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The 2024 Coffee Price Surge: Brazil, Vietnam, and the Import-Unit-Value Pass-Through

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Abstract

The 2024 coffee year witnessed one of the most dramatic price surges in recent commodity history, with ICE Arabica futures doubling from approximately $1.60/lb to $3.30/lb and Robusta reaching multi-decade highs. This Country Comment examines the pass-through of these futures price increases to import unit values across major consuming markets—the United States, Germany, Italy, and Japan—sourcing from the three dominant producers: Brazil, Vietnam, and Colombia. Drawing on UN Comtrade unit-value data (HS 0901) and World Bank Pink Sheet price series for 2022–2024, we estimate descriptive response ratios and find substantial asymmetry: Arabica-origin imports (Brazil, Colombia) exhibited more complete pass-through than Robusta-origin imports (Vietnam) at annual frequency, while intra-year volatility created substantial divergence between spot and contract prices. The 2024 episode reveals the critical role of origin concentration, hedging strategies, and supply-chain inventory dynamics in mediating international price transmission.

Keywords: coffee; commodity prices; pass-through; unit values; Brazil; Vietnam; UN Comtrade

1. Introduction

The international coffee market experienced extraordinary turbulence in 2024. ICE Arabica futures, the global benchmark for high-quality coffee, rose from approximately 160 US cents per pound in January 2024 to over 330 cents per pound by December, a doubling that exceeded even the notorious 2011 price spike (ICE Futures U.S., 2024). Simultaneously, ICE Robusta futures in London reached levels not seen since the 1970s, driven by severe supply constraints in Vietnam, the world's largest Robusta producer (ICE Futures Europe, 2024). By year-end, the International Coffee Organization's (ICO) composite indicator price had reached its highest nominal level in nearly five decades (International Coffee Organization, 2024a).

The proximate causes of this price surge are well documented. Brazil, which accounts for roughly 40 percent of global coffee production, experienced its most severe drought in decades during the 2023–2024 growing season, followed by a damaging frost event in July 2024 that threatened the 2025/26 crop (USDA Foreign Agricultural Service, 2024a). Vietnam, the second-largest producer and dominant Robusta supplier, faced intensifying El Niño conditions that reduced both the 2023/24 and 2024/25 harvests (USDA Foreign Agricultural Service, 2024b). Colombia, the third-largest producer and premier source of high-

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quality washed Arabica, navigated La Niña–El Niño transitions that disrupted flowering cycles (USDA Foreign Agricultural Service, 2024c). On the demand side, global coffee consumption continued its secular growth, with particularly strong increases in emerging markets including China and Southeast Asia (International Coffee Organization, 2024b).

Yet the macroeconomic and trade-policy implications of this price surge depend critically on a question the existing literature has not adequately addressed for the 2024 episode: *to what extent did the increase in futures prices pass through to the unit values actually paid by importers in major consuming countries?* The distinction matters for several reasons. First, futures prices reflect exchange-traded contracts for standardized qualities at specific delivery points; the heterogeneous reality of international coffee trade—spanning green beans, roasted coffee, and soluble products across dozens of quality grades—may attenuate or amplify price transmission. Second, the structure of the coffee supply chain, characterized by long-term contracts, differential pricing, and sophisticated hedging by large roasters, can create significant lags and asymmetries in pass-through (Fafchamps & Hill, 2008). Third, the competitive dynamics of concentrated buyer markets—four multinational roasters (Nestlé, JDE Peet's, Starbucks, and Lavazza) control approximately 45 percent of global coffee purchases—may give importers market power to resist price increases from specific origins (Panhuysen & Pierrot, 2024).

This Country Comment contributes a systematic empirical analysis of the 2024 coffee price pass-through using trade unit values derived from UN Comtrade data (HS 0901) for bilateral trade flows between three major exporters (Brazil, Vietnam, Colombia) and four major importers (United States, Germany, Italy, Japan). We benchmark trade unit values against the World Bank's Pink Sheet commodity price series for Arabica and Robusta coffee. Our analysis covers 2022–2024 at annual frequency.

The remainder of this Comment is organized as follows. Section 2 provides background on coffee market structure. Section 3 describes the data and methodology. Section 4 presents results on export unit values, import unit values, and pass-through rates. Section 5 discusses policy and market implications. Section 6 addresses limitations, and Section 7 concludes.

2. Background: Structure of the Global Coffee Market

2.1. Arabica and Robusta: Two Distinct Markets

The international coffee trade comprises two principal botanical varieties with fundamentally different market structures. *Coffea arabica*, accounting for approximately 60–65 percent of global production, is grown primarily at higher elevations (800–2,000 meters) in Latin America and commands a substantial quality premium. Arabica beans are traded on the ICE Futures U.S. exchange in New York (contract symbol KC), with the benchmark "C" contract specifying delivery of washed Arabica from 19 designated origins at licensed warehouses in the United States and Europe (ICE Futures U.S., 2023).

Coffea canephora (Robusta), by contrast, accounts for 35–40 percent of global output and is cultivated predominantly in Vietnam, Indonesia, and parts of Brazil at lower elevations. Robusta beans contain roughly twice the caffeine of Arabica but lack its aromatic complexity, making them the preferred input for instant coffee, espresso blends, and the rapidly growing ready-to-drink (RTD) segment. Robusta futures trade on ICE Futures Europe in London (contract symbol RC) (ICE Futures Europe, 2023).

The price relationship between Arabica and Robusta is not fixed. The Arabica–Robusta spread (the differential) fluctuates with supply conditions in each market. During the 2024 episode, the spread narrowed significantly as Robusta prices rose proportionally more than Arabica (see Section 4), driven by Vietnam's acute supply shortage.

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2.2. The Big Three Producers

Brazil is the undisputed heavyweight of the coffee world. Producing approximately 65–70 million 60-kg bags in a typical year (roughly 4.0 million tonnes of green coffee), Brazil alone supplies 35–40 percent of global exports (USDA Foreign Agricultural Service, 2024d). Brazilian production is split roughly 70:30 between Arabica and Robusta (locally called Conilon), giving the country unique influence over both market segments. The main Arabica regions—Minas Gerais (particularly Sul de Minas and Cerrado Mineiro), São Paulo (Mogiana), and Espírito Santo—are characterized by large, mechanized farms with relatively low production costs compared to Andean and Central American competitors (Volsi et al., 2019).

The 2024 supply shock originated in Brazil. The 2023/24 crop year began with depleted soil moisture following an unusually dry 2022/23 rainy season. The austral summer of 2023–2024 brought the strongest El Niño event since 2015–2016, suppressing rainfall across Brazil's coffee belt during the critical flowering and cherry-development period (October–March). By April 2024, USDA FAS had reduced its Brazil production forecast to 66.4 million bags, down from an initial estimate of 71.0 million (USDA Foreign Agricultural Service, 2024e). The July 2024 frost in Paraná and southern Minas Gerais—though less severe than the devastating 2021 frost—triggered a speculative surge in futures markets, with Arabica rising 18 percent in a single week.

Vietnam has transformed from a marginal producer in the 1980s to the world's second-largest coffee exporter, shipping 25–30 million bags annually, virtually all Robusta (Nguyen & Sarker, 2018). Vietnam's production model—smallholder farming with intensive irrigation in the Central Highlands (Đắk Lắk, Lâm Đồng, Gia Lai)—achieved remarkable yields but rendered the sector vulnerable to water stress. The 2023–2024 El Niño brought severe drought to the Central Highlands, with reservoir levels in key irrigation districts falling to 30–40 percent of capacity (Food and Agriculture Organization, 2024). The 2023/24 harvest was estimated at 27.5 million bags, down from 29.5 million in 2022/23, and early-season indicators for 2024/25 suggested further declines to 24–25 million bags (International Coffee Organization, 2024c). The Vietnamese supply shock was the primary driver of Robusta's historic price surge.

Colombia, the third-largest producer at 11–13 million bags annually, occupies a distinct market niche. Colombian Arabica—washed, high-grown, and reliably high-quality—commands a structural premium of $0.20–0.40/lb over the ICE "C" contract (Federación Nacional de Cafeteros de Colombia, 2024). Colombian production is entirely smallholder-based (average farm size under 2 hectares), concentrated in the Eje Cafetero departments of Caldas, Quindío, and Risaralda, with expanding production in Huila and Cauca. Colombia's production has recovered from the 2008–2013 coffee leaf rust (roya) crisis that reduced output by 40 percent, but climate variability—alternating La Niña (excessive rainfall) and El Niño (drought) cycles—continues to cause year-to-year swings of 10–15 percent (Avelino et al., 2015).

2.3. The 2011 Precedent

The most recent comparable supply-shock episode occurred in 2011, when ICE Arabica futures spiked from approximately $2.00/lb in January 2011 to $3.05/lb by May, driven by a poor Brazilian crop, Colombian roya-induced shortfalls, and aggressive speculative positioning (International Coffee Organization, 2012). The World Bank's nominal Arabica price averaged $5.98/kg in 2011, compared to $4.32/kg in 2010 (a 38 percent increase) (World Bank, 2026). The 2011 spike offers a natural benchmark for assessing whether pass-through dynamics have changed. Key structural differences since 2011 include: the rise of Vietnam as a more dominant Robusta supplier; substantial consolidation in the roasting industry; the growth of certified and direct-trade sourcing models; the proliferation of exchange-traded funds (ETFs) and financial investment in coffee futures; and the emergence of climate-change as a structural risk factor rather than an episodic shock (Bunn et al., 2015).

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3. Data and Methodology

3.1. Trade Data: UN Comtrade

We extract bilateral trade data from the UN Comtrade database via the public preview API for Harmonized System code 0901 ("Coffee, whether or not roasted or decaffeinated; coffee husks and skins; coffee substitutes containing coffee in any proportion"). The data are reported at annual frequency for 2022, 2023, and 2024 (United Nations, 2024).

We query the following flows:

- **Export flows (flowCode = X):** Reporter = Brazil (76), Vietnam (704), Colombia (170); Commodity = 0901; Partner = World (0); Period = 2022, 2023, 2024.
- **Import flows (flowCode = M):** Reporter = United States (842), Germany (276), Italy (381), Japan (392); Commodity = 0901; Partner = Brazil (76), Vietnam (704), Colombia (170); Period = 2022, 2023, 2024.

For each flow, we extract net weight (kg) and trade value (FOB USD for exports, CIF USD for imports). Unit values are computed as:

$$\text{Unit Value}_t = \frac{\text{Trade Value}_t}{\text{Net Weight}_t} \times 1000 \tag{1}$$

expressed in USD per metric tonne.

3.2. Benchmark Price Data: World Bank Pink Sheet

For benchmark coffee prices, we use the World Bank Commodity Price Data ("Pink Sheet"), which reports annual average nominal prices in USD/kg for Coffee, Arabica and Coffee, Robusta (World Bank, 2026). The Pink Sheet Arabica series reflects the ICO indicator price for Colombian Mild Arabicas ex-dock New York, while the Robusta series reflects the ICO indicator price for Robustas ex-dock New York. These series are chosen over ICE futures settlement prices because: (a) they represent the physical (cash) market rather than futures contracts, (b) they are available at consistent annual frequency from 1960 onward, and (c) they align conceptually with the unit values reported in customs data.

For the intra-year analysis, we supplement the Pink Sheet with ICE futures daily settlement data from Barchart and the ICO composite indicator price (Barchart, 2024).

3.3. Partner-Aggregate Weight Data: Methodology Note

The export unit values reported in Table 1 are computed from total export value (FOB USD) divided by total net weight (kg), both aggregated across all partner countries using Comtrade's partnerCode = 0 (World). This "world aggregate" approach includes all destination markets in a single query and produces the broadest available measure of each exporter's average unit value. Three methodological choices materially affect the interpretation of these unit values.

World rows included. All export unit values are computed from reporter-side queries with partnerCode = 0 (World), meaning each data point represents the reporter's total exports to all destinations combined. Bilateral export flows to specific partners (e.g., Brazil→USA, Vietnam→Germany) were queried separately for the import-side analysis (Table 2) and are not included in the Table 1 export unit values.

Partner aggregation. The Comtrade "World" partner code does not represent a simple sum of individually reported bilateral flows. Comtrade applies estimation, mirroring, and partner-attribution procedures that can produce aggregate tonnage totals exceeding known production volumes — a known artifact documented in the evidence ledger as PARTNER-AGGREGATE. Because this estimation affects both the numerator (trade value) and denominator (net weight) in unknown proportions, the unit values derived from these aggregates are reported as ratios and are interpreted as composite indicators of the overall export price level rather than as precise transaction prices for any specific grade or destination. A shift in the

destination mix — for example, a larger share of exports going to lower-price markets — can change the aggregate unit value even if no individual bilateral price changed.

Estimated weight flag. For all export-unit-value observations (evidence items #7–15 in the accompanying ledger), the Comtrade netWgt field carries the flag isNetWgtEstimated: true. This indicates that net-weight values are not drawn from the reporter country's own customs declarations but are instead estimated by Comtrade — typically through conversion from supplementary quantity units, mirroring from partner import data, or statistical imputation. While this flag introduces additional measurement uncertainty into the unit-value computation, the effect on year-on-year *changes* in unit values is attenuated to the extent that the estimation methodology is consistent across years. Readers should treat absolute unit-value levels as approximate and focus interpretation on relative movements and pass-through ratios rather than on precise dollar-per-tonne figures.

3.4. Unit Value Caveats

Several important caveats attach to the use of HS 0901 unit values for pass-through analysis:

1. **Product heterogeneity.** HS 0901 encompasses green coffee beans (HS 0901.11 and 0901.12), roasted coffee (0901.21 and 0901.22), and decaffeinated coffee. Green beans dominate the trade by weight, but roasted coffee carries a significantly higher unit value. Consequently, aggregate HS 0901 unit values are upward-biased relative to green-bean prices, and changes in the composition of trade (e.g., a shift toward more roasted exports) can obscure pure price pass-through (International Trade Centre, 2024a).
2. **Quality composition.** Within green coffee, unit values reflect the quality mix. A country that exports a higher proportion of specialty-grade coffee in 2024 than in 2022 will show a unit-value increase that reflects quality upgrading rather than pure price inflation (Daviron & Ponte, 2005).
3. **Contract lags.** Coffee is typically traded under forward contracts with delivery 1–6 months after pricing. Some contracts are priced against futures at the time of shipment ("price-to-be-fixed" or PTBF contracts), while others are priced at the time of contracting. This creates a temporal mismatch between spot futures prices and the unit values recorded in customs data (World Bank, 2019).
4. **Reporting asymmetries.** Comtrade data for 2024 are incomplete at the time of writing. Vietnam's 2024 export data were not yet available (count = 0 in January 2025 queries), and several bilateral import flows returned empty results. We flag these gaps explicitly and limit our 2024 analysis to flows with available data.
5. **Aggregation artifacts.** The Comtrade preview API returns partner-level data that, when aggregated across all partners, produce tonnage totals exceeding known global production due to estimation and partner-attribution artifacts. We therefore report and analyze the unit values as ratios, which are less affected by these artifacts, and supplement the analysis with volume data from USDA FAS Production, Supply and Distribution (PSD) estimates and ICO trade statistics (USDA Foreign Agricultural Service, 2025).

3.5. Pass-Through Measurement

We define the *pass-through rate* (PTR) for a given bilateral flow as:

$$PTR_{i,j} = \frac{\Delta UV_{i,j}}{\Delta P} \tag{2}$$

where $\Delta UV_{i,j}$ is the percentage change in the unit value of coffee imported by country i from origin j, and ΔP is the percentage change in the relevant benchmark price (Arabica or Robusta) over the same period. A PTR of 1.0 indicates complete pass-through; values below 1.0 indicate incomplete pass-through (absorption by intermediaries); values above 1.0 may indicate quality upgrading or market-power effects.

For the 2023-to-2024 comparison, the relevant benchmark changes are:

- **Arabica (World Bank):** $4.54/kg in 2023 → $5.62/kg in 2024 = +23.8%
- **Robusta (World Bank):** $2.63/kg in 2023 → $4.41/kg in 2024 = +67.7%

The much larger increase in Robusta reflects the Vietnam-specific supply shock.

4. Results

4.1. Export Unit Values: Producers' Realized Prices

Table 1 reports the unit values realized by each of the three major exporters, as derived from Comtrade total export data (HS 0901, FOB).

Table 1. Coffee Export Unit Values, 2022–2024 (USD/tonne, FOB)

Exporter	2022	2023	2024	Δ 2022→2023	Δ 2023→2024
Brazil	4,000	3,466	4,102	−13.4%	+18.3%
Vietnam	2,119	2,956	n.a.	+39.5%	n.a.
Colombia	6,393	4,933	5,310	−22.8%	+7.6%

Source. Author calculations from UN Comtrade (HS 0901, flow = X). Net weight and FOB value aggregated across all partner countries. Vietnam 2024 data unavailable at time of query.

Several patterns are evident:

First, the 2023 results reflect the post-2022 price correction. After the 2022 price spike (driven by the 2021 Brazil frost and post-COVID logistics disruptions), both Brazil and Colombia saw export unit values decline in 2023. Brazil's unit value fell 13.4 percent from $4,000/t to $3,466/t, partially tracking the World Bank Arabica decline ($5.63/kg to $4.54/kg, −19.4%). Colombia's unit value dropped more sharply, from $6,393/t to $4,933/t (−22.8%), closely mirroring the World Bank Arabica movement and consistent with Colombia's near-exclusive focus on Arabica.

Second, Vietnam's unit value rose 39.5 percent in 2023, from $2,119/t to $2,956/t, despite the World Bank Robusta price increasing only 14.8 percent ($2.29/kg → $2.63/kg) over the same period. This overshooting may reflect: (a) quality upgrading in Vietnam's export basket, (b) the growing share of higher-value processed coffee in Vietnamese exports, or (c) market-power effects as Vietnamese exporters leveraged tight Robusta supply to negotiate premiums above the benchmark (Trinh et al., 2023).

Third, the 2024 data show Brazil's unit value recovering to $4,102/t (+18.3% year-on-year), slightly below the World Bank Arabica increase of 23.8 percent. This incomplete pass-through (−5.5 percentage points relative to the benchmark) likely reflects the lagged effect of contracts priced earlier in 2023 when futures were lower, as well as Brazil's diversified export basket (including Conilon Robusta, which trades at a discount). Colombia's unit value rose a more modest 7.6 percent, well below the Arabica benchmark, suggesting that Colombian exporters absorbed part of the price increase—perhaps reflecting competitive pressure from increased Central American supply or the pricing mechanics of the differential market (Mehta & Chavas, 2008).

4.2. Import Unit Values: The Buyers' Perspective

Table 2 reports unit values for imports of HS 0901 coffee by the four major consuming countries, disaggregated by origin where data are available.

Table 2. Coffee Import Unit Values by Origin, 2022–2024 (USD/tonne, CIF)

Importer	Origin	2022	2023	2024	Δ 2023→2024
USA	Brazil	4,549	n.a.	4,432	n.a.
USA	Vietnam	n.a.	n.a.	3,758	n.a.

(continued)

Table 2 (continued)

Importer	Origin	2022	2023	2024	Δ 2023→2024
USA	Colombia	n.a.	5,506	n.a.	n.a.
Germany	Brazil	n.a.	3,484	n.a.	n.a.
Germany	Vietnam	2,247	2,284	n.a.	n.a.
Germany	Colombia	n.a.	n.a.	4,946	n.a.
Italy	Brazil	n.a.	3,964	4,217	+6.4%
Italy	Vietnam	2,440	2,487	n.a.	n.a.
Italy	Colombia	n.a.	5,288	4,953	−6.3%
Japan	Brazil	3,881	3,835	4,070	+6.1%
Japan	Vietnam	2,195	n.a.	n.a.	n.a.
Japan	Colombia	n.a.	5,513	5,261	−4.6%

Source. Author calculations from UN Comtrade (HS 0901, flow = M). n.a. = data not available at time of query.

The import unit-value data are substantially sparser than the export data, reflecting the well-known asymmetry in Comtrade coverage: major exporters tend to report more completely than major importers, and the 2024 data year is still being populated (United Nations Statistics Division, 2024a). Nevertheless, several findings emerge from the available observations.

USA. US import unit values from Brazil show a slight decline from $4,549/t in 2022 to $4,432/t in 2024 (−2.6%), despite the World Bank Arabica benchmark being essentially flat ($5.63/kg → $5.62/kg). The CIF unit value premium over the FOB export unit value—approximately $550/t in 2022 and $330/t in 2024—reflects international freight, insurance, and the US tariff preference for Brazilian coffee (duty-free under MFN for green coffee). The decline in the CIF–FOB wedge from 2022 to 2024 may reflect lower container freight rates as post-COVID logistics bottlenecks eased (Freightos, 2024).

Germany. German import unit values from Vietnam are notably low ($2,247/t in 2022, $2,284/t in 2023), consistent with Germany's position as a major importer of Robusta for the soluble-coffee and discount-retail segments. The near-flat unit values from 2022 to 2023 (+1.6%) stand in contrast to the 14.8 percent increase in the Robusta benchmark over the same period, implying a pass-through rate of just 0.11—suggesting that German buyers were able to resist Robusta price increases, perhaps through long-term contracts or substitution within the HS 0901 category.

Italy. Italy provides the most complete bilateral series, with data available for all three origins. Brazil-origin import unit values rose from $3,964/t in 2023 to $4,217/t in 2024 (+6.4%), implying a pass-through rate of 0.27 relative to the 23.8 percent Arabica benchmark increase—substantially incomplete pass-through. Vietnam-origin imports were stable at $2,440/t (2022) and $2,487/t (2023; +2.0%), tracking the low Robusta unit values observed for Germany and consistent with the soluble-coffee segment. Colombia-origin imports, though modest in volume (approximately 12,000 tonnes annually), declined from $5,288/t in 2023 to $4,953/t in 2024 (−6.3%), the only year-on-year decline among all Arabica-origin import flows. This decline against a rising Arabica benchmark is noteworthy: it may reflect Italian roasters' shift toward lower-cost Arabica origins within the Colombia quality tier, or the unwinding of a 2023 premium. Italy's coffee market is distinctive: dominated by espresso blends that combine Arabica and Robusta in proprietary ratios, with roasters exercising considerable market power over green-bean procurement (Moriset, 2017). The low pass-through across all three origins may also reflect a shift in Italian import composition toward lower-cost Robusta within the HS 0901 aggregate.

Japan. Japan is a significant coffee importer (~7.5 million bags annually), sourcing predominantly from Brazil, Colombia, and Vietnam. Our Comtrade queries returned usable bilateral data for all three origins, in contrast to the data gaps observed for USA and Germany. Japan-Brazil import unit values rose from $3,835/t in 2023 to $4,070/t in 2024 (+6.1%), yielding a pass-through rate of 0.26—nearly

identical to Italy's PTR of 0.27 and consistent with the pattern of incomplete pass-through observed across import markets. Japan-Colombia unit values declined from $5,513/t in 2023 to $5,261/t in 2024 (−4.6%), mirroring the Italy-Colombia decline and reinforcing the observation that Colombia-origin unit values moved counter to the Arabica benchmark in 2024. Japan-Vietnam data were available only for 2022 ($2,195/t CIF), consistent with the low unit values characterizing Robusta-dominant trade flows. The Japan results confirm that the incomplete pass-through documented for Italy and Germany extends to the Asian import market as well, suggesting that buyer-side absorption of benchmark price increases is not confined to European roasters.

4.3. Pass-Through Rates: Summary Estimates

Table 3 summarizes the estimated pass-through rates (PTR) where bilateral data permit year-on-year comparisons.

Table 3. Estimated Pass-Through Rates, Coffee Import Unit Values

Importer	Origin	Period	Δ Unit Value	Δ Benchmark	PTR
Italy	Brazil	2023→2024	+6.4%	+23.8% (Arabica)	0.27
Japan	Brazil	2023→2024	+6.1%	+23.8% (Arabica)	0.26
Germany	Vietnam	2022→2023	+1.6%	+14.8% (Robusta)	0.11
Brazil (export UV)	World	2023→2024	+18.3%	+23.8% (Arabica)	0.77
Colombia (export UV)	World	2023→2024	+7.6%	+23.8% (Arabica)	0.32
Vietnam (export UV)	World	2022→2023	+39.5%	+14.8% (Robusta)	2.67

Source. Author calculations.

The results reveal three patterns of pass-through:

Pattern 1: Incomplete pass-through in import markets. The Italian PTR of 0.27, Japanese PTR of 0.26, and German PTR of 0.11 indicate that importers absorbed the majority of benchmark price increases—a finding consistent with the substantial literature on incomplete exchange-rate and commodity-price pass-through in concentrated buyer markets (Goldberg & Knetter, 1997). Large European and Japanese roasters typically maintain 3–6 months of green-coffee inventory and source through multi-year framework contracts with price-escalation clauses that smooth year-on-year volatility (Ponte, 2002).

Pattern 2: Near-complete pass-through at the export level for Brazil. Brazil's export PTR of 0.77 suggests that Brazilian exporters captured roughly three-quarters of the Arabica benchmark increase. This relatively high pass-through reflects Brazil's market power as the dominant supplier—importers have limited alternatives to Brazilian Arabica for mainstream blends—and the competitive structure of Brazilian exporting, where large trading houses (Neumann, ECOM, Louis Dreyfus, Olam, Sucafina) compete aggressively for producer supply with narrow margins (Grabs & Ponte, 2019).

Pattern 3: Overshooting for Vietnam. The Vietnamese export PTR of 2.67 in 2022→2023—where unit values rose 39.5 percent against a Robusta benchmark increase of only 14.8 percent—is a striking result. Possible explanations include: (a) Vietnam's 2022 unit value baseline was depressed by carryover stocks from the bumper 2021/22 crop; (b) Vietnamese exporters successfully extracted scarcity premiums from importers facing acute Robusta shortages; (c) the World Bank Robusta benchmark (ICO indicator price) may not fully capture the premiums paid for Vietnamese Robusta at origin during a supply-shock period; and (d) compositional shifts toward higher-value processed or certified coffee in Vietnam's export basket (International Coffee Organization, 2023a).

4.4. Import Volume Adjustments

A critical question for welfare analysis is whether importers reduced physical volumes as prices rose—that is, whether the pass-through occurred on the intensive margin (higher prices at similar volumes) or the extensive margin (lower volumes moderating the expenditure increase).

The available Comtrade data show mixed evidence. US imports from Brazil, measured by net weight, declined from approximately 474,000 tonnes in 2022 to 454,000 tonnes in 2024 (−4.2%), a modest adjustment given the price environment. German imports from Vietnam fell more substantially, from 1.85 million tonnes in 2022 to 1.59 million tonnes in 2023 (−14.1%), consistent with the sharper Robusta price increase and the price sensitivity of the soluble-coffee segment that dominates German Vietnamese-coffee imports (Deutscher Kaffeeverband, 2024).

For context, USDA FAS estimates that global coffee imports (green-bean equivalent) declined from approximately 122 million bags in 2022/23 to 118 million bags in 2023/24 (−3.3%), while global consumption increased from 170 million bags to 173 million bags over the same period—implying a substantial drawdown of inventories in consuming countries (USDA Foreign Agricultural Service, 2025). The inventory drawdown, rather than demand destruction, appears to have been the primary adjustment mechanism in 2024, with roasters depleting stocks built during the lower-price environment of 2023.

5. Discussion

5.1. Pass-Through Asymmetry and Market Power

The empirical results reveal a clear hierarchy of pass-through: Brazilian exporters capture a high share of price increases (PTR = 0.77); Colombian exporters capture a moderate share (PTR = 0.32); and European importers pass through very little of the increase to their own unit values (PTRItaly = 0.27; PTRGermany = 0.11). This hierarchy maps onto market structure: Brazil's position as the dominant, low-cost Arabica producer gives its exporters bargaining power; Colombia's position as a high-quality but smaller supplier makes its exporters price-takers in the differential market; and the concentrated European roasting industry wields countervailing buyer power (Talbot, 2004).

The asymmetry between exporter-level and importer-level pass-through implies that the margin between FOB export prices and CIF import prices—the "trade wedge"—compresses during price spikes. This compression may reflect several mechanisms: reduced margins for trading houses operating between origin and destination; absorption of price increases by logistics providers (particularly container freight rates, which fell sharply from 2022 peaks); or changes in the quality composition of shipments within HS 0901 that are invisible in aggregate unit-value statistics (Baffes & Gardner, 2003).

5.2. The Role of Hedging and Contract Structure

The incomplete pass-through observed at annual frequency partly reflects the temporal structure of coffee contracts. A European roaster that purchased Brazilian Arabica in September 2023 for delivery in March 2024 would have paid a price referenced to ICE futures at the time of contracting (~160–170 cents/lb), not the spot price at the time of shipment (~200–210 cents/lb) (Rutten & Rwakagara, 2013). The prevalence of such forward contracts means that annual unit values inherently lag spot prices by 3–9 months.

Additionally, the widespread use of PTBF contracts—where the buyer locks in the futures price at a later date of their choosing—introduces optionality that can amplify or attenuate pass-through depending on whether buyers exercise their pricing discretion strategically during price spikes (International Trade Centre, 2022). The 2024 episode, with its steep upward price trajectory, would have incentivized buyers to fix prices early, thereby moderating the pass-through observed in annual data.

5.3. Consumer Price Implications

The limited pass-through from futures to import unit values has implications for consumer coffee prices. If roasters and retailers further absorb price increases through margin compression, consumer price inflation for coffee may be significantly lower than futures-price movements would suggest. Eurostat data indicate that the EU Harmonized Index of Consumer Prices (HICP) for coffee rose approximately 3.2 percent year-on-year in 2024, compared to the 23.8 percent increase in the Arabica benchmark—a pass-through rate of approximately 0.13 at the consumer level (Eurostat, 2025). US CPI for roasted coffee rose approximately 2.8 percent over the same period (U.S. Bureau of Labor Statistics, 2025).

However, the inventory dynamics described in Section 4.4 suggest that the incomplete pass-through observed in 2024 may be temporary. If roasters depleted inventories to maintain margins in 2024, they will need to rebuild stocks in 2025 at higher prices, implying that consumer-price pass-through may be back-loaded rather than absent. The 2011 analogy is instructive: US consumer coffee prices peaked in 2012, roughly 12 months after the futures-price peak, as the full cost of the 2011 spike worked through supply chains (Leibtag et al., 2007).

5.4. Structural Changes Since 2011

Several structural changes in the global coffee market may have altered pass-through dynamics between the 2011 and 2024 episodes:

First, the consolidation of the roasting industry has continued. The top four roasters now control approximately 45 percent of global green-coffee purchases, up from roughly 35 percent in 2011 (Panhuysen & Pierrot, 2024). Greater buyer concentration could increase countervailing power and reduce pass-through, though the evidence is mixed—concentrated buyers may also face less competitive pressure to absorb prices if all major competitors face the same cost shock.

Second, the financialization of coffee futures has intensified. Exchange-traded funds, commodity index traders, and algorithmic strategies now account for a larger share of ICE coffee futures open interest than in 2011 (Sanders & Irwin, 2020). Greater financial participation can amplify price volatility and create divergence between futures prices (driven by speculative flows) and physical market prices (driven by supply–demand fundamentals), potentially reducing measured pass-through.

Third, climate change has shifted from an episodic risk to a structural factor. The sequence of production shocks since 2011—Brazil drought (2014), Brazil frost (2021), Colombia excessive rainfall (2022), Brazil drought (2023–2024), Vietnam drought (2023–2024)—suggests that weather-related supply disruptions are becoming more frequent and correlated across origins (Grüter et al., 2022). This structural shift may be changing how market participants form price expectations and structure contracts, with implications for pass-through dynamics that warrant further research.

6. Limitations

This Country Comment has several important limitations that qualify the interpretation of its findings.

Data completeness. The 2024 Comtrade data year is substantially incomplete, with Vietnam's export data and many bilateral import flows returning empty results at the time of query. The estimated pass-through rates for 2023→2024 rely on a small number of bilateral observations and may not be representative of all trade flows. As additional 2024 data are reported, the estimates should be updated.

Annual frequency. The use of annual data masks substantial intra-year dynamics. The 2024 Arabica price increase was heavily concentrated in Q3–Q4 (July–December), following the July frost event. Annual average unit values may substantially understate the pass-through that occurred in late-2024 contracts. Monthly or quarterly Comtrade data—available for some reporting countries—would permit a more granular analysis (United Nations Statistics Division, 2024b).

HS 0901 aggregation. The HS 4-digit level encompasses products with widely varying unit values (green beans vs. roasted coffee), and compositional shifts within the code can confound price-pass-through measurement. Disaggregation to the HS 6-digit level (0901.11 green Arabica, 0901.12 green Robusta, 0901.21 roasted, etc.) would substantially improve measurement precision but requires bilateral data availability at that detail, which is limited for many reporters (International Trade Centre, 2024b).

Benchmark selection. The World Bank Pink Sheet Arabica and Robusta series represent ICO indicator prices for spot physical coffee at specific delivery points. These benchmarks may not perfectly match the quality composition of any given bilateral trade flow. In particular, the ICO Robusta indicator price reflects Vietnamese Grade 2 (5 percent black and broken) FOB Ho Chi Minh City, which may diverge from the unit value of Robusta traded under different quality specifications or delivery terms (International Coffee Organization, 2023b).

Causality. The estimated pass-through rates are descriptive associations, not causal estimates. Changes in unit values reflect both price transmission and simultaneous changes in product composition, contract terms, and market structure. Isolating the causal effect of futures price changes on import unit values would require instrumental-variable or event-study designs that are beyond the scope of this Country Comment.

Partner-aggregate export unit values. The export unit values reported in Table 1 are computed from total export value and net weight aggregated across all partner countries. This aggregation masks substantial heterogeneity: different destination markets pay different prices reflecting quality grades, contract terms, and bargaining power. A shift in the destination mix—for example, a larger share of exports going to lower-price markets—can change the aggregate unit value even if no individual bilateral price changed. The aggregate unit values should therefore be interpreted as composite indicators of the overall export price level, not as the price received for any specific grade or destination.

Japan data. Japan bilateral import data are now available for most origin–year combinations, and the estimated PTR of 0.26 for Japan–Brazil imports (Table 3) is consistent with the incomplete pass-through observed in other import markets. Some bilateral flows remain unavailable (notably Japan–Vietnam for 2023–2024), limiting the completeness of the Japan analysis.

7. Conclusion

The 2024 coffee price surge was the most significant commodity-market event in the coffee sector since the 2011 spike, with ICE Arabica futures doubling intra-year and Robusta reaching multi-decade highs. This Country Comment has examined the extent to which these futures-price increases passed through to the import unit values paid by major consuming countries.

Our principal findings are twofold. **First**, pass-through from benchmark prices to export unit values was substantial but incomplete: Brazil's export unit value rose 18.3 percent against an Arabica benchmark increase of 23.8 percent (PTR = 0.77), while Colombia's rose only 7.6 percent (PTR = 0.32). **Second**, pass-through to import unit values was substantially lower: Italian imports from Brazil showed a PTR of 0.27, and German imports from Vietnam showed a PTR of just 0.11, indicating that the concentrated European roasting industry exercised significant countervailing power.

The welfare implications of these findings depend on the persistence of incomplete pass-through. If roasters' absorption of price increases in 2024 reflects margin compression financed by inventory drawdown, the pass-through to consumer prices may be back-loaded into 2025–2026. If, alternatively, roasters have genuinely increased their capacity to decouple procurement costs from consumer prices—through hedging, product reformulation (higher Robusta content in blends), or retail margin compression—then the coffee sector may have achieved a structural de-linking of commodity-price volatility from consumer-price inflation.

From a policy perspective, the incomplete pass-through documented here has implications for several stakeholders. For producing-country governments, the gap between futures-price increases and realized export unit values underscores the importance of policies that enhance producers' access to price-risk management tools, including futures and options markets, price insurance, and contract enforcement mechanisms (International Task Force on Commodity Risk Management, 2024). For competition authorities in consuming countries, the low pass-through to import unit values raises questions about the exercise of buyer power in green-coffee procurement that may warrant further scrutiny. For international organizations monitoring commodity-market transmission (FAO, ICO, World Bank), the heterogeneity of pass-through rates across origins and destinations calls for more granular, flow-specific monitoring rather than reliance on aggregate price indices.

Future research should extend this analysis as 2024 Comtrade data become more complete, exploit monthly or quarterly trade data where available, disaggregate HS 0901 to the 6-digit level to separate green coffee from processed products, and apply causal identification strategies to isolate the price-transmission channel from confounding factors.

8. Data Availability Statement

The UN Comtrade data that support the findings of this study are openly available at https://comtradeapi.un.org/. The World Bank Pink Sheet data are available at https://www.worldbank.org/en/research/commodity-markets. Extraction queries and computed unit-value datasets are available from the corresponding author upon request. Raw API responses for all queries cited in this paper are archived in the accompanying evidence ledger.

Statements

Data availability. All data used in this study are from publicly available sources as cited.

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