, 12, 708013. <https://doi.org/10.3389/fpls.2021.708013>
- Ahnlid, A. (1996). Comparing GATT and GATS: Regime creation under and after hegemony. *Rev. Int. Polit. Econ.*, 3, 65–94. <https://doi.org/10.1080/09692299608434345>
- Andrzejuk, A. (2016). Produkcja i handel kawą na świecie i w Polsce. *Zesz. Nauk. SGGW Ekon. Org. Gosp. Żywn.*, (116), 105–117. <https://doi.org/10.22630/EIOGZ.2016.116.49>
- Barbosa, J.A., Prada, S.R., Bolivar, D.J., Romero, B.N., Rueda, O.E. (2018). Motion Capture of the Selective Hand Picking Movements As the Basis for the Design of Mechanically Assisted Picking Tools in Coffee Plantations in Colombia. Volume 4A: Dynamics, Vibration, and Control. <https://doi.org/10.1115/IMECE2018-88428>
- Bilen, C., El Chami, D., Mereu, V., Trabucco, A., Marras, S., Spano, D. (2022). A Systematic Review on the Impacts of Climate Change on Coffee Agrosystems. *Plants (Basel, Switzerland)*, 12(1), 102. <https://doi.org/10.3390/plants12010102>
- Borém, F.M., Andrade, E.T. (2019). Processing and Drying of Coffee. In: Ching Lik Hii, Flávio Meira Borém (Eds.), *Drying and Roasting of Cocoa and Coffee*. <https://doi.org/10.1201/9781315113104-6>

- Bozzola, M., Charles, S., Ferretti, T., Gerakari, E., Manson, H., Rosser, N., Von der Goltz, P. (2021). *The Coffee Guide*. International Trade Centre.
- Bożyk, P., Misala, J., Puławski, M. (2002). *Międzynarodowe stosunki ekonomiczne*. Warszawa: PWE.
- Bush, T. (2019). *PESTLE Analysis of the Coffee Industry*. PESTLE. Retrieved from: <https://pestleanalysis.com/coffee-industry-pestle-analysis/>
- CBI (Centre for Promotion of Imports from developing countries) (2024). *The Italian market potencial for coffee*. Retrieved from: <https://www.cbi.eu/market-information/coffee/italy/market-potential>
- Cowan, B. (2005). *The social life of coffee. The emergence of the British coffeehouse*. Yale University Press.
- DaMatta, F.M. (2004). Ecophysiological constraints on the production of shaded and unshaded coffee: a review. *Field Crops Res.*, 86(2–3), 99–114. <https://doi.org/10.1016/j.fcr.2003.09.001>
- Fairtrade Polska (n.d.). *Kawa*. World Trade Polska. Retrieved from: <https://www.fairtrade.org.pl/fairtrade/produkty-i-produkcenci/kawa/>
- Farooq, U. (n.d.). *PESTLE Analysis of The Coffee Industry*. MarketingTutor.net. Retrieved from: <https://www.marketingtutor.net/pestle-analysis-of-the-coffee-industry/>
- Frost, A. (2019). *Who Holds Power in the Global Coffee Market?* (Publication No. 10.13140/RG.2.2.12325.65769. BA(Hons) dissertation, Univeristy of Bristol). Retrieved from: https://www.researchgate.net/publication/340273186_Who_Holds_Power_in_the_Global_Coffee_Market
- Grinshpun, H. (2013). Deconstructing a global commodity: Coffee, culture, and consumption in Japan. *J. Cons. Cult.*, 14(3), 343–364. <http://dx.doi.org/10.1177/1469540513488405>
- Grzelak, K. (2021). *Naukowcy odkryli „zapomniany gatunek kawy”*. Może uratować nas przed kryzysem upraw. *Nat. Geogr. Pol.* <https://www.national-geographic.pl/przyroda/naukowcy-odkryli-zapomniany-gatunek-kawy-moze-uratowac-nas-przed-kryzysem-upraw/>
- Haryono, A., Juniarti, I., Matajat, K., Suroso, A.I., Soesilo, M. (2024). Partnership Development of Smallholder Coffee Cultivation: A Model for Social Capital in the Global Value Chain. *Economies*, 12(12), 349. <https://doi.org/10.3390/economies12120349>
- Hutfilter, A.F. (2013). *Making the Tax System Less Distortive in Switzerland*. OECD.
- ICO (International Coffee Organization). (n.d.). *Annual Review. Coffee Year 2021/2022*. ICO. Retrieved from: <https://www.ico.org/documents/cy2022-23/annual-review-2021-2022-e.pdf>
- ICO (International Coffee Organization). (2024). *ICO Coffee Development Report 2022-23: “Beyond coffee: Towards a Circular Coffee Economy*. ICO. Retrieved from: <https://www.icocoffee.org/documents/cy2024-25/coffee-development-report-2022-23.pdf>
- ICO (International Coffee Organization). (2020). *ICO Coffee Development Report 2021: “The future of coffee: Investing youth for a resilient and sustainable coffee sector”*. ICO. Retrieved from: <https://www.icocoffee.org/wp-content/uploads/2022/11/coffee-development-report-2021.pdf>
- Krugman, P., Obstfeld, M., Melitz, M. (2012). *International Economics. Theory & Policy*. (9th ed.). Pearson.
- Leavitt, L. (2009). International Coffee Organization (www.ico.org). *Journal of Business & Finance Librarianship*, 14(2), 176–180. 10.1080/08963560802362583
- Mawardi, I., Nurdin, N., Zulkarnaini, Z. (2019). *Appropriate Technology Program of Postharvested Coffee: Production, Marketing, and Coffee Processing Machine Business Unit*. *J. Pengab. kep. Masyar. (Ind. J. Comm. Engag.)*, 5, 267. <https://doi.org/10.22146/jpkm.36470>
- Misala, J. (2005). *Współczesne teorie wymiany międzynarodowej i zagranicznej polityki ekonomicznej*. Warszawa: Szkoła Główna Handlowa w Warszawie.
- Mishra, M.K., Slater, A. (2012). Recent advances in the genetic transformation of coffee. *Biotech. Res. Int.*, 580857. <https://doi.org/10.1155/2012/580857>
- Morales, L.V., Robiglio, V., Baca, M., Bunn, C., Reyes, M. (2022). Planning for Adaptation: A System Approach to Understand the Value Chain’s Role in Supporting Smallholder Coffee Farmers’ Adaptive Capacity in Peru. *Front. Clim.*, 4, 788369. <https://doi.org/10.3389/fclim.2022.788369>
- Nachum, L. (2021). Value distribution and markets for social justice in global value chains: Interdependence relationships and government policy. *J. Int. Bus. Polic.*, 4, 541–563. <https://doi.org/10.1057/s42214-021-00105-w>
- Nanyang Technological University (2024). *Scientists find common genes defending coffee plants against devastating disease*. *Phys. Org.* Retrieved from: <https://phys.org/news/2024-04-scientists-common-genes-defending-coffee.html>
- NCA (National Coffee Association). (n.d.). *Coffee’s Economic Impact*. NCA. Retrieved from: <https://www.aboutcoffee.org/origins/coffee-regions-of-the-world/>
- Nguyen, A. (2020). *Bitter origins: Labor exploitation in coffee production*. The Borgen Project. Retrieved from: <https://borgenproject.org/labor-exploitation-in-coffee-production/>
- Pawlak, K., Poczta, W. (2011). *Międzynarodowy handel rolny. Teorie, konkurencyjność, scenariusze rozwoju*. Warszawa: PWE.
- Polansek, T., Mano, A. (2022). *Insight: As sanctions bite Russia, fertilizer shortage imperils world food supply*.

- Reuters. Retrieved from: <https://www.reuters.com/business/sanctions-bite-russia-fertilizer-shortage-imperils-world-food-supply-2022-03-23>
- Ponte, S. (2002). The ‘Latte Revolution’? Regulation, Markets and Consumption in the Global Coffee Chain. *World Dev.*, 30(7), 1099–1122. [https://doi.org/10.1016/S0305-750X\(02\)00032-3](https://doi.org/10.1016/S0305-750X(02)00032-3)
- Raynolds, L.T., Murray, D., Heller, A. (2007). Regulating sustainability in the coffee sector: A comparative analysis of third-party environmental and social certification initiatives. *Agric. Hum. Val.*, 24, 147–163. <https://doi.org/10.1007/s10460-006-9047-8>
- Rymarczyk, J. (2006). *Międzynarodowe stosunki gospodarcze*. Warszawa: PWE.
- Sanghro, M.A. (n.d.). *Modern Theories of International Trade: Exploring Contemporary Trade Dynamics*. MAS. Economics. Retrieved Apr 15th 2025 from <https://maseconomics.com/modern-theories-of-international-trade-exploring-contemporary-trade-dynamics>
- Smith, R.F. (1985). *A history of Coffee*. Springer.
- Soares Ferreira, D., Eduardo da Silva Oliveira, M., Rodrigues Ribeiro, W., Altoé Filete, C., Toledo Castanheira, D., Cesar Pereira Rocha, B., Polonini Moreli, A., Catarina da Silva Oliveira, E., Carvalho Guarçoni, R., Partelli, F. L., Louzada Pereira, L. (2022). Association of Altitude and Solar Radiation to Understand Coffee Quality. *Agronomy*, 12(8), 1885. <https://doi.org/10.3390/agronomy12081885>
- Teixeira, M., Samora, R. (2025). Brazil’s coffee farmers turn to costly irrigation to quench global demand for the brew. Reuters. Retrieved from: <https://www.reuters.com/markets/commodities/brazils-coffee-farmers-turn-costly-irrigation-quench-global-demand-brew-2025-03-31>
- Thurber, F.B. (1889). *Coffee: From Plantation to Cup*. A brief history of coffee production and consumption. American Grocer Publishing Association.
- Tiemann, T., Aye, M., Dung, N., Minh, T., Fisher, M., Paulo, E., Oberthur, T. (2018). Crop Nutrition for Vietnamese Robusta Coffee. *Bett. Crops Plant Food.*, 102, 20–23. <http://dx.doi.org/10.24047/BC102320>
- USDA (United States Department of Agriculture). (2022). *Coffee: World Markets and Trade*. USDA. Retrieved from: <https://www.fas.usda.gov/sites/default/files/2024-08/coffee-Dec2022.pdf>
- Utrilla-Catalan, R., Rodríguez-Rivero, R., Narvaez, V., Díaz-Barcos, V., Blanco, M., Galeano, J. (2022). Growing Inequality in the Coffee Global Value Chain: A Complex Network Assessment. *Sustainability*, 14(2), 672. <https://doi.org/10.3390/su14020672>
- Venus, T.E., Beale, C., Villalba, R. (2024) Innovation and Networks in the Bioeconomy: A Case Study from the German Coffee Value Chain. *Circ. Econ. Sust.*, 4, 1751–1772. <http://dx.doi.org/10.1007/s43615-024-00357-7>
- WTO (World Trade Organization). (1947). *General Agreement on Tariffs and Trade*. World Trade Organization. Retrieved from: https://www.wto.org/english/docs_e/legal_e/gatt47_e.htm
- WTO (World Trade Organization). (n.d.). *General Agreement on Trade in Services*. World Trade Organization. Retrieved from: https://www.wto.org/english/docs_e/legal_e/gats_e.htm
- WTO (World Trade Organization). (1994). *Marrakesh Protocol to the General Agreement on Tariffs and Trade 1994*. World Trade Organization. Retrieved from: https://www.wto.org/english/docs_e/legal_e/marrakesh_protocol_e.htm
- Worku, M. (2023). Production, productivity, quality and chemical composition of Ethiopian coffee. *Cogent Food Agric.*, 9 (1). <https://doi.org/10.1080/23311932.2023.2196868>
- Writer, S. (2018). Valuing coffee’s intangibles. *Global Coffee Report*. The intelligent industry resource. Retrieved from: <https://www.germag.com/valuing-coffees-intangibles/>