

## Hot Cocoa Prices Soar Toward the Boiling Point

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The United States has developed a profound dependence on imported “comfort foods” like cocoa, coffee, bananas, and vanilla, staples of American diets despite being produced abroad. Globalization allows for a spatial decoupling of production and consumption such that products that are part of everyday life are supplied through trade flows (Ortiz et al., 2021). However, climate change is fundamentally altering growing conditions for many comfort foods, shining a light on our import dependence and the future impact on consumers. Challenges are pronounced for fruit tree producers because longer tree life cycles make it more difficult to respond to climate change stressors (Sarkar et al., 2021; Roussos, 2024).

Cocoa, the main raw input for chocolate, is a model example of a comfort food crop facing climate change pressures. American per capita chocolate consumption is measured at around 10 pounds per year (Esposito, 2025). Additionally, cocoa is an essential input that extends beyond the food and beverage industry, encompassing pharmaceutical, cosmetic, and skincare products. Cocoa’s popularity and range of uses adds importance to its recent dramatic price increases. From October 2022 to the recent peak in March 2025, import prices for cocoa and cocoa preparations rose 218.0%. In April 2023, the price index first eclipsed the previous record level from October 2014; since surpassing the record, import prices rose another 136.7% through August 2025. With virtually no domestic cocoa production, the United States has experienced increasing import values and decreasing import volumes of the commodity. Beyond the supply-side pressures of climate change on cocoa production, the cocoa sector faces demand-side pressures as well. Demand for cocoa and chocolate goods is increasingly trending toward sustainability. Within the sector, consumers are shifting their purchasing to products labeled as fair trade and organic (Siddiqui et al., 2024). By overcoming the price premia for these products, buyers reveal a higher willingness to pay. This demand-side effect puts upward pressure on prices for cocoa and cocoa preparations in the aggregate.

### US Import Reliance amid Supply Issues

The generally unsuitable climate for cocoa cultivation in the United States means that very few acres of the crop are grown domestically. Hawaii has cocoa growers, but with less than 100 total acres the crop is not surveyed by the US or Hawaiian Departments of Agriculture (Hawaii Department of Agriculture, 2009). As a result, the United States relies on imports to satisfy both domestic demand and the cocoa processing and chocolate making industries. Cocoa is mainly grown in the West African “cocoa belt,” comprising parts of Côte d’Ivoire and Ghana, which accounted for more than 40% and 10% of total production, respectively, in 2023 (Figure 1). Both Côte d’Ivoire and Ghana are projected to have declining production for 2024 and 2025 relative to 2022 (Taylor, Beillard, and Galloway, 2025; Yao et al., 2025). The region has experienced several cocoa supply shocks in recent years. Ending stocks have been depressed in recent years, as sustained demand meets restricted supply. For the market year 2024–2025, Côte d’Ivoire and Ghana ending stocks were projected to be 41% and 14% lower, respectively, than in the previous year.

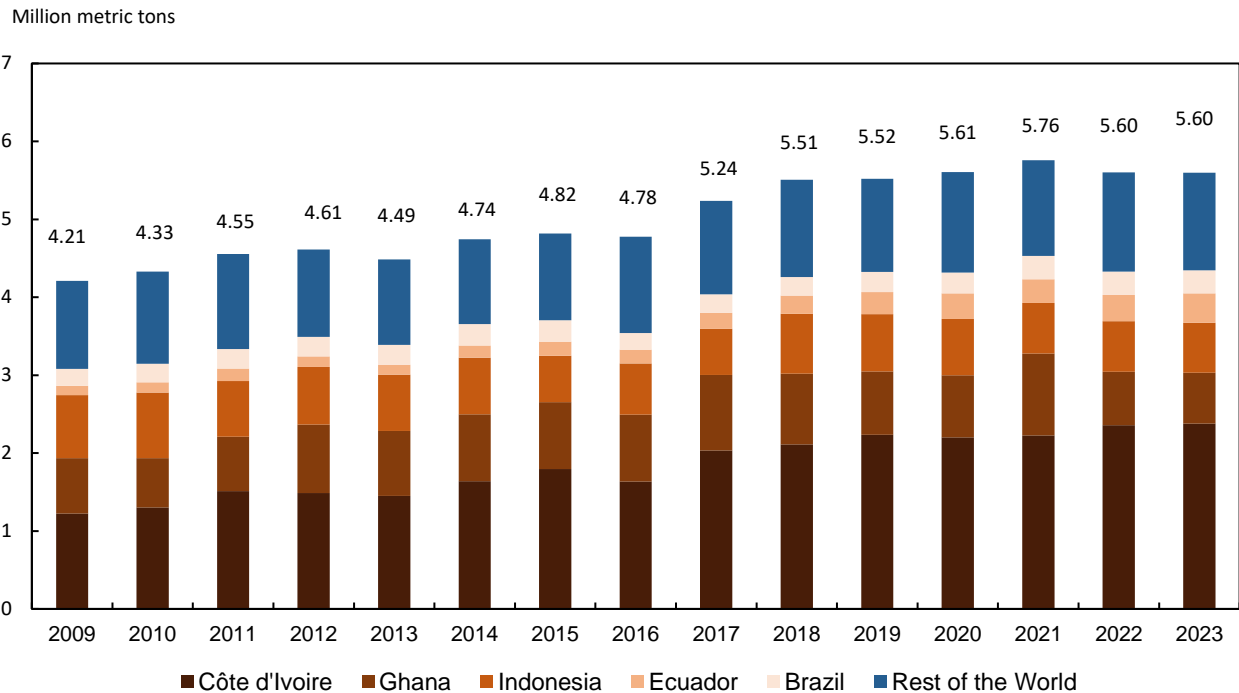
### Weather Shocks

In both Côte d’Ivoire and Ghana, weather patterns since the 2020–2021 cocoa year have been characterized by higher temperatures and unpredictable precipitation (Climate Central, 2025). These countries have suffered from both excessive rainfall episodes and extended drought periods caused by Harmattan winds—dry, dust-laden air currents originating from the Sahara Desert (Glauber and Mamun, 2024; Taylor, Beillard, and Galloway, 2025; Yao et al., 2025). Both weather phenomena have contributed to less-than-ideal growing conditions, which constrained bean output from the two major cocoa belt producers.

### Pest and Fungal Shocks

The irregular precipitation patterns further complicated production in recent cocoa years by facilitating the spread of agricultural diseases and pests. For one, warmer weather and less predictable rainfall increased

**Figure 1. Cocoa Beans Production Quantity, 2009–2023**



Source: Food and Agriculture Organization of the United Nations (2025).

pest incidence. For another, spells of heavy rainfall and flooding resulted in the proliferation of damaging fungi. Brown rot fungal disease, from the species *Phytophthora megakarya*, spread in Côte d'Ivoire (Yao et al., 2025). Further east in Ghana, the 2023–2024 cocoa crop faced a higher incidence of black pod fungal disease caused by *Phytophthora palmivora* (Taylor, Beillard, and Galloway, 2025). These pathogens severely damage cocoa pods and reduce yields.

### Plantation Deterioration

A significant portion of Côte d'Ivoire's cocoa plantations have aged beyond optimal productivity, with approximately 25% of trees exceeding 30 years of age. These aging orchards naturally produce lower yields, a situation worsened by cumulative damage from shocks in rainfall and persistent disease pressure (Yao et al., 2025). Drought represents yet another exacerbating interaction effect that older tree stocks are poorly equipped to withstand (Schroth et al., 2016).

### Cocoa Prices Soar

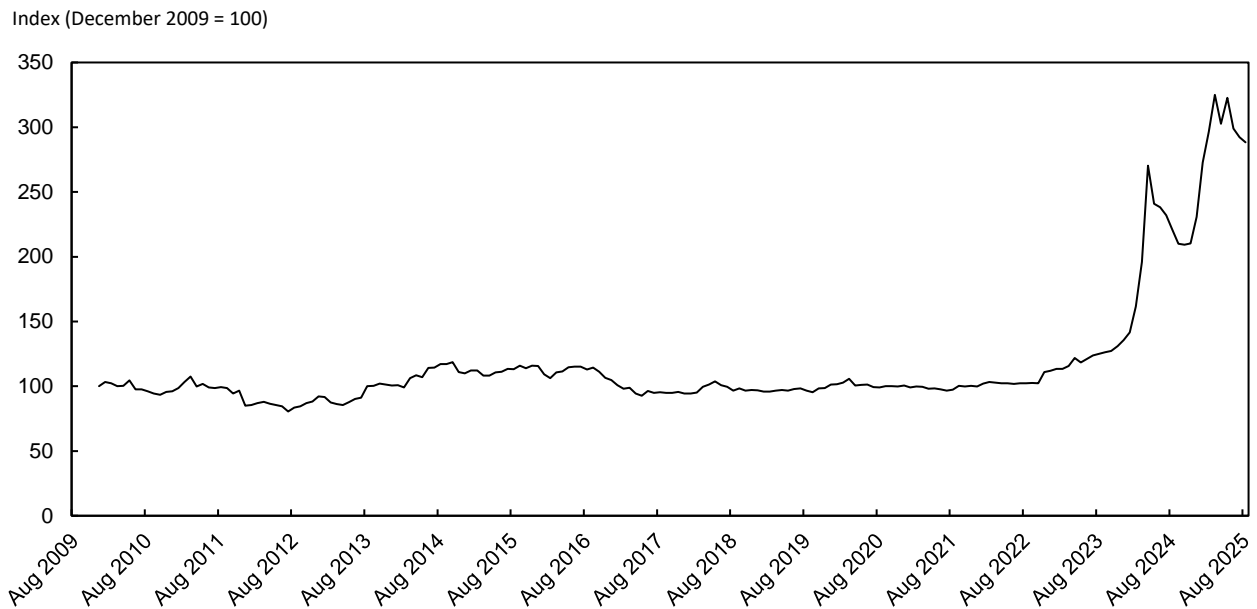
US import cocoa prices maintained relative stability from December 2009 to December 2022. However, the equilibrium shifted dramatically in early 2023, when the import price index for cocoa and cocoa preparations began to advance substantially (Figure 2). From February 2024 to March 2025, the price index for import cocoa rose 129.7%, fueled by double-digit monthly percentage change advances in half of the 14 months considered.

Statistical analysis confirms this market transformation. A Wald test examining potential structural breaks from December 2009 to August 2025 revealed a significant shift in the cocoa price series beginning in January 2023. Additionally, price analysis pre- and post-break shows an order of magnitude difference on the slope of price change, with the price index increasing about 0.03 price index points per month before the break compared to around 7.35 price index points per month after January 2023. Such pronounced market disruptions typically arise from significant changes in underlying fundamentals. In the case of cocoa, these structural shifts likely reflect the confluence of reduced production capacity, adverse climatic events, disease outbreaks affecting key growing regions, and cross-border smuggling activity in the growing region causing global supply shortfalls (van Huellen et al., 2024). The persistence and magnitude of these price increases suggest that the market is experiencing more than a temporary supply adjustment. Rather, this appears to be a fundamental recalibration of the global cocoa market structure.

### Climbing Values for US Cocoa Imports and Exports

After harvest, cocoa beans undergo transformation into various intermediate products, including cocoa mass, butter, and powder before reaching consumers as finished goods. Europe serves as the primary processing center for the global cocoa industry, handling approximately one-third of annual cocoa grinding

**Figure 2. Cocoa and Cocoa Preparations Import Price Index, December 2009–August 2025**



Source: US Bureau of Labor Statistics.

operations (Swiss Platform for Sustainable Cocoa, 2025). US cocoa imports encompass a diverse range of products (Figure 3). Chocolate, constituting the largest segment of these imports by volume, is a category comprising chocolate bars (which may undergo further refinement), confectionery items, and various food preparations containing cocoa.

For raw cocoa beans, the supply chain is concentrated in West Africa and Latin America, with Côte d'Ivoire providing 41%, Ecuador 27%, and Ghana 16% of total US bean imports. Meanwhile, Canada dominates as the primary source of chocolate imports to the United States (59%), followed by Mexico (17%) and Belgium (5%). Despite a 17.5% reduction from 2021 import volumes in 2024, the inflation-adjusted value of cocoa imports recorded considerable growth, climbing from \$6.3 billion in 2023 to \$8.1 billion in 2024. This value–volume divergence highlights the substantial impact of rising global cocoa prices on import costs, reflecting how supply constraints in the major producing regions drove a fundamental shift in the international cocoa market.

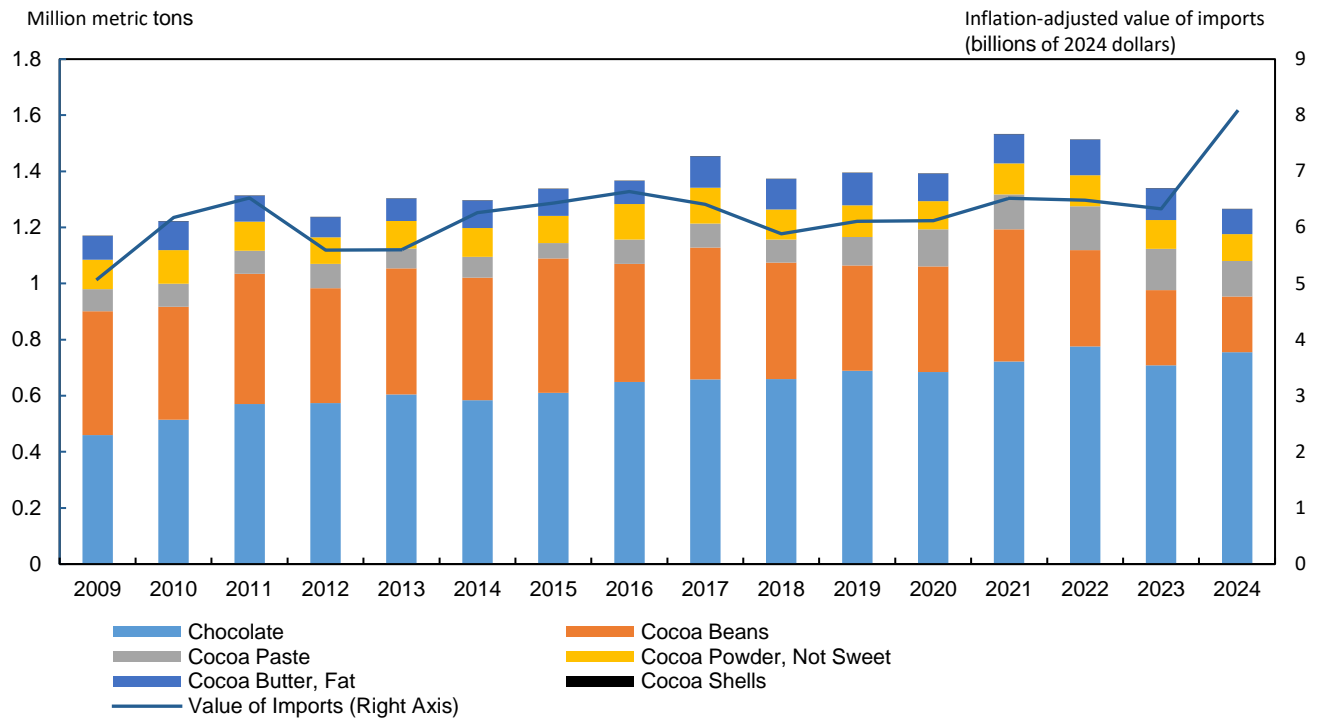
The United States also maintains a substantial position in the international cocoa market as an exporter, with total cocoa and cocoa preparation exports reaching \$2.4 billion in 2024. As yet, growth in the value of exports has not kept pace with the growth in the value of imports (Figure 4). The US export portfolio is predominantly composed of chocolate products (value-added goods), with volume exported significantly increasing in 2024 relative to 2023. Canada represents the primary destination for US chocolate exports, receiving 44% of total US chocolate shipments, followed by Mexico at 17%.

## Consumer Demand Pushes for an Evolving Landscape of Sustainable Cocoa Production

An added wrinkle in the relationship between climate change and cocoa production is the growth in consumer awareness and regulatory development toward higher sustainability metrics. Growing consumer environmental consciousness has increasingly influenced purchasing and investment decisions, where concerns about ecosystem destruction and deforestation are salient. Newfound awareness of the environmental implications of cocoa production (Konstansas et al., 2018) has led to changes in consumer beliefs about chocolate consumption (Gillani and Kutaula, 2018). This change in tastes and preferences has induced chocolate brands to invest in sustainability standards and labeling to better communicate improved practices to consumers. Voluntary sustainability standards first emerged in the cocoa industry approximately 20 years ago, with the dual purposes of providing environmentally responsible options for consumers and addressing fundamental challenges facing cocoa farmers and ecosystems (Bermúdez et al., 2022). These voluntary frameworks include widely recognized programs such as Rainforest Alliance certification, Fairtrade certification, and corporate initiatives like Cocoa Life. Additionally, some producers choose to become organic-certified, though organic cocoa represents only 4.4% of worldwide cocoa production area, according to industry analysis (TERO/BASIC, 2024).

Demand for sustainably sourced cocoa preparations is projected to advance as concerns mount regarding the environmental impact of cocoa production (Siddiqui et al., 2024). However, a well-documented attitude–

**Figure 3. Imports of Cocoa and Cocoa Preparations, 2009–2024**



Source: US Census Bureau Trade data and Bureau of Labor Statistics CPI-U.

behavior gap persists in sustainable consumption. The positive attitudes consumers express toward sustainable products and eco-friendly brands do not always translate into actual purchasing behavior (Vermeir and Verbeke, 2006; Sukumaran and Majhi, 2025). Additionally, research has found that chocolate consumers may be willing to pay a price premium for fair trade labels, but taste still ultimately dominates purchasing choices (Poelmans and Rousseau, 2016), while other factors such as product price and availability also impact this gap (Buder, Feldmann, and Hamm, 2014).

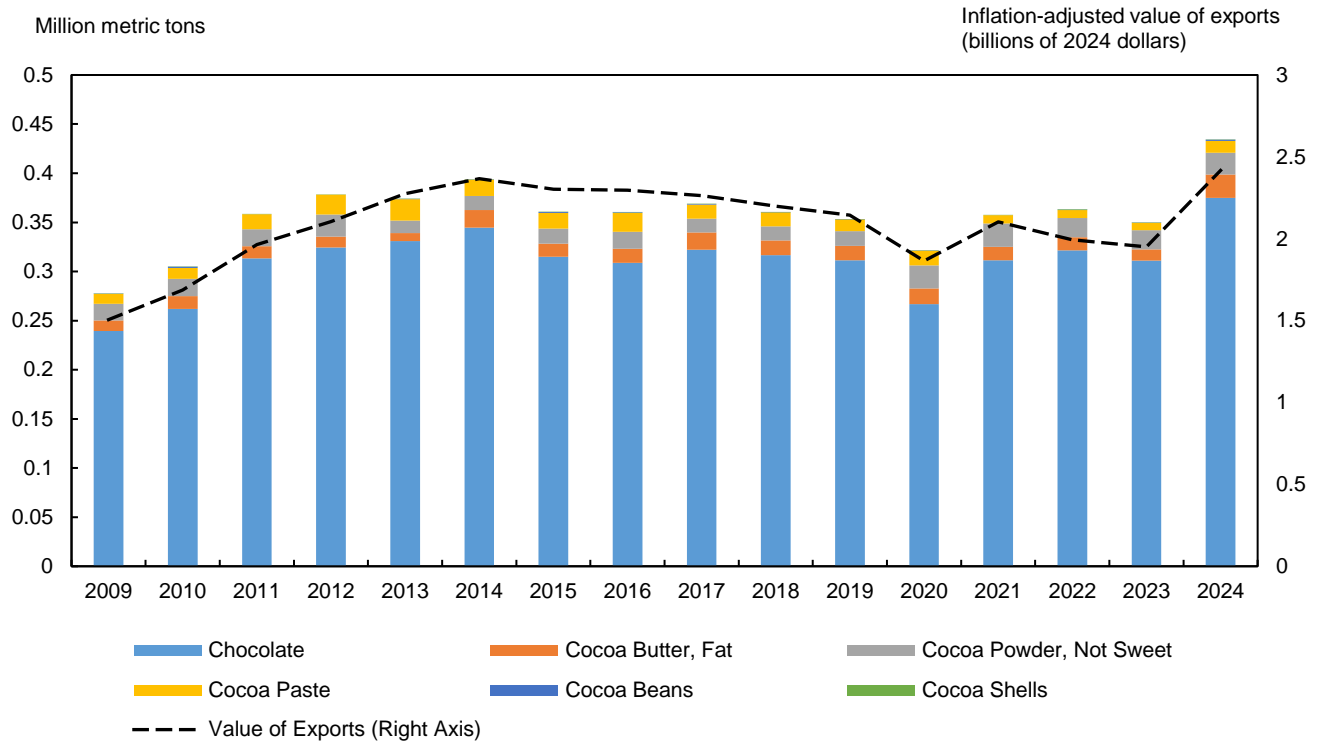
Then again, consumers across other sectors have demonstrated a willingness to support environmental protection through legislative action, even when bearing the costs. In other words, buyers being unwilling to vote with their wallets does not preclude voting in ways that affect their wallets. For example, in the United States, the 2018 California Proposition 12 required that specified pork products come from mothers that meet explicit animal welfare requirements. This proposition was popular, with 63% voting yes, despite imposing costs that would lead to higher retail prices (Lee, Sexton, and Sumner, 2023). Similarly, in 2024, Washington State voters rejected a ballot measure to repeal the Climate Commitment Act, despite arguments that the act increased fuel and energy prices. This global interest and lack of progress toward sustainability have led to recent pushes to swap these voluntary standards for mandatory requirements in Europe. The European Union

(2023) Deforestation-free Regulation (EUDR) exemplifies this transition, prohibiting the sale of products derived from land deforested after December 31, 2020 (EU Regulation 2023/1115, 2023). This legislation imposes stringent documentation requirements on importers, who must provide comprehensive evidence that their cocoa was not sourced from recently deforested areas. While initially scheduled for December 30, 2024, implementation was extended to December 30, 2025, for large and medium operators, with further extension to June 30, 2026, for smaller enterprises (EU Regulation 2024/3234). While these regulatory developments are in place to improve long-term outcomes, they are also expected to have significant implications for global cocoa pricing structures, potentially reinforcing the already record-high cocoa prices recorded in recent markets. As a result, demand-side effects will continue to put pressure on prices as demand for premium sustainable products trends higher globally.

### Implications for the Future

In the short term, higher production in the cocoa belt may ease the supply shortfalls that dominated the most recent market years. The US Department of Agriculture, Foreign Agricultural Service (USDA-FAS) projects that Côte d'Ivoire output in the 2024–2025 season will increase roughly 2% compared to the previous year. As a result, USDA-FAS anticipates a nearly 13% rise in export volumes for the year (Yao et al., 2025). In Ghana,

**Figure 4. Exports of Cocoa and Cocoa Preparations, 2009–2024**



Source: US Census Bureau Trade data and Bureau of Labor Statistics CPI-U.

stronger yields in late 2024 translated to a projected 32% advance in production for market year 2024–2025, leading to an anticipated 55% increase in Ghanaian cocoa exports (Taylor, Beillard, and Galloway, 2025).

However, given the nature of cocoa and chocolate production, the shift toward sustainability and recent production shortfalls are not the only market effects creating price pressures. One major factor is the shifting global environment of tariffs and trade agreements. Though the US Import and Export Price Indexes data discussed in this article do not include tariffs directly, market disruptions from duties can still affect prices (Camp, 2020). The Trump administration’s latest proposed tariffs included a 10% rate for imports from Ghana and a 21% duty for Côte d’Ivoire (Lowell et al., 2025). Energy also plays an important role in cocoa production. In general, crude oil and other energy goods are critical inputs to agricultural production (Camp 2019). Cocoa is no exception; Awafo and Owusu (2022) highlight the use of crude oil in Ghanaian production for field visits, land preparation, and harvest transportation. Electricity accounts for an even larger share of energy usage in cocoa production, owing to its crucial role in the processing stage. It follows that volatility in prices and availability of energy products could directly impact cocoa supply and prices. The US International Trade Administration (2023) identifies thermal power generation from natural gas as the largest source of

electricity in Ghana. Taken together, these factors present the risk of cocoa production losses when disruptions in the supply of natural gas cause power cuts. For example, Ghana experienced a three-week interruption in power due to reduced gas supply from Nigeria (Aduloju, 2024).

The weather and crop disease impacts that have dominated the cocoa market since mid-2023 remain a threat to ongoing supply and price stability as well. Since reaching an all-time high in March 2025, the US Import Price Index for cocoa and cocoa preparations has declined somewhat, decreasing 9.1% as of the latest data release for June 2025. But the index value remains 149.6% higher than the level in May 2023. Price changes at the farm level do not immediately translate to changes in retail food prices (Short and Canning, 2020). The price transmission for a product like chocolate—which has value added to the original raw cacao from labor, energy, packaging, transportation, marketing, and other raw inputs—means that volatility in one input makes up only a piece of the full story. Additionally, companies and grocers compete for consumers’ purchases and go to great lengths to keep prices low. For example, a company may utilize marketing contracts for cocoa to smooth price spikes. As seen when comparing Figures 3 and 4, the value of (generally raw) cocoa imports increased at a much higher rate than exports of the value added product (mostly chocolate).

This discrepancy indicates price stickiness on the retail side. But more recently, the Hershey Company announced a planned hike in prices for candy, following a similar move by Lindt, with percentage increases to reach double digits (Durbin, 2025). The increase came at a time of ongoing consumer concern about high US food prices. While food inflation has eased since increasing 9.9% in 2022 (the fastest since 1979), food-at-home prices are expected to continue growing at above-average rates for eggs, beef, sugar, and sweets (Stewart and Dong, 2025).

A reckoning may be approaching for US consumers seeking imported comfort foods. The vulnerable position of cocoa is mirrored by coffee, which is facing rising temperatures in Central America, and vanilla, with production threats in Madagascar. In weighing solutions, the cocoa industry must grapple with growers' inability to afford the adoption of essential new conservation

practices and drought-tolerant cocoa varieties (Schulte et al., 2020). In the United States, novel solutions are also being explored. Similarly to alternatives to animal products, like plant-based meats and cell-cultivated meats, companies are creating chocolate-like products without the use of cocoa. For example, Plant A Foods's chocolate alternative ChoViva claims to recreate the taste, look, and feel of chocolate using oats and sunflower instead. ChoViva claims a smaller carbon footprint thanks to a shortened supply chain and production without deforestation (ChoViva, 2025). Considering the fact that consumers seek alternative products in these food categories for reasons including environmental impact and food access, the market may support this type of innovation (Raszap Skorbiansky, McFadden, and Saavoss, 2024). However, the market shift toward alternatives may be slow on the demand side, the supply side, or both; the upshot for chocolate consumers will likely be higher prices or shrinkflation.

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