USMCA Affordability Study: The Effect of North American Trade on U.S. Food Prices*

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Abstract

The United States–Mexico–Canada Agreement is up for renewal. Using BLS retail price data for 85 food items matched to legal NAFTA tariff schedules and bilateral trade flows, we estimate the causal pass-through from NAFTA tariff reductions to U.S. consumer food prices over 1990–2014. A Bartik-style instrument exploiting the interac-tion of pre-NAFTA tariff levels with the treaty-mandated phase-in schedule yields an IV estimate of 0.6 percentage points of annual price growth reduction per percentage point of tariff cut. Local projections show the cumulative effect grows to 2.8 percent per percentage point of tariff cut after ten years before stabilizing. Aggregated to the food price index, NAFTA liberalization reduced the food price level by approximately 22 index points (1993 = 100) relative to a no-NAFTA counterfactual by 2014—equivalent to roughly $500 per year in food savings for the average household and 1.8 percentage points of cumulative CPI suppression. A symmetric reversal of USMCA preferences would restore those price increases within a decade.

Keywords:

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Executive summary

Background. NAFTA, implemented in 1994, phased out nearly all US tariffs on food and agricultural imports from Canada and Mexico over the following decade. By the early 2000s, the average NAFTA preferential tariff on food items covered by this study had fallen close to zero. USMCA, which replaced NAFTA in 2020, preserved those preferences. Recent policy discussions around the USMCA Joint Review by the United States, Canada, and Mexico raise the question of what those tariff preferences are worth to stakeholders in each country.

What this study does. We seek to quantify the effects of NAFTA/USMCA (hereafter NAFTA) on U.S. food consumers by measuring how much of the NAFTA tariff reductions passed through to retail food prices in the United States. We use BLS average price data for 85 food items — including beef, poultry, dairy, fresh produce, and processed foods — matched to the legal NAFTA tariff schedule for Mexico and to bilateral trade flows from Canada and Mexico. The sample runs from 1990 to 2014, spanning the full NAFTA phase-in period.

Identification. The key empirical challenge is that tariff schedules may not be randomly assigned across products. We address this by using each product's pre-NAFTA tariff level as a baseline: products that started with higher tariffs in 1993 faced larger mandated reductions under NAFTA's predetermined schedule, independently of subsequent price trends. This variation isolates the causal effect of tariff cuts on consumer prices.

Main findings. A one percentage point reduction in the NAFTA preferential tariff rate reduced annual food price growth by approximately 0.6 percentage points in the same year. Local projections show that the cumulative price reduction from a one percentage point tariff cut grows to 2.8 percent after ten years.

Aggregate impact. Translating these estimates to the full food basket, NAFTA tariff liberalization reduced the US Consumer Price Index (CPI) for food by approximately 22 index points relative to a no-NAFTA counterfactual by 2014 (on a 1993 = 100 scale). Applied to the food-at-home share of total CPI, this corresponds to roughly 1.8 percentage points of cumulative CPI suppression over the 1994–2014 period.

USMCA removal scenario. We project what would happen to food prices if USMCA tariff preferences were removed starting in 2025, using the same estimated pass-through coefficients applied as a positive tariff shock. Under a symmetric reversal scenario — reinstating pre-NAFTA MFN rates — the food price index would rise 12–13 points above the 2025 baseline by 2035, equivalent to an additional 1.8 percentage points of total CPI. Products with higher pre-NAFTA tariff exposure, including tomatoes, beef, and processed foods with significant Mexican supply chains, would see the largest price increases.

Bottom line. NAFTA's tariff liberalization meaningfully lowered US consumer food prices, with effects that accumulated over time. Removing USMCA preferences would reverse those gains on a similar trajectory. The magnitude — roughly 1.8 percentage points of CPI over a decade — is economically significant for household food budgets, particularly for lower-income households that spend a larger share of income on food.

1 Introduction

What is the USMCA worth to American consumers? This question has grown more pressing as policymakers debate renegotiating or withdrawing from the agreement. In particular food prices, alongside energy, are one of the goods that consumers are particularity sensitive to. While on the one hand USMCA offer access to large markets for U.S. food producers, on the other hand it also offers food imports, in particular vegetables from Mexico and animal-sourced products from Canada, which reduce grocery prices and increase product selection available to consumers. However, while the extend to which a potential removal of the USMCA would affect domestic food prices in the United States can be hypothesized using theoretical models, it has not been addressed empirically and the lack of robust evidence leaves doubts whether this would benefit or cost U.S. consumers as well as whether this would add or relieve inflationary pressure, which has already been elevated for several years.

NAFTA, the predecessor to USMCA, provides the most informative available evidence. Implemented on January 1, 1994, NAFTA committed the United States to a predetermined schedule of tariff reductions on food and agricultural imports from Canada and Mexico. The tariff reductions were spread over periods of five to fifteen years depending on the product, with sensitive categories like dairy and sugar receiving the longest transitions. By the mid-2000s, however, the vast majority of food items faced zero or near-zero preferential tariffs under NAFTA. USMCA, enacted in 2020, preserved this liberalized framework. Tracking prices and tariffs over the full NAFTA phase-in period therefore provides a direct empirical window on the consumer price consequences of the tariff preferences that USMCA now maintains.

However, measuring the causal pass-through from tariff cuts to retail prices is econometrically challenging. Tariff schedules are not randomly assigned across products. Commodities that received larger tariff cuts under NAFTA may differ systematically in ways that also affect price dynamics. For example, politically sensitive industries often lobbied successfully for smaller or more gradual liberalization or even temporary exemptions and special regulations such as tariff rate quotas (TRQs) and trigger prices. In addition, trade with Canada had already been liberalized in 1988 through the Canada–United States Free

Trade Agreement (CUSFTA).

We combine price data from the U.S. Bureau of Labor Statistics (U.S. Bureau of Labor Statistics, 2020, 2024), the U.S. International Trade Commission NAFTA tariff schedules (Office of the United States Trade Representative, 1993) and bilateral trade from BACI (Gaulier and Zignago, 2010) and address these identification challenges using a strategy analogous to the Bartik-style (Bartik, 1991; Goldsmith-Pinkham, Sorkin and Swift, 2020; Borusyak, Hull and Jaravel, 2025) instrument developed in Topalova (2010) for the Indian trade liberalization episode. The key insight is that under NAFTA's predetermined schedule, the trajectory of a product's tariff reductions was largely determined by its pre-NAFTA tariff level in 1993. Products that entered NAFTA with higher MFN tariffs faced mechanically larger absolute reductions as the schedule phased in, because the agreement was designed to eliminate tariff differentials between North American partners. Pre-NAFTA tariff levels therefore predict subsequent tariff changes through the institutional logic of the agreement, while being predetermined and orthogonal to post-1993 price shocks. This cross-sectional variation serves as our instrument, exploiting the mechanical relationship between initial tariff levels and the NAFTA phase-in schedule. The empirical framework combines this instrument with first-differenced panel regressions and Jordà (2005) local projections to capture both contemporaneous and cumulative dynamic pass-through.

Our main findings are as follows. A one percentage point reduction in the NAFTA preferential tariff rate reduced annual food price growth by approximately 0.6 percentage points and local projection estimates show the cumulative effect grows to 2.8 percent per percentage point of tariff cut after approximately ten years, before stabilizing—consistent with gradual retail price adjustment and expanding supply-chain responses to lower import costs. Aggregating to the food price index using Laspeyres weights, NAFTA liberalization reduced the U.S. food price index by approximately 22 index points relative to a no-NAFTA counterfactual by 2014 (1993 = 100). This translates to roughly $500 per year in food-at-home savings for the average household and cumulative suppression of total CPI by approximately 1.8 percentage points. A symmetric reversal of USMCA preferences would generate price increases of similar magnitude within a decade of implementation.

An important heterogeneity finding concerns goods for which the United States is a net exporter to Canada and Mexico—wheat, corn, and certain beef cuts. One might expect that NAFTA, by lowering Canadian and Mexican tariffs on U.S. exports, raised export demand and thus increased U.S. domestic prices for these goods. Our split-sample analysis finds instead that export-oriented goods show pass-through at least as large as import-competing goods, consistent with North American commodity market integration tightening arbitrage links on both sides of the border simultaneously.

We contribute to the literature that empirically evaluates NAFTA. While most studies have found positive effects on trade, (Romalis, 2007; Caliendo and Parro, 2015; Lederman, Maloney and Servén, 2005), FDI and productivity (e.g. Lederman, Maloney and Servén, 2005), labor markets (Hakobyan and McLaren, 2016), or the rural economy in the U.S. (Zahniser and Link, 2002; Zahniser et al., 2015), work on prices is scarce. An exception is Nicita (2009) finds that NAFTA has helped reduce consumer prices in Mexico. Here, we investigate the effect of NAFTA and USMCA on U.S. prices, focusing on the food sector.

The remainder of the report is organized as follows. Section 2 describes how NAFTA has been implemented in the food sector. Section 3 describes the data and documents key descriptive patterns. Section 4 presents the empirical strategy. Section 5 reports the empirical results. Section 6 presents the counterfactual simulations of a scenario where NAFTA was not implemented. Section 7 simulates the price effects of a removal of USMCA and Section 8 concludes this report. Appendices provide robustness checks and data construction details.

2 NAFTA and the liberalization of US food trade

Before estimating the effect NAFTA had on U.S. food prices in order to understand the food price effects of a potential removal of USMCA, it is useful to revisit how NAFTA was implemented in the food sector. The North American Free Trade Agreement entered into force on 1 January 1994, eliminating trade barriers between the United States, Canada, and Mexico over a phased transition period of up to fifteen years. It is important to note, however, that NAFTA was not the first step in North American trade integration. The Canada–United States Free Trade Agreement (CUSFTA), signed in 1988 and effective from 1 January 1989, had already eliminated most tariffs on bilateral US–Canada trade by the time NAFTA took effect. By 1993, Canadian goods entering the United States faced zero or near-zero tariffs across the vast majority of food categories. NAFTA therefore represented a fundamentally new trade rules for imports from Mexico, which had previously faced the standard US Most Favored Nation (MFN) tariff schedule with no preferential access.

For the United States, this asymmetry shaped the pre-existing trade structure in food markets. Canadian suppliers had already responded to duty-free access over 1989–1993 and were dominant in many food import categories by the time Mexican competition arrived in 1994. The novelty of NAFTA, from the perspective of US consumer prices, lies almost entirely in the opening of the US market to Mexican agricultural and food exports—a channel that had been blocked by MFN tariffs prior to 1994.

Moreover, NAFTA did not abolish tariffs uniformly or instantaneously. The treaty established product-specific phase-out schedules, classified into several staging categories.

Most non-sensitive manufactured goods had their tariffs eliminated immediately upon entry into force or within five years. For food and agricultural products, however, liberalization was considerably more complex and drawn out, reflecting the political sensitivity of agricultural trade and the competitive threat that lower-cost Mexican production posed to certain US farm sectors.

The treaty text and its implementing legislation distinguished between two broad mechanisms for agricultural liberalization. The first was the straightforward phased reduction of ad valorem tariffs—a percentage of the good's value—on a predetermined schedule. For these goods, the legal preferential rate fell annually in equal increments, reaching zero by the end of the designated transition period. The second, and more complex, mechanism applied to goods deemed particularly sensitive: tariff-rate quotas (TRQs), specific duties, and price-based safeguard mechanisms, which governed market access independently of ad valorem rate reductions.

The heterogeneity of NAFTA's agricultural liberalization is codified in Subchapter VI of the U.S. Harmonized Tariff Schedule, titled "Temporary Modifications Established Pursuant to the North American Free Trade Agreement" (U.S. International Trade Commission, 1995). This subchapter listed the products for which NAFTA's liberalization departed from the standard tariff phase-out and instead operated through TRQs, specific duties, or safeguard triggers—with the provisions remaining in force through 31 December 2008.

The range of food goods covered by Subchapter VI illustrates the breadth of exceptions to straightforward tariff liberalization. Dairy products—including fluid milk, cream, butter, cheese, and dried milk—were subject to annual import quotas expressed in kilograms or litres, within which imports entered at zero or reduced duty and beyond which prohibitive specific duties applied. For example, under U.S. Note 4 to Subchapter VI, the quota for fluid milk and cream started at 366,000 litres in 1994 and rose to 464,000 litres by 2002, with quantitative restrictions ceasing only in 2003. Fresh tomatoes, onions, squash, chilli peppers, and eggplants were governed by seasonal quantity limitations calibrated to protect US domestic harvests during peak production periods.

Orange juice—the largest food import from Mexico by value in the 1990s— received particularly complex treatment. Frozen concentrated orange juice (subheading 2009.11.00) entered under a volume-based TRQ (up to approximately 265 million litres annually at a preferential specific rate of 4.625 ¢/litre) combined with a price-based "snapback" mechanism: whenever the daily price on the New York Cotton Exchange fell below a rolling five-year trigger price for five consecutive business days *and* import volumes exceeded the TRQ threshold, the standard MFN duty was automatically restored until prices recovered (U.S. International Trade Commission, 1995, Note 23). This mechanism, designed to protect Florida citrus growers, meant that Mexican OJ exports faced a regime that was neither a fixed tariff nor simple duty-free access, but a contingent combination of quantity limits, specific duties, and price triggers. Full liberalization of OJ did not occur until January 2008.

Sugar was subject to a quota determined annually by the Secretary of Agriculture in accordance with Annex 703.2, Chapter Seven of NAFTA, with quantitative restrictions remaining until October 2008. Peanuts were likewise governed by TRQs through 2007.

This heterogeneity in liberalization mechanism has direct implications for identifying the consumer price effects of NAFTA. Goods whose protection rested on ad valorem tariffs experienced a straightforward, legally-scheduled, and product-specific reduction in the cost of imports from Mexico. The size of this reduction was determined before the treaty took effect and is recorded in the official USITC schedule, providing exogenous cross-sectional variation in treatment intensity.

3 Data

The primary outcome variable is the BLS Average Price series, which reports monthly retail prices for specific food items in urban areas across five BLS geographic regions: U.S. city average, Northeast, Midwest, South, and West. We use 80 food items spanning beef and veal, pork, poultry, dairy, fresh and processed fruits and vegetables, cereals, and other processed foods, aggregated to annual averages. The sample period is 1990–2014, providing four years of pre-NAFTA baseline and twenty years of post-implementation data (U.S. Bureau of Labor Statistics, 2020, 2024).

NAFTA preferential tariff rates for Mexico are drawn from the official NAFTA tariff schedules as codified by the U.S. International Trade Commission and published in the 1993 USTR implementing documents (Office of the United States Trade Representative, 1993). Rates are at the HS 6-digit level. Where the phase-in schedule specified staged reductions, we linearly interpolate between known schedule points to produce annual product-level tariff rates. For 1990–1993, the pre-NAFTA MFN rate is assigned. The main treatment variable τ_{it} is the simple average of legal NAFTA preferential rates across concordance-linked HS6 codes for BLS item i in year t. The mean pre-NAFTA ad valorem rate among treated items is 7.4 percentage points, ranging from 1.6 percentage points (beef, fresh) to 20 percentage points (cabbages).

Import values and quantities for U.S. food imports from Canada and Mexico at the HS6 level are drawn from the BACI international trade database (Gaulier and Zignago, 2010), which in turn soruces from COMTRADE. Trade flows are used to construct import exposure measures and, in robustness specifications, a supply-side instrument.

A key data construction step is linking the HS6 tariff schedule to the BLS item classification system. We hand-coded a concordance between 33 HS6 codes and 30 BLS food items, assigning each match a supply-chain role (final consumer good, primary agricultural input, or intermediate processed input) and a NAFTA relevance classification. This concordance allows us to attach tariff information to each BLS price series. Appendix A.2 offers more summary statistics on NAFTA tariffs and the concordance table.

3.1 Descriptives

Figure 1 documents the increase in total U.S. food imports from Canada and Mexico over the sample period. From 1990 to 2014, total food imports from the two NAFTA partners almost quintupled in nominal terms, with particularly rapid growth after NAFTA implementation in 1994. Most notably, beef, beer & wine as well as sugar and sweets experienced the strongest growth and are now the most dominant food imports within USMCA. On a per-capita level, Figure 2 confirms that this growth substantially outpaced population growth as real per-capita food imports from NAFTA partners in 2015 had roughly tripled since the implementation of NAFTA.

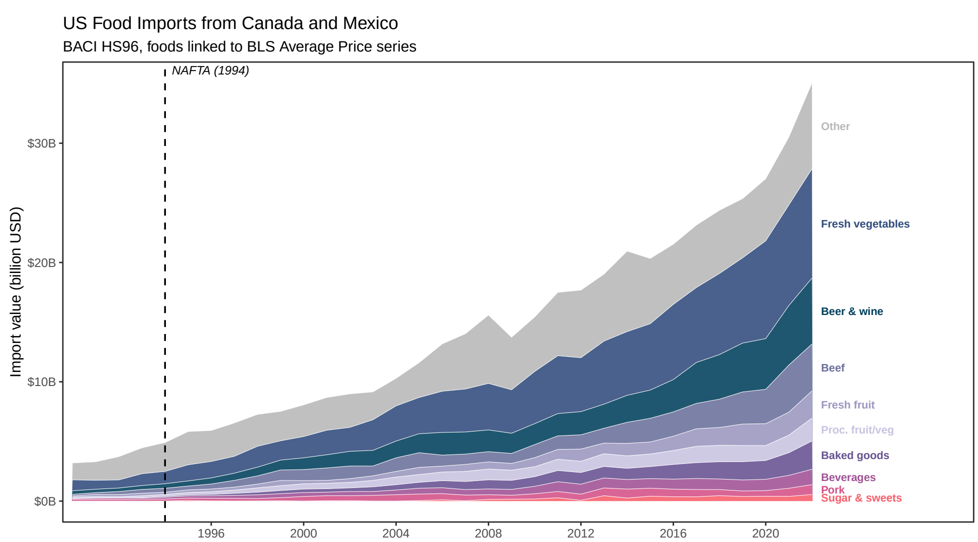

FIGURE 1: Total food imports from Canada and Mexico, 1990–2022. Nominal import values from BACI/GATS, aggregated across all HS6 food categories in the concordance sample. Vertical dashed line marks NAFTA implementation (January 1994).

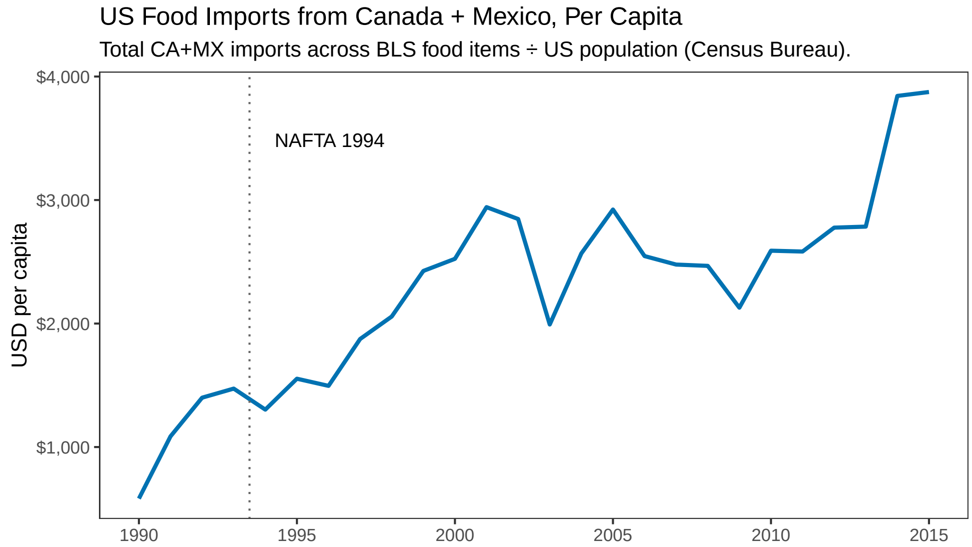

FIGURE 2: Food imports from Canada and Mexico per capita, 1990–2014. Values deflated by the BLS all-items CPI. Vertical dashed line marks NAFTA implementation.

Figure 3 documents the tariff phase-in trajectory. The average NAFTA preferential tariff rate fell from approximately 6 percent in 1993 to near zero by 2008. The decline was staggered across product groups with fresh produce tariffs falling quickly, while dairy and sugar, the most politically sensitive categories, maintained positive rates well into the 2000s. This dispersion in phase-in timing is central to our identification strategy.

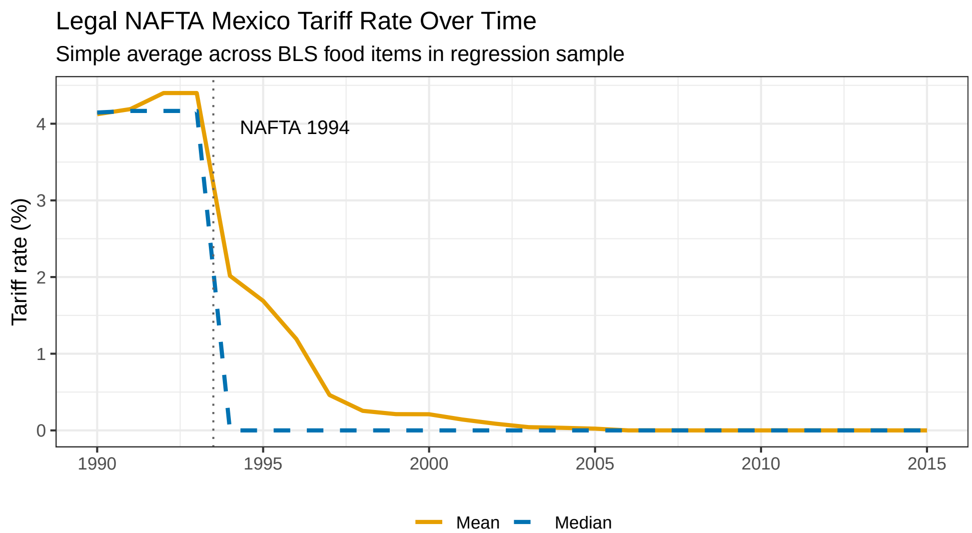

FIGURE 3: NAFTA preferential tariff rates by food category, 1990–2014. Rates are the U.S. MFN tariff applied to Mexico under NAFTA's scheduled phase-in. Vertical dashed line marks NAFTA implementation.

Figure 4 shows how BLS food items are distributed across tariff exposure groups. Roughly 40 percent of items had zero or near-zero pre-NAFTA tariffs and therefore faced near-zero NAFTA reductions; these items serve as a natural within-sample comparison group. The remaining items are spread across moderate and high exposure categories.

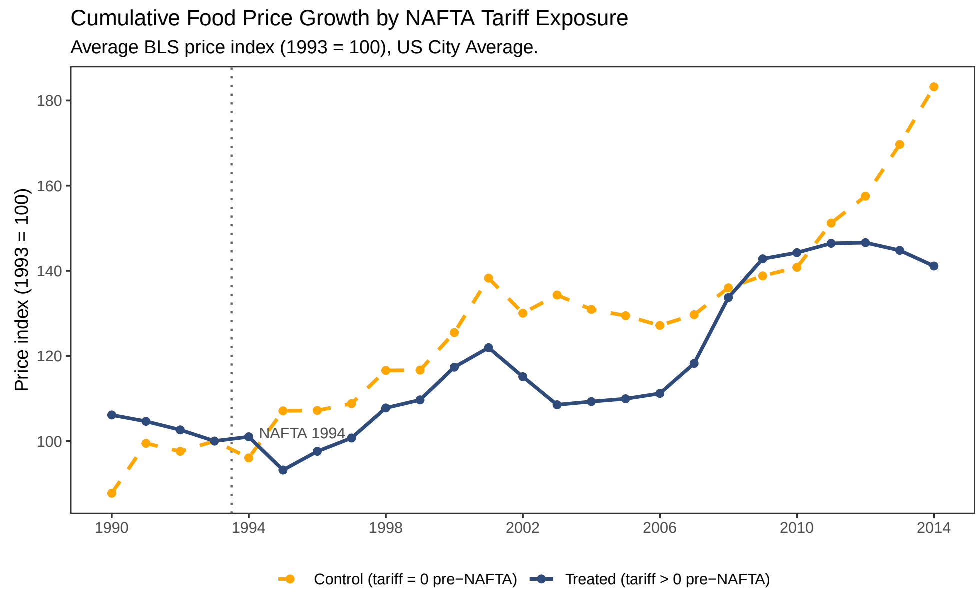

FIGURE 4: Distribution of BLS food items by NAFTA tariff exposure group. Exposure groups are defined by the magnitude of the total NAFTA tariff reduction (1993–2008).

4 Empirical strategy

The baseline specification is a first-difference model with two-way fixed effects:

$$\Delta \ln p_{irt} = \beta \, \tau_{it} + \alpha_{ir} + \alpha_t + \varepsilon_{irt}, \tag{1}$$

where $\Delta \ln p_{irt} \equiv \ln p_{irt} - \ln p_{ir,t-1}$ is the annual log price change for food item i in region r and first-differencing removes any trend that results in unit roots in price series that could lead to spurious results with mechanically co-trending tariff phase outs (Newbold and Granger, 1974), τ_{it} is the level of the NAFTA preferential tariff rate (in percentage points), α_{ir} are item×region fixed effects that absorb permanent differences in price growth rates across products and regions, and α_t are year fixed effects that control for aggregate inflation and confounders common to all food categories.

The coefficient of interest β measures the association between the NAFTA tariff level and the annual rate of consumer price growth and we cluster standard errors are clustered by BLS item to allow for within-item serial correlation.

4.1 Identification

OLS estimates of β may be biased if the level of τ_{it} is correlated with unobserved determinants of annual price growth. NAFTA tariff cuts were concentrated in politically sensitive product categories, and demand or supply shocks specific to those products could bias the OLS estimate. We therefore instrument for τ_{it} using the Bartik-style (Bartik, 1991) instrument of Topalova (2010):

$$z_{it} = \tau_{i,\text{pre}} \times (t - 1993), \tag{2}$$

where $\tau_{i,\text{pre}}$ is the pre-NAFTA MFN rate for item i from the 1993 USITC tariff schedule. This instrument interacts cross-sectional variation in initial tariff exposure with the post-NAFTA time trend. Items with higher pre-NAFTA tariffs faced larger treaty-mandated reductions on a fixed phase-in schedule, generating predictable variation in τ_{it} that is uncorrelated with item-specific price dynamics. The first stage exhibts $F > 2{,}000$ which is well above conventional weak-instrument thresholds.

The exclusion restriction requires that pre-NAFTA tariff levels are uncorrelated with item-specific post-NAFTA price growth shocks conditional on item-region and year fixed effects. This is plausible because the 1993 tariff schedule reflects historical protection levels shaped by pre-NAFTA trade politics rather than contemporaneous price trends. We validate the assumption with a pre-trends test of which the reduced-form coefficient is small and statistically insignificant in the pre-NAFTA period (1990–1993), confirming that products facing larger NAFTA cuts were not on divergent price trends before the agreement took effect (Table 1, column 4). Moreover, we follow Goldsmith-Pinkham, Sorkin and Swift (2020) and conduct a placebo test using the post-liberalization period (2005–2014) which further confirms that the instrument has no predictive power for price growth once the tariff variation is exhausted (Appendix A.1.1).

The IV estimate exceeds the OLS estimate, consistent with OLS being attenuated by endogenous tariff variation in product categories facing adverse price shocks.

4.2 Local projections

To capture the cumulative price response across horizons, we use the Jordà (2005) local projection framework. For each horizon $h \in \{0, 1, \ldots, 18\}$ we estimate:

$$\ln p_{ir,t+h} - \ln p_{ir,t-1} = \beta_h \, \tau_{it} + \alpha_{ir} + \alpha_t + \varepsilon_{irt}, \tag{3}$$

instrumenting τ_{it} with z_{it} at every horizon separately. At $h = 0$, equation (3) coincides with the first-difference baseline. As h increases, $\hat{\beta}_h$ traces the cumulative price adjustment: the estimated effect of a 1 percentage point higher tariff level on the cumulative log price change over $h + 1$ years. The sign-flipped sequence $\{-\hat{\beta}_h\}$ represents the cumulative price reduction from a 1 percentage point tariff cut.

5 Results

Table 1 reports the baseline estimates. Column (1) is OLS: a one percentage point higher tariff level is associated with 0.0034 faster annual log price growth ($p < 0.10$). Column (2) is the preferred IV estimate of 0.0059 ($p < 0.01$). The IV coefficient is nearly twice the OLS, consistent with the predicted direction of attenuation bias—products with slower liberalization also had slower price growth for other reasons, compressing the OLS estimate toward zero. Column (3) adds bilateral import values as a control and the tariff coefficient rises slightly to 0.0068 and remains highly significant, consistent with the tariff channel operating partly through expectations and supply-chain adjustments rather than fully through observable import flows. The pre-trends reduced-form test on the 1990–1993 period (Column (4)) is close to zero and statistically insignificant, supporting the parallel trends assumption required for identification.

Table 1: First-difference: NAFTA tariff pass-through to annual price changes

	OLS	IV (LATE)	IV + imports	Pre-trends
Tariff (import-weighted)	0.0034*	0.0059***	0.0068***	
	(0.0017)	(0.0013)	(0.0014)	
Log imports CA+MX (value)			0.0049	
			(0.0032)	
$\text{Tariff}_{\text{pre}} \times$ year (RF)				0.0016
				(0.0014)
Num. obs.	1471	1471	1471	217
R^2	0.282	0.279	0.279	0.439
FE: Item×region	X	X	X	X
FE: Year	X	X	X	X

* p <0.1, ** p <0.05, *** p <0.01
Clustered SE by BLS item. Item×region + year FEs. Outcome: $\Delta \ln p$ (annual log price change). Treatment: NAFTA preferential tariff level (percentage points). IV instrument: pre-NAFTA tariff × (year − 1993). Pre-trends column: reduced form on 1990–1993 only.

The preferred IV estimate implies that a one percentage point reduction in the NAFTA tariff rate reduced annual food price growth by approximately 0.6 percentage points. Given that the average total NAFTA reduction across our sample was roughly 5 percentage points for items with positive pre-NAFTA tariffs, this implies a contemporaneous price-level effect of 2–3 percent for the most exposed items. The import controls column confirms that the tariff channel is not fully mediated by import volumes alone, suggesting expectations and supply-chain adjustments also play a role.

5.1 Robustness

In Appendix A.1 we assess the robustness of our estimates along three dimensions. First, in Appendix A.1.1 we conduct a placebo test which rules out that we are capturing spurious correlation between NAFTA liberalization and persistent price dynamics. Second, we replace the legal NAFTA rate with an import-weighted tariff average constructed from UNCTAD/WITS data, and test heterogeneity by good type (primary input vs. final good) and by ex-ante NAFTA relevance (Appendix Table 3). Third, we instrument for import volumes with log Canada–Mexico food exports to non-US destinations (following Autor, Dorn and Hanson, 2013), either separately or jointly with the Bartik tariff instrument (Appendix Table 4).

Third, another problem that could be compromising are US food exports. With reciprocal tariff elimination through NAFTA, also Mexico and Canada lowered their tariffs for goods. Thus, increased demand from those countries could lead to increased prices for the goods that the US exports. In that case, the negative price effect we find in our baseline model might be attenuated by rising prices in exported goods. To investigate the extend of this potential problem, in Appendix A.1.4 we run models where we first remove goods that are US export dominated from the sample and then estimate the effect of export goods on food prices. The results are somewhat counterintuitive to classical trade theory where we would expect a price increase of those goods, as empirically we find an evens stronger *decrease* of the domestic price of these goods.

However, this results in line with more recent trade literature, which reports strong productivity gains from increased export activity and thus cost reduction which translates into lower consumer prices (Trefler, 2004; Melitz, 2003; Crowley, Han and Prayer, 2024; Pavcnik, 2002). In addition, before NAFTA, tariff wedges between the US, Canadian, and Mexican markets allowed some price segmentation. As NAFTA eliminated those wedges on both sides — US import tariffs on CA/MX goods and CA/MX import tariffs on US goods — the regional market became more tightly integrated, which is in line with findings from the literature on market integration (e.g. Crucini and Shintani, 2008).

5.2 Local projections

Figure 5 presents the local projection estimates. The response function begins at 0.006 at $h = 0$ (consistent with the IV baseline) and rises gradually, reaching a cumulative price reduction of approximately 0.028 (2.8 percent) per percentage point of tariff cut by $h = 9$. I.e. after approximately ten years the response stabilizes, with widening confidence intervals reflecting the reduced variation in tariff changes in the post-2005 period as most schedules reached zero.

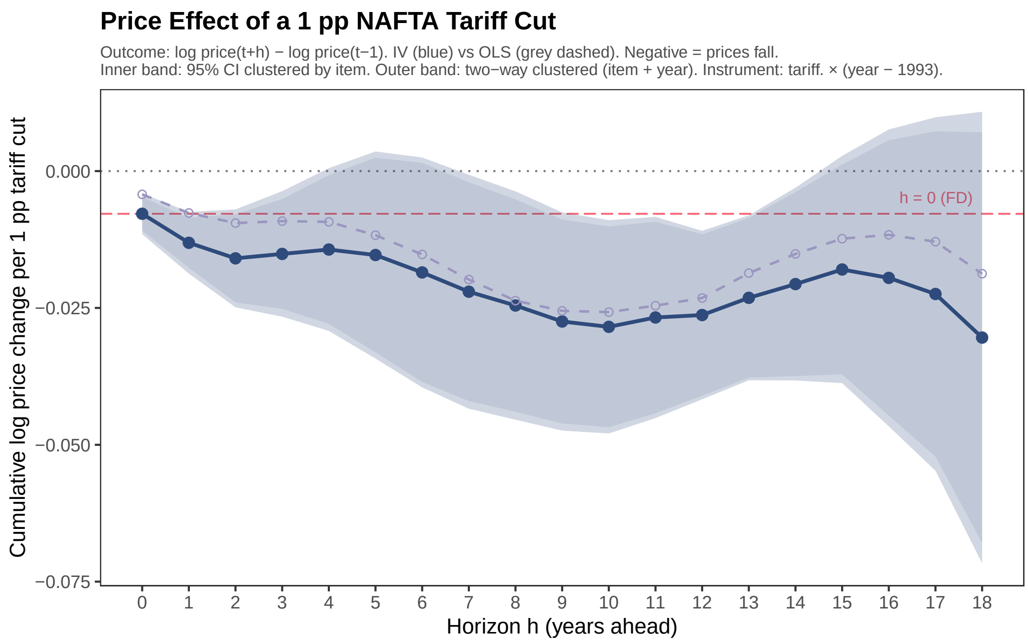

FIGURE 5: Cumulative price response to a one percentage point NAFTA tariff cut, local projection estimates at horizons $h = 0$ to $h = 18$. The vertical axis is the sign-flipped LP coefficient: a positive value means a tariff cut lowered prices. Solid line: IV-2SLS point estimate. Inner shaded band: 95% CI clustered by BLS item. Outer shaded band: 95% CI two-way clustered by item and year.

The gradual buildup over the first decade is consistent with two complementary mechanisms. First, retail price adjustment is sluggish as contracts and supply-chain relationships mean that lower import costs pass through incompletely in the first year and accumulate as market relationships adjust (e.g. Nakamura and Zerom, 2010; Gopinath and Itskhoki, 2010). Second, the supply response from Canadian and Mexican exporters expands over time as productive capacity adjusts to guaranteed market access, which confirms the findings of Trefler (2004) for the Canada–U.S. FTA. The stabilization after year 10 aligns with the near-complete phase-in of NAFTA tariff schedules by 2005–2008.

6 Counterfactual analysis

In order to put these estimates in context of household consumption, we construct a counterfactual U.S. food price index under the assumption that NAFTA had never been implemented—that is, preferential tariffs remained at their 1993 MFN levels throughout the sample period. The simulation applies the estimated local projection coefficients $\{\hat{\beta}_h\}$ to item-level NAFTA tariff changes. For each BLS food item i and year t, the cumulative price impact of all NAFTA tariff changes from 1994 through t is computed using the appropriate horizon-specific LP coefficient. Item-level counterfactuals are then aggregated to a food price index using fixed Laspeyres expenditure weights from the 1993 BLS consumer expenditure survey.

An important caveat is that this counterfactual is a partial-equilibrium exercise. It holds all other factors such as macroeconomic conditions, agricultural technology, energy costs, and non-NAFTA trade policy, at their observed values and asks only what would have happened to retail food prices if the NAFTA tariff reductions had not occurred. General equilibrium adjustments to production, trade patterns, and investment in all three countries are not captured. The counterfactual should accordingly be interpreted as the price effect of the tariff changes themselves, not as a comprehensive welfare accounting.

6.1 What NAFTA saved consumers

Figure 6 presents the key result. The actual U.S. food price index (1993 = 100) and the simulated no-NAFTA counterfactual for 1990–2014. The two series diverge progressively after 1994, with the gap widening most rapidly during the 2000s as the LP response function accumulates and the tariff schedule approaches its final zero rate.

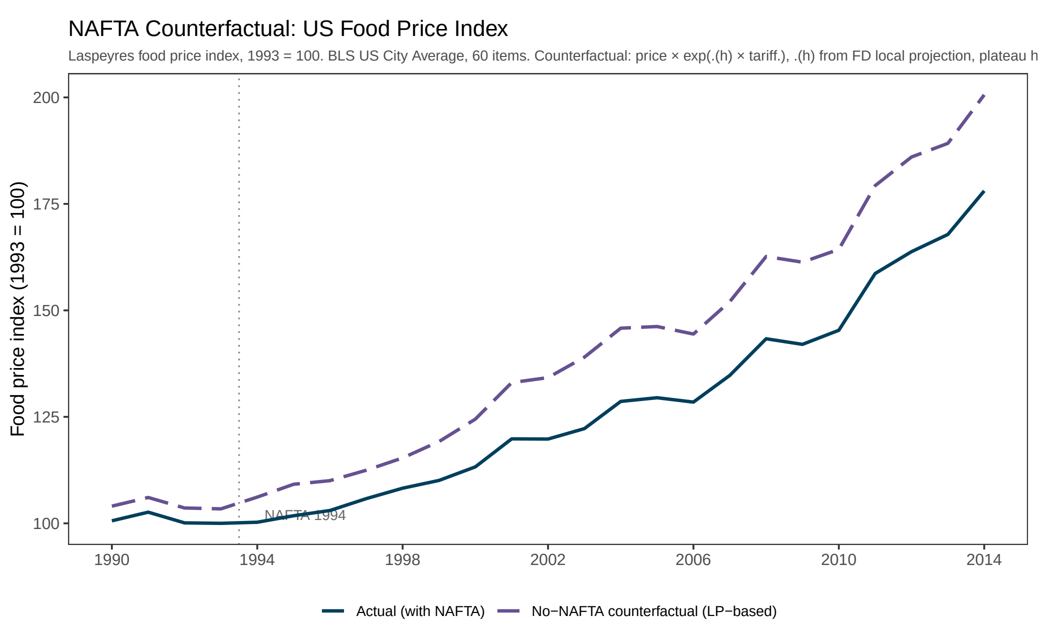

FIGURE 6: U.S. food price index: actual and no-NAFTA counterfactual, 1990–2014 (1993 = 100). Solid line: BLS food-at-home price index. Dashed line: simulated counterfactual constructed by applying LP pass-through estimates to actual NAFTA tariff changes.

By 2014, the food price index is approximately 22 index points below the no-NAFTA counterfactual. With the actual food CPI near 160 in 2014, this gap represents a proportional reduction of roughly 12 percent relative to the counterfactual level of approximately 182. Put differently, consumers in 2014 faced food prices about 12 percent lower than they would have been absent NAFTA liberalization.

6.2 Household-level implications

To translate the aggregate effect into household terms, we apply the 12 percent proportional price reduction to average household food-at-home spending from the BLS Consumer Expenditure Survey. The average U.S. household spent approximately $4,000 per year on food at home in the mid-2010s (U.S. Bureau of Labor Statistics, 2016). Thus, A 12 percent reduction in the cost of that basket implies savings of approximately $500 per year for the average household by 2014.

These savings were not uniformly distributed across the income distribution. Lower-income households spend a substantially larger share of their total budget on food (e.g. Fajgelbaum and Khandelwal, 2016). Households in the lowest income quintile allocate roughly 15–16 percent of expenditure to food at home, compared with 7–8 percent for households in the highest quintile (U.S. Bureau of Labor Statistics, 2020). For a household earning $25,000 per year, NAFTA food savings of $400–$500 represent a meaningfully larger share of total income than the same absolute dollar amount does for a high-income household.

6.3 Total CPI impact

Food at home constitutes approximately 8 percent of the total CPI basket. Applying this weight to the 22-index-point reduction in the food CPI yields a contribution to total CPI of approximately 1.8 percentage points of cumulative suppression over the 1994–2014 period. This is the total accumulated reduction in the price level relative to the no-NAFTA counterfactual—not an annual rate but a cumulative stock effect.

7 Forecasting & simulating removal of USMCA

The core question of this report is what would happen to U.S. consumer prices if the USMCA would be removed. While forecasting such a scenario is a tall order and naturally can not account for potential simultaneous other drivers and policies, our NAFTA pass-through estimates provide a direct basis for projecting the price effects of removing USMCA tariff preferences. If USMCA were terminated and MFN rates were reinstated on food imports from Canada and Mexico, the tariff changes would be the mirror image of the NAFTA phase-in—increases of the same magnitude as the decreases that occurred from 1994 through the mid-2000s. We apply the LP coefficients $\{\hat{\beta}_h\}$ to the full reinstatement of 1993 MFN rates, constructing item-level simulated price increases and aggregating using Laspeyres weights.

A key question is whether the pass-through coefficients estimated during the NAFTA phase-in remain applicable today. The world and the U.S. economies have changed fundamentally between the 1990s and today and it is impossible to account for all structural changes and how they would affect the trade-price relationship. However, one important structural change since 1994 is the depth of North American supply chain integration. U.S. dependence on food imports from Canada and Mexico has grown substantially and perhaps captures other fundamentally changing economics. I.e. for many product categories, import volumes from Canada and Mexico are three to five times higher than in the mid-1990s. A tariff shock hitting a market where imports supply a larger share of domestic consumption should, all else equal, generate a larger retail price response than the same shock hitting a less-integrated market. Applying the 1994-era pass-through coefficient unchanged therefore likely understates the current price impact.

We therefore present two scenarios:

- **Scenario A: symmetric reversal.** We apply the LP pass-through coefficient directly, without adjustment for changes in import dependence. This treats the current market as if it were as trade-exposed as in 1994 and provides a lower bound on the price impact.

- **Scenario B: import growth-adjusted reversal.** The pass-through coefficient for each item is scaled upward by the ratio of recent import volume (BACI average 2020–22) to early-NAFTA import volume (BACI average 1994–96), capped at a factor of 5 to avoid extreme values for items that started from near-zero imports (e.g. avocados). This scaling reflects today's trade relationship which have been growing in size but also towards deeper supply-chain integration since NAFTA.

Across both of these scenarios we look at effects on the food sector only. Of course NAFTA and USMCA cover many more goods and services that contribute to CPI, all of which are held constant in this analysis.

7.1 Aggregate food price effects

Figure 7 shows the simulated path of the aggregate food price index under both scenarios. Both series rise progressively above baseline, with approximately half the total effect materializing within the first five years. Under Scenario A (symmetric), the food price index rises approximately 12–13 index points above baseline within a decade. Under Scenario B (import growth-adjusted), the projected increase is larger, reflecting the deeper integration of U.S. food markets with Canadian and Mexican supply chains since NAFTA. The gap between the two scenarios is widest for product categories—such as tomatoes, avocados, and fresh berries—where import volumes from Canada and Mexico have grown most dramatically since the mid-1990s.

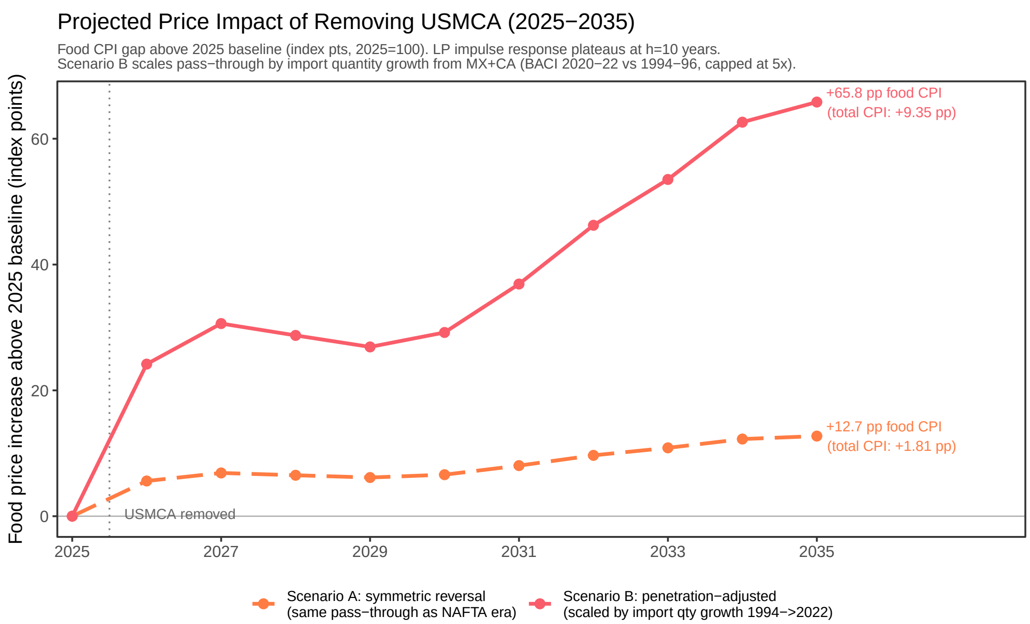

FIGURE 7: Projected food price impact of USMCA removal. Food price index gap above the no-reversal baseline (2025 = 100). Scenario A (dashed): symmetric reversal applying NAFTA-era pass-through directly. Scenario B (solid): import growth-adjusted, scaling pass-through by import quantity growth from Canada and Mexico (BACI 2020–22 vs. 1994–96, capped at 5×).

7.2 Total CPI and inflation implications

Figure 8 presents the total CPI implications of each scenario. Weighting the food price effect by the food-at-home CPI share (approximately 14 percent), Scenario A would add approximately 1.8 percentage points to cumulative CPI within a decade. Scenario B implies a larger increase commensurate with the higher effective pass-through in today's more integrated markets. Both represent permanent additions to the price level that would not self-reverse absent policy action or other technological innovation.

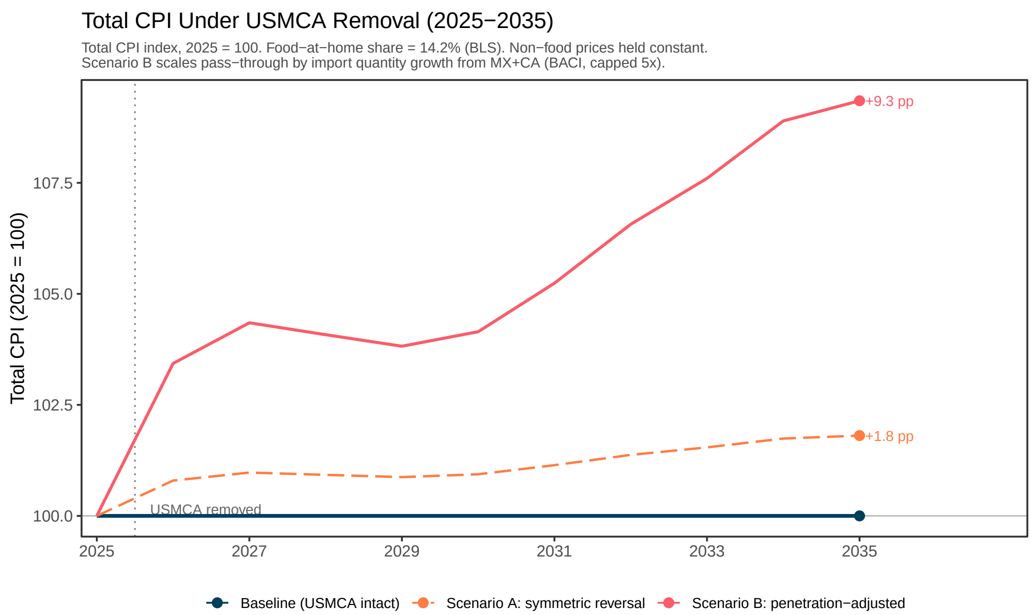

FIGURE 8: Simulated effect of USMCA tariff reversal on total CPI (2025 = 100). Scenario A (dashed): symmetric reversal. Scenario B (solid): import growth-adjusted. Baseline (solid blue): no reversal. Non-food prices held constant.

Figure 9 shows the *additional annual inflation* each scenario would generate above baseline. The model predicts a front-loaded spike in annual food price inflation, particularly in the first two to three years after removal, followed by gradual moderation as the LP response function accumulates toward its plateau. Inflation remains elevated relative to baseline for approximately a decade, with Scenario B consistently exceeding Scenario A due to the higher effective pass-through in today's more integrated markets.

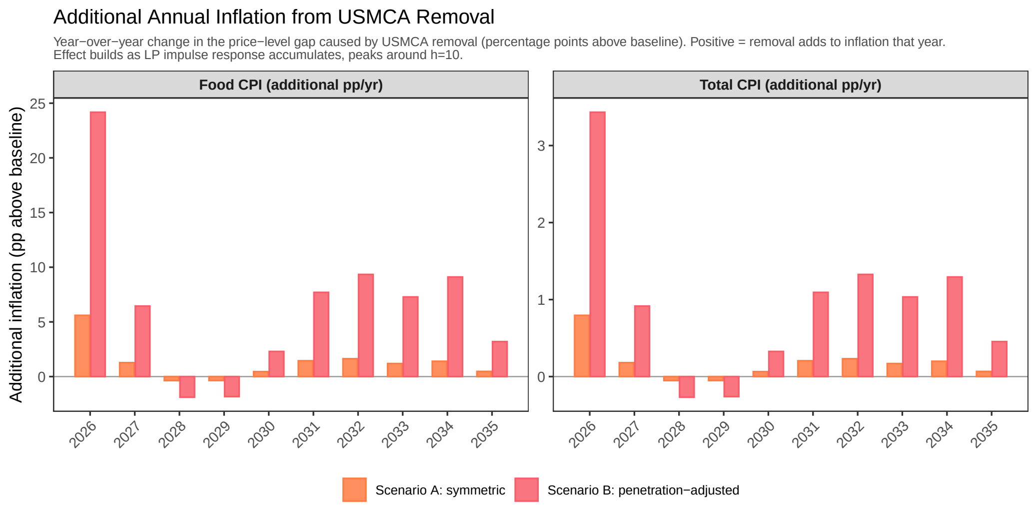

FIGURE 9: Additional annual inflation from USMCA removal. Year-over-year increase in food CPI and total CPI above the no-reversal baseline (percentage points). Positive values mean USMCA removal adds to inflation in that year. Scenario A: symmetric reversal. Scenario B: import growth-adjusted.

7.3 Product-level exposure

Figure 10 disaggregates the projected price increases by food category under both scenarios. The spread between Scenario A and Scenario B is largest for products with high import growth, i.e tomatoes and ground beef, sourced far more heavily from Mexico and Canada today than in 1994, show substantially higher penetration-adjusted pass-through. For processed goods like bread and crackers, where domestic production still dominates, the two scenarios converge because import penetration growth has been more modest.

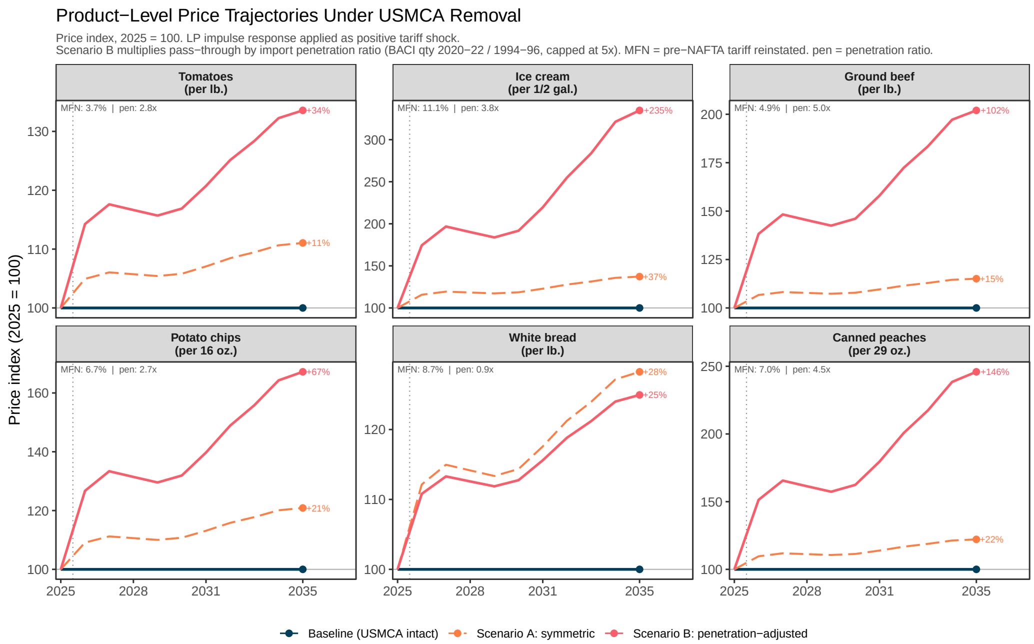

FIGURE 10: Product-level price trajectories under USMCA removal (2025 = 100). Baseline (blue): no reversal. Scenario A (dashed): symmetric reversal. Scenario B (solid): penetration-adjusted. Header annotations show the pre-NAFTA MFN tariff reinstated and the import penetration ratio used in Scenario B.

7.4 Distributional considerations

The aggregate effects mask an important distributional dimension. Lower-income households spend a larger share of income on food and would bear a disproportionately large burden from food price increases. Under either reversal scenario, the real purchasing power loss for households in the lowest income quintile—as a share of total income—would be roughly twice as large as for households in the highest income quintile. The consumer benefits of maintaining USMCA food preferences are therefore progressively distributed. The gains accrue proportionally more to lower-income households, and any reversal would impose proportionally higher costs on them.

7.5 Caveats and limitations

The counterfactual analysis and simulations represent partial-equilibrium projections based on reduced-form pass-through estimates from the NAFTA liberalization episode. They do not account for general equilibrium responses, i.e. potential supply expansion by domestic producers, exchange rate adjustments, or shifts in sourcing to non-NAFTA partners. Pass-through from tariff increases may also differ from pass-through from tariff reductions if retail pricing is asymmetric. The penetration scaling in Scenario B applies a proportional adjustment that does not capture heterogeneity in supply elasticities across items. the true preferred estimate likely lies between the two scenarios.

With those caveats noted, the NAFTA pass-through estimates remain the most credible available evidence on the likely price effects of changes to USMCA food tariff preferences. No comparable natural experiment of similar magnitude and duration has occurred in U.S. food trade policy since NAFTA, making the phase-in episode the natural empirical benchmark for projecting the effects of potential policy changes.

8 Conclusion

This report has used the NAFTA trade liberalization episode as a natural experiment to estimate the causal pass-through from tariff reductions to U.S. retail food prices. Matching BLS average price data for 85 food items to legal NAFTA tariff schedules and bilateral trade flows, and exploiting the cross-sectional variation in pre-NAFTA tariff levels as an instrument for the treaty-mandated phase-in schedule, we find clear and robust evidence that NAFTA tariff cuts reduced U.S. food prices.

The preferred IV estimate implies that a one percentage point reduction in the NAFTA preferential tariff reduced annual food price growth by approximately 0.6 percentage points. Local projections trace the cumulative price adjustment over time: the effect grows gradually to 2.8 percent per percentage point of tariff cut after approximately ten years before stabilizing, consistent with gradual supply-chain adjustment and expanding import competition. Aggregated to the food price index, NAFTA liberalization reduced the food price level by approximately 22 index points (1993 = 100) by 2014 relative to a no-NAFTA counterfactual—equivalent to roughly $500 per year in food savings for the average household and 1.8 percentage points of cumulative total CPI suppression over the full phase-in period.

An important finding is that the pass-through is not confined to import-competing goods. Products for which the United States is a net exporter to Canada and Mexico—wheat, corn, and certain beef cuts—show at least as large a price reduction following NAFTA tariff cuts as import-competing goods. This is consistent with North American commodity market integration tightening the law of one price on both sides of the border, and with the productivity and efficiency gains that export market access generates for domestic producers. The result underscores that the consumer benefits of NAFTA extended broadly across the food basket, not only to goods directly competing with Mexican and Canadian imports.

The forward-looking simulations show that removing USMCA tariff preferences would reverse these gains. Under a symmetric reversal scenario (lower bound), the food price index would rise approximately 12–13 index points above baseline within a decade, adding 1.8 percentage points to cumulative CPI. Under a penetration-adjusted scenario that accounts for the deeper supply-chain integration that has occurred since NAFTA, the projected price increase is larger. In both scenarios the price impact is front-loaded, with annual food inflation elevated for approximately a decade before the adjustment completes. The distributional burden would fall disproportionately on lower-income households, for whom food represents a larger share of total expenditure.

The evidence assembled in this report makes clear that the food tariff preferences embedded in USMCA have delivered, and continue to deliver, substantial and measurable consumer benefits. The NAFTA episode provides the most credible available empirical benchmark for evaluating what is at stake in any future changes to those preferences.

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Appendix

A.1 Robustness checks

In this section, we challenge the identifying assumptions of our baseline model and assess the robustness of its results. First, we run a placebo test were we pretend NAFTA was removed a decade later and asess whether we would still find similar results which would undermine our identification strategy. Second, we test alternative IV, most notably Autor, Dorn and Hanson (2013)-style exposure instruments where we use Canadian and Mexican export growth to the rest of the world es exogenous supply shocks. Third, we estimate the model in levels under the use of fixed effects instead of first differences as in our baseline model, which however could be subject to spurious regression effects.

A.1.1 Placebo test

A placebo for this design exploits the fact that the NAFTA phase-in was essentially complete by the mid-2000s. By 2005, virtually all preferential tariff rates for Mexico had reached zero and there is no remaining tariff variation to transmit to consumer prices. The Bartik instrument $z_{it} = \tau_{i,\text{pre}} \times (t - 1993)$, however, continues to grow mechanically throughout this period, reaching values of 12 to 21 by 2005–2014. If the baseline result were capturing a spurious correlation between pre-NAFTA protection levels and some persistent feature of price dynamics in highly-protected product categories — rather than the actual tariff cuts — we would still find a significant reduced-form coefficient when we restrict the sample to this post-liberalization window.

Appendix Table 2 reports the reduced-form regression of $\Delta \ln p_{irt}$ on z_{it} over 2005–2014 only. The coefficient is small and statistically indistinguishable from zero, indicating that the instrument has no predictive power for price growth once the tariff variation is exhausted. This strongly supports the interpretation of the baseline result as a genuine tariff pass-through effect rather than a spurious trend correlation. It also rules out the concern that the pre-NAFTA tariff level captures some persistent structural feature of product categories, such as lower productivity growth or weaker domestic competition, that independently drives slower price growth over the long run.

Table 2: Placebo Test: Reduced Form on Post-Liberalization Period

	Placebo (2005–2014)
Tariff×year (RF)	-3.854×10^{-4}
	(4.622×10^{-4})
Num.Obs.	460
R2	0.342
FE: Item×region	X
FE: Year	X

* p <0.1, ** p <0.05, *** p <0.01
Clustered SE by BLS item. Item×region + year FEs. Outcome: Δlnp. Sample: 2005–2014, after NAFTA tariff phase-in is complete. Instrument Tariff×year continues to grow mechanically but has no remaining tariff variation to transmit. A significant coefficient would indicate the baseline result is spurious.

A.1.2 OLS Robustness: Tariff Measure and Heterogeneity

Table 3 reports six OLS specifications. Columns (1)–(2) replicate the baseline with import-weighted average tariffs constructed from UNCTAD/WITS data, with and without log import volumes as a control. Column (2q) substitutes import quantities for import values. Column (3) uses an unweighted simple average tariff across linked HS6 codes, confirming that the negative coefficient is not an artifact of the import-weighting scheme. Column (4) interacts the tariff with an indicator for items classified as high NAFTA relevance in the concordance; the interaction is negative but imprecisely estimated, suggesting limited heterogeneity along this dimension. Column (5) separates the tariff into a primary-input component and a final-good component; both carry negative coefficients of similar magnitude, indicating that pass-through operates through both the input-cost and direct import-competition channels.

A.1.3 Alternative Instruments

The baseline instrument interacts each item's pre-NAFTA MFN tariff with the post-NAFTA time trend, exploiting the treaty-mandated phase-in schedule. A potential concern is that the phase-in schedule is not strictly exogenous: items that faced larger cuts may have been

Table 3: NAFTA Preference Margin Pass-Through to US Food Prices (Panel FE)

	(1) Tariff	(2) Tariff + Trade (val)	(2q) Tariff + Trade (qty)	(3) Unweighted tariff	(4) NAFTA relevance	(5) Primary vs Final
Tariff (import-weighted)	−0.013*	−0.012*	−0.013*		−0.011	
	(0.007)	(0.006)	(0.007)		(0.007)	
Tariff (simple avg)				−0.002		
				(0.001)		
Log imports CA+MX (value)		0.019*		0.019*	0.019*	0.022
		(0.010)		(0.010)	(0.010)	(0.017)
Log imports CA+MX (qty)			0.003			
			(0.007)			
Tariff × High relevance					−0.007	
					(0.009)	
Tariff, primary inputs						−0.003
						(0.002)
Tariff, final goods						−0.001
						(0.001)
Num. Obs.	4290	4290	4290	4130	4290	2910
R^2	0.982	0.982	0.982	0.982	0.982	0.983
FE: item×region	X	X	X	X	X	X
FE: year	X	X	X	X	X	X

* p <0.1, ** p <0.05, *** p <0.01
Clustered SE by BLS item. Outcome: log(annual average price). FEs: item×region + year. Treatment: import-weighted NAFTA tariff (UNCTAD/WITS).

selected for liberalization precisely because they were expected to generate large consumer gains, or because their domestic producers were weakening. If so, the instrument may be correlated with unobserved post-NAFTA price dynamics through channels other than the tariff itself.

Appendix Table 4 addresses this by reporting six alternative IV specifications that vary the endogenous variable being instrumented and the choice of instrument.

Instrumenting for import volumes. Columns (C) and (D) instrument for log imports (value and quantity, respectively) using log CA+MX food exports to non-US destinations (BACI). This is an ADH-style supply-side instrument: when Canada and Mexico ship more food to third countries, their agricultural sectors are expanding — and this supply expansion also raises exports to the US, independently of US demand shocks. The first-stage F-statistic for import quantity (34.4) indicates adequate strength; for import value (0.1) it is weak, reflecting noise in dollar-value trade flows. Columns (C) and (D) show that instrumenting for imports rather than tariffs yields imprecise estimates with large standard errors, confirming that the tariff channel — not the import volume channel per se — is where identification is cleanest.

Joint instrumentation. Columns (E) and (F) instrument for both the tariff and log imports simultaneously, using the Bartik instrument and the ROW exports instrument in a just-identified 2SLS system. First-stage F-statistics for the tariff remain strong (around 1,100), but the estimates become very noisy once imports are also treated as endogenous, reflecting the weak first stage for import value. The quantity-based version (column F)

Table 4: NAFTA Tariff Pass-Through: IV Estimates (Panel FE)

	(A) tariff IV (val)	(B) tariff IV (qty)	(C) imports IV (val)	(D) imports IV (qty)	(E) both IV (val)	(F) both IV (qty)
Tariff (import-weighted)	−0.009	−0.009	0.086	−0.017*	−0.202	−0.014
	(0.012)	(0.012)	(0.909)	(0.010)	(1.758)	(0.015)
Log imports CA+MX (value)	0.011		1.285		−1.690	
1st-stage F: tariff	2109.8	2165.2			1122.9	1114.0
1st-stage F: imports (val)			0.1		31.5	
1st-stage F: imports (qty)				34.4		37.3
	(0.007)		(11.269)		(15.958)	
Log imports CA+MX (qty)		0.004		−0.037		−0.042
		(0.005)		(0.064)		(0.059)
Num.Obs.	1668	1668	1668	1668	1668	1668
R2	0.989	0.989	0.190	0.987	−0.435	0.987
FE: bls_item_code^region_name	X	X	X	X	X	X
FE: year	X	X	X	X	X	X

* p <0.1, ** p <0.05, *** p <0.01
Clustered SE by BLS item. Item×region + year FEs.Instrument for tariff: pre-NAFTA tariff level x year. Instrument for imports: log(CA+MX food exports to non-US destinations, BACI).

is better behaved, with an import first-stage F of 37.3, but the tariff coefficient (-0.014) remains insignificant at conventional levels with standard errors around 0.015. The instability across columns (E) and (F) relative to columns (A) and (B) — where only the tariff is instrumented and the coefficient is around -0.009 — is consistent with the import volume control being a weak additional regressor rather than a separately identified channel.

Columns (A) and (B) are the most credible IV specifications: the tariff is strongly instrumented ($F > 2{,}000$ in the full FD sample; $F > 1{,}100$ here), the point estimates are stable, and they align well with the baseline first-difference result.

A.1.4 Export-exposed goods

For goods where the US is a net exporter to Canada and Mexico, NAFTA operates through a different channel: rather than lowering the US import tariff, it lowers the CA/MX tariff on US goods, raising US export demand and potentially pushing domestic prices *upward*. Including such goods in the regression would bias the pass-through estimate toward zero, since their price response runs in the opposite direction to the import channel we are trying to identify.

We identify three categories where this concern is relevant based on US trade patterns. First, wheat and wheat-linked products (flour, bread, pasta, crackers, cookies): the US is one of the world's largest wheat exporters and Mexico is a significant destination. Second, corn (fresh and canned): the US dominates global corn exports and Mexico is the largest single buyer. Third, beef: the US–Canada bilateral beef trade is genuinely two-way, with meaningful export flows in both directions.

All three specifications in Appendix Table 5 estimate first-difference models with item×region and year fixed effects, and IV instrumented by $\tau_{i,\text{pre}} \times (t - 1993)$ throughout. Columns (1)

Table 5: Robustness: Excluding US Export-Exposed Food Items

	(1) OLS, excl. export goods	(2) IV, excl. export goods	(3) IV, export goods only
Tariff (import-weighted)	0.0042*	0.0079***	0.0097***
	(0.0024)	(0.0022)	(0.0025)
Num.Obs.	1085	1085	460
R2	0.226	0.220	0.416
FE: Item×region	X	X	X
FE: Year	X	X	X

* p <0.1, ** p <0.05, *** p <0.01

Clustered SE by BLS item. Item×region + year FEs. Outcome: Δlnp. IV instrument: tariff_pre×year. Export-exposed items: wheat/flour-linked goods, corn, and beef (goods where the US exports significantly to CA$+$MX). Columns (1)–(2) drop these items. Column (3) estimates the same IV on the export-exposed subsample only; a near-zero or positive coefficient would indicate the export price channel dominates for these goods.

and (2) drop the export-exposed items and re-estimate the baseline OLS and IV specifications on the remaining import-competing sample. Column (3) estimates the same IV on the export-exposed subsample only.

The results go against the attenuation concern. The IV pass-through coefficient for import-competing goods (column 2) is stable relative to the full-sample baseline (0.0059), confirming the baseline is not driven downward by export goods. More strikingly, the coefficient for export-exposed items (column 3) is larger than for import-competing goods, not smaller. This suggests that for wheat, corn, and beef, the US domestic price is sufficiently integrated with the North American market that it responds to NAFTA tariff changes regardless of trade direction, likely because these are commodity markets where US producer prices adjust to North American price signals in both directions.

A.2 More data and descriptives

A.2.1 Concordance Table

A key contribution of the data assembly is a manually constructed concordance linking BLS average price series to the HS6 trade codes that contribute to each product's price. This mapping is non-trivial because BLS and HS classifications are developed for different purposes—the former reflecting consumer expenditure categories, the latter reflecting customs administration—and no official crosswalk exists between them.

For each BLS item, we identify all HS6 codes whose trade flows plausibly affect that retail price, distinguishing three roles: *final goods* (the traded product itself, e.g. fresh tomatoes for the tomato price series), *primary inputs* (the raw agricultural commodity input, e.g.

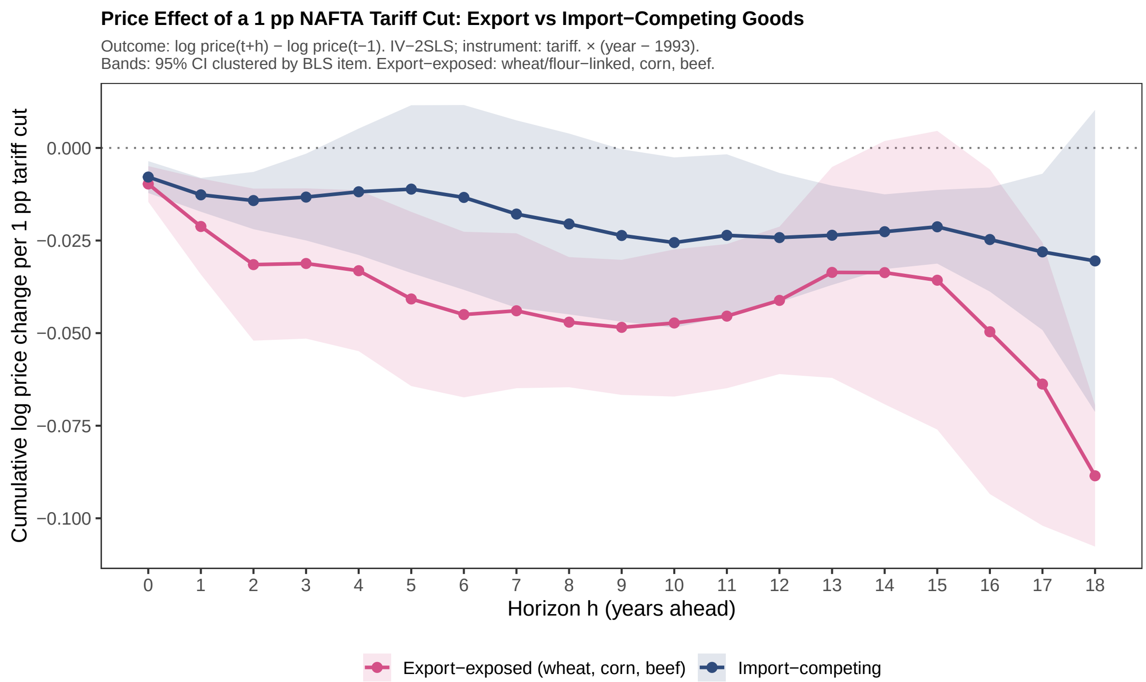

FIGURE A.1: Cumulative price effects of NAFTA liberalization for export-exposed and import-competing food items.

wheat for bread prices), and *intermediate inputs* (processed goods that enter as inputs, e.g. flour for bread, or milk for butter). This supply-chain structure allows us to capture both direct price effects—where the imported good is the final consumer product—and indirect effects operating through input cost channels.

The concordance covers 33 unique HS6 codes matched to 30 BLS item codes, yielding 104 distinct HS6–BLS pairs once supply-chain linkages are accounted for. Match quality is classified as *exact* (clean one-to-one correspondence between HS6 and BLS category), *broad* (some aggregation mismatch, such as an HS6 code covering multiple varieties tracked separately by BLS), or *no match* (no usable BLS series available). The core empirical analysis uses exact and broad matches, with robustness checks restricted to exact matches only.

The three sources are merged on HS6 code, trading partner, and year to produce the analytical panel. Each observation represents a unique combination of HS6 product, BLS price series, trading partner (Mexico or Canada), geographic area (national or one of four Census regions), and year. The panel is unbalanced due to the varying temporal coverage of individual BLS series—some series were discontinued before 2014, others began after 1990—as well as residual gaps in price data for specific region–product combinations.

A.2.2 Tariffs

TABLE 6: NAFTA Preferential Tariff Rates by Year: Treated Items

Year	N	Mean (%)	Min (%)	Max (%)
1990	26	6.7	1.0	20.0
1991	26	6.7	1.0	20.0
1992	26	6.7	1.0	20.0
1993	26	6.7	1.0	20.0
1994	26	4.9	0.0	13.2
1995	26	3.8	0.0	11.8
1996	26	2.7	0.0	10.3
1997	26	1.3	0.0	7.0
1998	26	0.9	0.0	5.1
1999	26	0.8	0.0	4.5
2000	26	0.7	0.0	5.7
2001	26	0.4	0.0	3.9
2002	26	0.3	0.0	3.1
2003	26	0.1	0.0	2.5
2004	26	0.1	0.0	2.0
2005	26	0.1	0.0	1.3
2006	26	0.0	0.0	0.8
2007	26	0.0	0.0	0.5
2008	26	0.0	0.0	0.0
2009	26	0.0	0.0	0.0
2010	26	0.0	0.0	0.0
2011	26	0.0	0.0	0.0
2012	26	0.0	0.0	0.0
2013	25	0.0	0.0	0.0
2014	25	0.0	0.0	0.0

Note: Legal ad valorem NAFTA preferential tariff rate applied to Mexican goods entering the US, simple average across concordance HS6 codes per BLS item. Sample: 23 treated items with a positive pre-NAFTA MFN ad valorem rate (FRS 1993). Pre-1994 rates are the MFN rate from the Federal Register Supplement; 1994–1996 are back-filled or linearly interpolated to the first observed USITC rate; 1997–2014 are from the USITC annual HTS schedule (Mexico NAFTA preferential rate).

A.2.3 Concordance table

TABLE 7: BLS Item to HS6 Concordance

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
Grains & Cereals					

Continued on next page

Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
701111	Flour, white, all purpose, per lb.	110100	Wheat/meslin flour	F	H
		100190	Wheat, other than durum	P	H
701311	Rice, white, precooked, per lb.	190420	Prepared foods, swelled cereals	F	L
		100630	Rice, semi/wholly milled	P	L
701312	Rice, white, long grain, per lb.	100630	Rice, semi/wholly milled	F	L
		100610	Rice, not husked (paddy)	P	L
701321	Spaghetti, per lb.	190211	Pasta, uncooked, not stuffed	F	M
		100190	Wheat, other than durum	P	M
		110100	Wheat/meslin flour	I	M
701322	Spaghetti and macaroni, per lb.	190211	Pasta, uncooked, not stuffed	F	M
		100190	Wheat, other than durum	P	M
		110100	Wheat/meslin flour	I	M
Baked Goods					
702111	Bread, white, pan, per lb.	190110	Bread, pastry, cakes	F	M
		100190	Wheat, other than durum	P	M
		110100	Wheat/meslin flour	I	M
702112	Bread, French, per lb.	190110	Bread, pastry, cakes	F	M
		100190	Wheat, other than durum	P	M
		110100	Wheat/meslin flour	I	M
702212	Bread, whole wheat, pan, per lb.	190110	Bread, pastry, cakes	F	M

Continued on next page

Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
		100190	Wheat, other than durum	P	M
		110100	Wheat/meslin flour	I	M
702221	Rolls, hamburger, per lb.	190110	Bread, pastry, cakes	F	M
		100190	Wheat, other than durum	P	M
		110100	Wheat/meslin flour	I	M
702421	Cookies, chocolate chip, per lb.	190531	Sweet biscuits	F	M
		110100	Wheat/meslin flour	I	M
		170111	Sugar, raw cane	I	M
		180100	Cocoa beans	P	M
702611	Crackers, soda, salted, per lb.	190540	Rusks, toasted bread, crackers	F	M
		110100	Wheat/meslin flour	I	M
Beef					
703111	Ground chuck, 100% beef, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703112	Ground beef, 100% beef, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703113	Ground beef, lean/extra lean, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703211	Chuck roast, bone-in, per lb.	020120	Beef cuts bone-in, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H

Continued on next page

Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
703213	Chuck roast, boneless, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703311	Round roast, boneless, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703411	Rib roast, bone-in, per lb.	020120	Beef cuts bone-in, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703422	Steak, T-bone, bone-in, per lb.	020120	Beef cuts bone-in, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703425	Steak, rib eye, boneless, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703432	Beef for stew, boneless, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703511	Steak, round, boneless, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
703611	Steak, sirloin, bone-in, per lb.	020120	Beef cuts bone-in, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H

Continued on next page

Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
703613	Steak, sirloin, boneless, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
FC1101	All uncooked ground beef, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
FC2101	All uncooked beef roasts, per lb.	020120	Beef cuts bone-in, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
FC3101	All uncooked beef steaks, per lb.	020130	Beef cuts boneless, fresh/chilled	F	H
		010221	Cattle, pure-bred breeding	P	H
Pork					
704111	Bacon, sliced, per lb.	020319	Pork, other fresh/chilled	F	H
		010290	Live swine, other	P	H
704211	Chops, center cut, bone-in, per lb.	020311	Pork, carcasses/halves	F	H
		010290	Live swine, other	P	H
704212	Chops, boneless, per lb.	020311	Pork, carcasses/halves	F	H
		010290	Live swine, other	P	H
704311	Ham, bone-in, smoked, per lb.	021011	Ham/shoulder, bone-in, cured	F	H
		010290	Live swine, other	P	H
704312	Ham, boneless, per lb.	021019	Pig meat, other cured	F	H
		010290	Live swine, other	P	H
704421	Sausage, fresh, loose, per lb.	160100	Sausages and similar products	F	M
		020319	Pork, other fresh/chilled	I	M

Continued on next page

Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
		010290	Live swine, other	P	M
FD3101	All pork chops, per lb.	020311	Pork, carcasses/halves	F	H
		010290	Live swine, other	P	H
Processed Meats					
705111	Frankfurters, all meat/beef, per lb.	160100	Sausages and similar products	F	M
		020130	Beef cuts boneless, fresh/chilled	I	M
		010221	Cattle, pure-bred breeding	P	M
705121	Bologna, all beef or mixed, per lb.	160100	Sausages and similar products	F	M
		020130	Beef cuts boneless, fresh/chilled	I	M
		010221	Cattle, pure-bred breeding	P	M
705141	Beef liver, per lb.	020610	Edible offal of bovine	F	M
		010221	Cattle, pure-bred breeding	P	M
705142	Lamb and mutton, bone-in, per lb.	020430	Sheep meat, bone-in, frozen	F	L
		010410	Live sheep	P	L
Poultry					
706111	Chicken, fresh, whole, per lb.	020711	Chicken, not cut, fresh/chilled	F	H
		010511	Fowls, Gallus domesticus	P	H
706211	Chicken breast, bone-in, per lb.	020712	Chicken, not cut, frozen	F	H
		010511	Fowls, Gallus domesticus	P	H
706212	Chicken legs, bone-in, per lb.	020714	Chicken cuts, fresh/chilled	F	H

Continued on next page

Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
		010511	Fowls, Gallus domesticus	P	H
706311	Turkey, frozen, whole, per lb.	020724	Turkey, not cut, frozen	F	H
		010592	Turkeys	P	H
FF1101	Chicken breast, boneless, per lb.	020714	Chicken cuts, fresh/chilled	F	H
		010511	Fowls, Gallus domesticus	P	H
Fish & Seafood					
707111	Tuna, light, chunk, per lb.	160414	Tunas, prepared/preserved	F	M
		030232	Yellowfin tunas, fresh/chilled	P	M
Eggs					
708111	Eggs, grade A, large, per doz.	040700	Birds eggs, in shell	F	H
		010511	Fowls, Gallus domesticus	P	H
708112	Eggs, grade AA, large, per doz.	040700	Birds eggs, in shell	F	H
		010511	Fowls, Gallus domesticus	P	H
Dairy					
709111	Milk, fresh, whole, per 1/2 gal.	040120	Milk, fat content 1–6%	F	H
		010290	Live bovine, other	P	H
709112	Milk, fresh, whole, per gal.	040120	Milk, fat content 1–6%	F	H
		010290	Live bovine, other	P	H
709211	Milk, fresh, skim, per 1/2 gal.	040110	Milk, fat content <1%	F	H
		010290	Live bovine, other	P	H

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Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
709212	Milk, fresh, low fat, per 1/2 gal.	040110	Milk, fat content <1%	F	H
		010290	Live bovine, other	P	H
FJ1101	Milk, fresh, low-fat/skim, per gal.	040110	Milk, fat content <1%	F	H
		010290	Live bovine, other	P	H
710111	Butter, salted, grade AA, per lb.	040510	Butter	F	H
		040120	Milk, fat content 1–6%	I	H
		010290	Live bovine, other	P	H
FS1101	Butter, stick, per lb.	040510	Butter	F	H
		040120	Milk, fat content 1–6%	I	H
		010290	Live bovine, other	P	H
710122	Yogurt, natural, fruit flavored, 8 oz.	040310	Yogurt	F	H
		040120	Milk, fat content 1–6%	I	H
		010290	Live bovine, other	P	H
FJ4101	Yogurt, per 8 oz.	040310	Yogurt	F	H
		040120	Milk, fat content 1–6%	I	H
710211	American processed cheese, per lb.	040630	Processed cheese	F	H
		040120	Milk, fat content 1–6%	I	H
		010290	Live bovine, other	P	H
710212	Cheddar cheese, natural, per lb.	040620	Cheddar cheese	F	H
		040120	Milk, fat content 1–6%	I	H
		010290	Live bovine, other	P	H
710411	Ice cream, prepackaged, per 1/2 gal.	210500	Ice cream and edible ice	F	M
		040120	Milk, fat content 1–6%	I	M
		170111	Sugar, raw cane	I	M
Fresh Fruit					

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Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
711111	Apples, Red Delicious, per lb.	080810	Apples, fresh	F	H
711211	Bananas, per lb.	080310	Bananas, fresh	F	H
711311	Oranges, Navel, per lb.	080510	Oranges, fresh	F	H
711312	Oranges, Valencia, per lb.	080510	Oranges, fresh	F	H
711411	Grapefruit, per lb.	080540	Grapefruit, fresh	F	H
711412	Lemons, per lb.	080550	Lemons and limes, fresh	F	H
711413	Pears, Anjou, per lb.	080820	Pears, fresh	F	H
711414	Peaches, per lb.	080930	Peaches and nectarines, fresh	F	H
711415	Strawberries, dry pint, per 12 oz.	081010	Strawberries, fresh	F	H
711416	Grapes, Emperor or Tokay, per lb.	080610	Grapes, fresh	F	H
711417	Grapes, Thompson Seedless, per lb.	080610	Grapes, fresh	F	H
711418	Cherries, per lb.	080920	Cherries, fresh	F	H
Fresh Vegetables					
712112	Potatoes, white, per lb.	070190	Potatoes, fresh or chilled	F	H
712211	Lettuce, iceberg, per lb.	070511	Lettuce, head/iceberg, fresh	F	H
FL2101	Lettuce, romaine, per lb.	070519	Lettuce, other, fresh	F	H
712311	Tomatoes, field grown, per lb.	070200	Tomatoes, fresh or chilled	F	H
712401	Cabbage, per lb.	070490	Cabbages, other, fresh	F	M
712402	Celery, per lb.	070940	Celery, fresh	F	H
712403	Carrots, short trimmed, per lb.	070610	Carrots and turnips, fresh	F	H
712404	Onions, dry yellow, per lb.	070310	Onions and shallots, fresh	F	H

Continued on next page

Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
712405	Onions, green scallions, per lb.	070310	Onions and shallots, fresh	F	H
712406	Peppers, sweet, per lb.	070960	Peppers, Capsicum/Pimenta	F	H
712407	Corn on the cob, per lb.	070990	Other vegetables, fresh	F	M
712409	Cucumbers, per lb.	070700	Cucumbers and gherkins, fresh	F	H
712410	Beans, green, snap, per lb.	070820	Beans, fresh or chilled	F	H
712411	Mushrooms, per lb.	070951	Mushrooms Agaricus, fresh	F	M
712412	Broccoli, per lb.	070410	Cauliflower and broccoli, fresh	F	H
Processed Fruit & Vegetables					
713111	OJ, frozen concentrate, per 16 oz.	200911	Orange juice, fresh	F	H
		080510	Oranges, fresh	P	H
713311	Apple sauce, any variety, per lb.	200980	Other fruit/veg juices	F	M
		080810	Apples, fresh	P	M
713312	Peaches, canned, any variety, per lb.	200870	Peaches/nectarines, prep.	F	M
		080930	Peaches and nectarines, fresh	P	M
714111	Potatoes, frozen, French fried, per lb.	200410	Potatoes, prep./preserved, frz.	F	H
		070190	Potatoes, fresh or chilled	P	H
714221	Corn, canned, any style, per lb.	200490	Other veg, prep./preserved, frz.	F	M
		070990	Other vegetables, fresh	P	M
714231	Tomatoes, canned, whole, per lb.	200210	Tomatoes, prep./preserved, whole	F	H

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Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
		070200	Tomatoes, fresh or chilled	P	H
714232	Tomatoes, canned, any type, per lb.	200290	Tomatoes, prep./preserved, other	F	H
		070200	Tomatoes, fresh or chilled	P	H
714233	Beans, dried, any type, per lb.	071390	Dried leguminous veg., other	F	H
Sugar & Sweets					
715111	Hard candy, solid, per lb.	170490	Sugar confectionery, other	F	M
		170111	Sugar, raw cane	I	M
715211	Sugar, white, all sizes, per lb.	170111	Sugar, raw cane	F	H
		120691	Sugar cane	P	H
715212	Sugar, white, 33–80 oz. pkg, per lb.	170112	Sugar, refined	F	H
		120691	Sugar cane	P	H
715311	Jelly, per lb.	200799	Jams, jellies, other	F	M
		080810	Apples, fresh	P	M
		170111	Sugar, raw cane	I	M
Fats & Oils					
716111	Margarine, veg. oil blends, stick, per lb.	151710	Margarine	F	H
		120510	Rape/colza seeds, low erucic	P	H
		151411	Canola oil, crude	I	H
716114	Margarine, stick, per lb.	151710	Margarine	F	H
		120510	Rape/colza seeds, low erucic	P	H
716121	Shortening, vegetable oil blends, per lb.	151620	Animal/veg fat mixtures	F	M

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Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
		151411	Canola oil, crude	I	M
716141	Peanut butter, creamy, per lb.	200811	Peanuts, prepared/preserved	F	L
		120220	Peanuts, shelled	P	L
Beverages					
717111	Cola, non-diet, return bottles, per 16 oz.	220210	Waters, flavoured/sweetened	F	M
		170111	Sugar, raw cane	I	M
717113	Cola, nondiet, cans, per 16 oz.	220210	Waters, flavoured/sweetened	F	M
		170111	Sugar, raw cane	I	M
717114	Cola, nondiet, per 2 liters	220210	Waters, flavoured/sweetened	F	M
		170111	Sugar, raw cane	I	M
FN1101	All soft drinks, per 2 liters	220210	Waters, flavoured/sweetened	F	M
		170111	Sugar, raw cane	I	M
FN1102	All soft drinks, 12 pk cans, per 12 oz.	220210	Waters, flavoured/sweetened	F	M
		170111	Sugar, raw cane	I	M
717311	Coffee, 100% ground roast, per lb.	090121	Coffee, roasted, not decaf.	F	H
		090111	Coffee, not roasted, not decaf.	P	H
717312	Coffee, ground roast, 13–20 oz., per lb.	090121	Coffee, roasted, not decaf.	F	H
		090111	Coffee, not roasted, not decaf.	P	H
717324	Coffee, instant, regular, per 16 oz.	210111	Coffee extracts/essences	F	H
		090111	Coffee, not roasted, not decaf.	P	H

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Table 7 continued

BLS Code	BLS Item	HS6	HS Product Description	Type	Rel.
717327	Coffee, instant, regular, per lb.	210111	Coffee extracts/essences	F	H
		090111	Coffee, not roasted, not decaf.	P	H
720111	Malt beverages, all types, per 16 oz.	220300	Beer made from malt	F	H
		100300	Barley	P	H
		110710	Malt, not roasted	I	H
720311	Wine, red and white table, per 1 liter	220421	Wine, other than sparkling	F	M
		080610	Grapes, fresh	P	M
Snacks & Other					
718311	Potato chips, per 16 oz.	200520	Potatoes, prepared/preserved	F	M
		070190	Potatoes, fresh or chilled	P	M
718631	Pork and beans, canned, per 16 oz.	200540	Peas, prepared/preserved	F	M
		071310	Dried peas	P	M
		020319	Pork, other fresh/chilled	I	M

Notes: Type: F = final consumer good, I = intermediate input, P = primary agricultural input. Rel.: H = high NAFTA relevance, M = medium, L = low (based on CA/MX import share and tariff exposure). BLS codes beginning with FC, FD, FF, FJ, FL, FN, FS are BLS aggregate/composite series. HS6 codes follow HS1996 nomenclature with concordance remapping applied (see Data section).