

Exporting inflation ^{*}

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Abstract: This paper examines the pass-through of inflationary pressures from large economies to a smaller trade partner by analyzing the effects of changes in export prices from the U.S. and China on Mexican producer and consumer price variations. Two transmission mechanisms are considered: the cost channel, which operates through changes in foreign input prices, and the market channel, which reflects changes in foreign export prices in markets where they compete directly with domestic products. We estimate instrumental-variable econometric model similar to local projection using a panel comprising Mexican consumer and producer price indices, as well as U.S. and Chinese export unit values, and use average export unit values to destinations other than Mexico as instruments. We find that the market channel associated with changes in export prices exerts significant effects on Mexican prices: U.S. export prices affect Mexican producer price inflation for up to two years, while consumer price inflation shows a persistent and significant increase in response to changes in Chinese export prices.

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1 Introduction

Inflation tends to comove across countries, a pattern that became particularly evident during the global inflationary period following the COVID-19 pandemic. There are two primary explanations for this co-movement. First, the presence of global shocks, such as the economic effects of the global pandemic, can exert broad-based effects on producer and consumer prices. Second, inflationary pressures can be transmitted from trading partners through trade linkages and value chains. In particular, inflationary processes in large economies can affect the inflation dynamics of smaller trade partners, especially when the latter are heavily dependent on trade with the former. However, inflation in a small open economy is unlikely to exert a meaningful influence on its larger trading partners. This asymmetry provides a basis for empirically assessing the effects of external inflationary shocks on small open economies by exploiting the directional dependence inherent in trade relationships.

An economy can transmit its inflation to a trade partner through two channels. First, the cost channel, whereby changes in the prices of exported inputs affect the production costs of foreign firms, which in turn can translate into higher domestic prices in the destination country. Second, the market channel, through which changes in export prices affect prices in the destination market in sectors where exported goods compete directly. This channel also includes the direct effect of imported final goods on consumer prices, as some imported goods are consumed without further processing.¹ Mexico, a small open economy that relies on imported inputs and final goods from foreign countries, particularly from the two largest economies in the world, the United States and China, provides a natural setting for such an inquiry.

The objective of this study is to estimate the effect of U.S. and Chinese inflationary shocks, captured through changes in sectoral export prices, on Mexican producer and consumer prices. Mexico's strong links with the U.S. economy through manufacturing supply chains and consumer markets, together with the fact that China is its second-largest supplier of man-

¹ As a result, the effect of the market channel may differ between producer and consumer prices: while for producer prices it reflects competitive pressures in tradable sectors, for consumer prices it also captures the direct pass-through of import prices into the consumption basket.

ufactured goods after the United States make it an ideal case for studying how inflationary shocks originating in large economies with different types of trade and value-chain relationships are transmitted to a small open economy.² To achieve this goal, we combine Mexico’s input–output matrix, U.S. and Chinese import shares relative to total imports, and U.S. and Chinese export price indices for goods sold to Mexico to construct an import-weighted input price index that captures the cost channel. To estimate the market channel, we use the Mexican utilization matrix and U.S. and Chinese import shares relative to total imports to compute the market share of U.S. and Chinese products across sectors, weighting U.S. and Chinese export prices accordingly. The underlying assumption is that the contribution of U.S. and Chinese goods to Mexican average market prices is proportional to their market share.³

Nevertheless, this analysis faces two empirical challenges. The first is reverse causality: Mexican demand for foreign goods may influence the exporters’ prices, rendering observed export prices endogenous to Mexican economy conditions. To address this issue, we construct an instrumental variable based on the average U.S. and Chinese export prices charged to other countries, which captures costs and markup changes that are independent of Mexico-specific demand. The second challenge is omitted variable bias: global shocks may simultaneously affect U.S. and Chinese export prices and Mexican inflation, thereby confounding the estimates. To mitigate this concern, our specification includes sector–time fixed effects that help control for time-varying, sector-specific global shocks and sector-specific heterogeneity.

Methodologically, we estimate an econometric model similar to an instrumental variable local projection models (Jordà (2005)) using panel data that span monthly Mexican consumer and producer price indices (CPI and PPI, respectively) and U.S. and Chinese export unit values over the period 2008–2023. This framework enables us to examine the dynamic response of Mexican prices to foreign export price shocks, while controlling for exchange rate movements. By exploiting sectoral variation, we analyze the heterogeneous transmis-

² According to data provided by Banco de México, the United States is Mexico’s main trading partner, accounting for approximately 40% to 50% of total imports during 2008–2023, while China represents between 10% and 20%.

³ Goldberg and Knetter (1999) find that market structure and market power are consistent with measures of market share in the context of competition intensity in export markets.

sion of imported inflation across Mexican industries and distinguish between input-cost and competition effects.

The results indicate a predominance of the market channel in the transmission of foreign inflationary pressures to Mexican producer and consumer prices through export prices, with little evidence of pass-through from foreign input prices to either PPI or CPI. In particular, the market channel associated with U.S. export prices generates inflationary effects on Mexican PPI for up to two years, while having no significant impact on CPI. By contrast, changes in Chinese export prices affect both Mexican producer and consumer prices through the same channel: although the impact on PPI inflation is smaller than that of the U.S., the effect on CPI inflation is significant and more persistent.

This paper contributes to the literature on international inflation by examining the market and cost channels through which changes in export prices from large economies are transmitted to smaller trading partners, distinguishing the effects on CPI and PPI, as well as the origin country from which inflationary pressures arise. Recent studies, such as Amiti et al. (2023), estimate the pass-through of import prices to producer prices in the United States, finding a strong relationship between import and producer prices and showing that the interaction between imported and wage inflation explains most of the price changes observed after the pandemic. Similarly, di Giovanni et al. (2025) use a multi-country, multi-sector theoretical model and find that, during the pandemic, input linkages facilitated the spillover of foreign supply shocks to domestic inflation, with the magnitude of this effect varying across countries depending on their degree of dependence on foreign inputs. Luo and Villar (2023) also use a multi-sector model to analyze the role of international input linkages as an amplifier of shocks, finding that the propagation of shocks along the value chain intensified during the pandemic.

Amiti et al. (2019) and Albagli et al. (2025) analyze the transmission of the cost channel and the market channel (or strategic complementarity) in the context of the domestic transmission of inflationary pressures.⁴

⁴ Despite Amiti et al. (2019) also using inflationary pressures from foreign countries in their estimations, they do not separate domestic from foreign inflationary pressures, nor do they analyze asymmetries between small and large trading partners.

Other papers on international inflation focus on global factors that explain price comovement across countries. Ciccarelli and Mojon (2010) and Neely and Rapach (2011) find that one global common factor explains the high level of inflation synchronization across industrialized countries, while Mumtaz and Surico (2012) show how the role of the worldwide factor on domestic inflation evolved historically. Auer et al. (2019) show that common sectoral shocks are the main factor behind inflation synchronization across countries, and that international input linkages usually amplify such shocks. In turn, Kamber and Wong (2020) note that global shocks influence the inflation gap in advanced and emerging economies, but only affect the trend inflation of the latter group. Finally, Arango-Castillo et al. (2023) posit that introducing a global common factor improves forecasting of headline inflation.

This paper is also related to the pass-through of international shocks to domestic prices. For instance, Fajgelbaum et al. (2020) analyzed the effect of tariffs, while Gopinath and Rigobon (2008), Gopinath et al. (2010), Burstein and Gopinath (2014) and Auer et al. (2021) study the effect of exchange rate variations. More recently, Rubbo (2023) and Ferrante et al. (2023) analyzed how sectoral shocks aggregated inflation.

This paper is structured as follows. Section 1 presents the introduction. Section 2 lays out the theoretical framework used to analyze how foreign inflation may affect a small open economy. Section 3 explains how the cost and market channels indices are constructed and how their effects on Mexican prices are estimated. Section 4 provides a description of the data used. Sections 5 present the estimated effects of changes in U.S. and Chinese export prices on Mexican prices. The final section presents the conclusions.

2 Theoretical framework

This section provides a theoretical framework for our empirical strategy. In particular, we outline a stylized small open economy (SOE) model that helps to illustrate the channels through foreign inflationary shocks affect domestic inflation.⁵

Consider an open-economy model in which each domestic firm produces a unique variety

⁵ Full algebraic derivations and parameter definitions appear in Appendix A.

of either a tradable or a non-tradable good, using several bundles of domestic and imported inputs, as well as labor. Firms producing tradable goods sell their products to wholesalers and retailers, while firms producing non-tradable goods sell directly to households.

Each wholesaler combines a variety of a domestically produced tradable good with a corresponding variety of an imported good using a CES bundle function, and then sells this bundle as an input used by domestic firms. Retailers perform the same bundling activity, but sell the bundles to households. The log variation of the price of each bundle j sold by a wholesaler or a retailer is given by:

$$\Delta p_{j,t}^{tr} = (1 - \omega_j) \Delta p_{j,t}^H + \omega_j \Delta p_{j,t}^M, \quad (1)$$

where $\omega_m \in [0, 1]$ is a parameter related to the import share of variety j , $\Delta p_{j,t}^H$ is the log variation of the price of the domestically produced tradable good j , and $\Delta p_{j,t}^M$ is the log variation of the price of the imported good j .

Each domestic firm can set the price of its variety. Changes in the price of each domestic tradable variety that are consistent with profit maximization can be expressed as follows:⁶

$$\Delta p_{j,t}^H = \underbrace{\beta_j \Delta p_{j,t}^M}_{\text{Market channel}} + \underbrace{\alpha_j \sum_i \gamma_{j,i} \Delta p_{i,t}}_{\text{Input cost channel}} + \underbrace{\kappa_i \Delta w_t}_{\text{Wages channel}} \quad (2)$$

β_j is a composite parameter that measures the sensitivity of the prices of domestic tradable varieties to the prices of foreign competitors, reflecting underlying substitution elasticities and market structure. α_j measures the pass-through of bundled input prices in domestic price setting, while $\gamma_{j,i}$ reflects the share of input i in total input costs. Δw_t denotes the change in wage costs, and κ_i summarizes wage pass-through in pricing decisions.

Similarly, changes in non tradable goods are set by domestic firms by considering changes in cost or the cost channel, as well as other variables:⁷

⁶ See Appendix A for derivation, in particular equations 19 and 21.

⁷ See Appendix A for derivation and more detail.

$$\Delta p_{j,t}^m = \underbrace{\alpha_j \sum_i \gamma_{j,i} \Delta p_{j,t}}_{\text{Input cost channel}} + \underbrace{\kappa_i \Delta w_t + \text{other demand variables}}_{\text{Wages and demand channels}} \quad (3)$$

Changes in imported prices are expressed in local currency are given by:

$$\Delta p_{j,t}^M = \Delta Pexp_{j,t} + \Delta X_t + \Delta \tau_t, \quad (4)$$

where $\Delta Pexp_{j,t}$ is the change in foreign currency export price, ΔX_t is the change in exchange rate, and $\Delta \tau_t$ is the change in trade or transport costs.

The reduced-form equations presented above can be derived from the structural model described in Appendix A. In particular, Equation 1 corresponds to a log-linear approximation of the CES bundle price equation in Appendix A, while Equations 2 and 3 summarize the optimal pricing rules for tradable and non-tradable firms, respectively. The parameters in these equations should be interpreted as composite objects that reflect underlying structural features of the model, including substitution elasticities, input shares, and pricing behavior.

Substituting equations 1 and 4 into the pricing change equation 2 for tradable goods yields:

$$\Delta p_{j,t}^H = \underbrace{\beta_j \Delta Pexp_{j,t}}_{\text{market channel}} + \underbrace{\alpha_j \sum_i \gamma_{j,i} \omega_i \Delta Pexp_{i,t}}_{\text{cost channel}} + \delta_j^H \Delta X_t + \text{other variables} \quad (5)$$

where the term *other variables* includes wage changes $\kappa_i \Delta w_t$ and the domestic component of bundled input prices $\alpha_i \sum_i \gamma_{i,j} (1 - \omega_i) \Delta p_{i,t}^H$. Changes in trade costs, $\Delta \tau_{i,t}$, are not separately identified and are assumed to be absorbed into the *other variables* term.

The first term captures the market channel through which changes in foreign export prices directly affect the prices of competing imported goods. The second term captures the foreign component of the cost channel, since imported inputs enter the bundled input price with weight ω_i . The remaining terms are summarized by the exchange rate and other variables.⁸

Substituting equations 1 and 4 into the pricing change equation 3 for non-tradable goods yields:

⁸ In the econometric specification, other variables are absorbed by fixed effects.

$$\Delta p_{j,t}^m = \alpha_j \underbrace{\sum_i \gamma_{j,i} \omega_i \Delta P \exp_{i,t}}_{\text{cost channel}} + \delta_j^m \Delta X_t + \text{other variables} \quad (6)$$

The market channel term captures the effect of changes in foreign export prices on the prices of domestic tradable goods through competitive interactions between foreign and domestic firms supplying retailers and wholesalers. The cost channel reflects the effect of changes in foreign export input prices on production costs. These expressions motivate the empirical specification estimated using an IV econometric model similar to local projections, which is explained in the next section. Additionally, other variables in the model are captured by the time–sector fixed effects, as well as by lags of the dependent and independent variables.

3 Empirical framework

This section describes the construction of the cost and market channel indices and the empirical specification used to estimate their effects on Mexican prices. Let i denote individual products defined at the 6-digit NAICS level, and let j denote the product (or consumption) category for which prices are observed. In the case of producer prices, industries n and m correspond to 3-digit NAICS sectors, while for consumer prices they correspond to groups of genéricos defined by INEGI. Thus, i represents the inputs produced by industries from sector n , while j represents the products generated by industries from sector m .

Changes in foreign export prices affect domestic prices through two channels. The cost channel captures the effect of changes in the prices of imported inputs used in production, while the market channel reflects the impact of foreign prices on domestic prices in sectors where imported goods compete with domestically produced goods, as well as the direct effect of imported final goods on consumer prices. To capture the cost channel, we construct an index based on changes in export unit values of products i used as inputs to generate a product j . Specifically, the cost channel index is defined as:

$$CC_{j,m,t+h} = \sum_i \gamma_{j,i,2008} \omega_{i,2008}^{Foreign} \Delta_h \log(Pexp_{i,n,t+h}^{Foreign-MEX}) \quad (7)$$

where $\Delta_h \log(Pexp_{i,n,t+h}^{Foreign-MEX})$ denotes the log change in export unit values of input i , $\gamma_{j,i,2008}$ represents the share of inputs costs of i with respect to the total value of production of the product j , estimated using the input-output matrix, and the weights $\omega_{i,2008}^{Foreign}$ capture the share of imports from the foreign country (United States or China) in total imports of product i . Thus, the index aggregates changes in foreign export prices across products i , weighted by their importance in the production of j .

Additionally, the cost channel only affects domestic firms. In the case of the CPI estimation, which includes foreign final goods consumed directly by households, the cost channel index is also weighted by the proportion of domestic goods consumed by households ($1 - \sigma_{j,2008}$).

The market channel is defined as the log difference in export unit values for the group of products j from industry m . This log difference in average export prices is weighted by the market share of imported product j relative to the total supply of j from industry in 2008 ($\sigma_{j,2008}$) and by the ratio of imports from the corresponding partner country (United States or China) to total imports of j ($\omega_{j,2008}^{Foreign}$). The intuition is that the market share of imported products reflects, first, the mechanical impact of foreign export prices on the consumer price index, since imported goods are part of the representative consumption basket. However, it also reflects their importance in the market and, therefore, their influence on the pricing decisions of domestic competitors and producer prices.⁹

To capture the market channel, we construct an index based on changes in export unit values of products that compete with domestically produced goods in sector j . Specifically, the market channel index is defined as:

⁹ A higher market share of foreign firms may reflect stronger competitive pressure in domestic markets, which in turn can affect the pricing decisions of domestic producers. In particular, when imported goods account for a larger share of supply, changes in foreign prices are more likely to influence domestic prices. For a more detailed analysis, see Tirole (1988).

$$MC_{j,m,t+h} = \sigma_{j,2008} \omega_{j,2008}^{Foreign} \Delta_h \log(Pexp_{j,m,t+h}^{Foreign-MEX}) \quad (8)$$

where $\Delta_h \log(Pexp_{j,m,t+h}^{Foreign-MEX})$ denotes the log change in export unit values of product j . The weights $\omega_{j,2008}^{Foreign}$ capture the share of imports from the foreign country (United States or China) in total imports of product j . Thus, the index measures changes in foreign export prices of goods that directly compete with domestically produced goods in sector j .

Then, we use these constructed indices to measure how accumulated changes in the cost and market channels affect variations in the log of Mexican price indices between quarter $t-1$ and $t+h$. For this purpose, we employ an econometric specification similar to an IV local projection model (Jordà (2005)) on a panel of quarterly changes data from 2008 to 2023. The specification to estimate the effect on tradable goods prices is:

$$\begin{aligned} \Delta_h \ln P_{j,m,t+h}^{MEX} = & \alpha_h CC_{j,m,t+h} + \beta_h MC_{j,m,t+h} + \delta_h \Delta_h \ln X_{j,m,t+h} + \sum_{k=1}^4 [\kappa_{h,j}^1 \Delta \ln P_{j,m,t-k}^{MEX} + \\ & \kappa_{h,j}^2 MC_{j,m,t-k} + \kappa_{h,j}^3 CC_{j,m,t-k} + \kappa_{h,j}^4 \Delta \ln X_{j,m,t-k}] + \mu_{m,t+h} + \varepsilon_{j,m,t+h} \end{aligned} \quad (9)$$

We employ fixed effects for the time–industry combination ($\mu_{m,t+h}$), along with control variables such as the log difference of the U.S. Dollar–Mexican Peso or the Chinese Renminbi–Mexican peso exchange rates weighted by the ratio of the total value of imported inputs to the total value of production of j from industry m ($\Delta \ln X_{j,m,t+h}$). Additional controls include 4 lags of the quarter log difference of the Mexican price indices and cost channel associated with the price of foreign exports to Mexico, and the log difference of the weighted exchange rate ($\Delta \ln X_{j,m,t}$). Similarly, The estimation on non tradable goods is:

$$\begin{aligned} \Delta_h \ln P_{j,m,t+h}^{MEX} = & \alpha_h CC_{j,m,t+h} + \delta_h \Delta_h \ln X_{j,m,t+h} + \sum_{k=1}^4 [\kappa_{h,j}^1 \Delta \ln P_{j,m,t-k}^{MEX} + \\ & \kappa_{h,j}^2 CC_{j,m,t-k} + \kappa_{h,j}^3 \Delta \ln X_{j,m,t-k}] + \mu_{m,t+h} + \varepsilon_{j,m,t+h} \end{aligned} \quad (10)$$

The instruments for the cost and market channels are the same indices used in the second stage, except that the log difference of average export prices to the Euro Area and to other small open economies with free trade agreements with the United States is used instead to estimate U.S. export price pass-through.¹⁰ This choice aims to use export unit values for goods destined for countries that share a key feature with Mexico, a free trade agreement with the United States. In contrast, to estimate Chinese export price pass-through, the instrument is the average export price to the rest of the world, excluding the United States and Mexico. This choice reflects the fact that, unlike its trade relationship with the United States, Mexico does not have a free trade agreement with China; consequently, export prices may be affected by changes in tariffs and trade policy.

These instruments rely on a shift-share strategy based on exogenous shift-level variation, where changes in export prices to destinations other than Mexico serve as proxy variables capturing export price movements driven by cost and/or markup variations that are exogenous to the Mexican economy.¹¹ Amiti et al. (2019) also use export prices to other destinations as proxy instruments for exogenous foreign cost shifts; in addition, they identify the market channel as arising from strategic complementarities in pricing.¹² The market channel affects the prices of goods consumed domestically, including both imported and domestically produced tradable goods, while the cost channel influences the prices of both tradable and non-tradable goods. We assume that the services sector primarily produces non-tradable goods, whereas manufacturing produces tradable goods.

Finally, we excluded commodity goods from domestic goods databases, because most commodity prices are determined in worldwide markets rather than in domestic markets related to the producer and the buyer country.

¹⁰ The other small open economies are Australia, Canada, Costa Rica, Chile, Peru, and Singapore.

¹¹ See Borusyak et al. (2025).

¹² Strategic complementarities in pricing refer to the positive correlation in competitors' prices; see Amiti et al. (2019) and Albagli et al. (2025).

4 Data

This study examines the impact of U.S. and Chinese inflationary shocks, as measured by export price inflation on Mexico’s inflation. The analysis uses publicly available monthly data on Mexico’s producer and consumer price indices, provided by the National Institute of Statistics and Geography (INEGI, by its Spanish acronym)..

In addition, we compute the export value per unit for each item sold abroad by the United States using publicly available monthly data from the U.S. Census, and the Chinese average value per unit using proprietary data from Trade Data Monitor. The export unit value is used as a measure of the average export price. These datasets are combined with the 2008 input–output and utilization matrices provided by INEGI.

The *Índice Nacional de Precios Productor* (PPI, hereafter) is an economic indicator compiled by INEGI that measures the evolution of prices for a fixed basket of goods and services representative of national production. The PPI covers 600 generic indices, of which 92 correspond to agriculture and livestock, 417 to the industrial sector, and 91 to services. The basket is defined according to the share of each item in national production values. Each generic classification reflects a group of similar products used to construct a price index for that group.¹³

The *Índice Nacional de Precios al Consumidor* (CPI, hereafter), compiled by INEGI, measures price changes in a fixed basket of goods and services representative of household consumption in Mexico. The index follows the Classification of Individual Consumption According to Purpose (COICOP), an international system recommended by the United Nations Statistics Division for classifying consumer expenditures by functional purpose (e.g., food, housing, or transport). The INPC comprises 283 generic indices classified into 36 groups of generic items. These groups are used to define a sector in the CPI estimations.

This work use the input-output and utilization matrices for 2008. These matrices measure the purchases and uses of inputs among industries, as well as the allocation of production to final demand. Mexico uses the North American Industry Classification System (NAICS) to

¹³ For more details, see INEGI (2015) and INEGI (2019).

classify industries. The most disaggregated Mexican input–output matrix is divided into 814 industries using the six-digit NAICS classification, of which 285 are manufacturing and 369 are services. These industries are aggregated into 66 sectors at the three-digit NAICS level, of which 21 are manufacturing and 45 are services.

The FOB export values and quantities used to compute the average U.S. export value per unit are obtained from the USA Trade Online database of the U.S. Census Bureau. The U.S. Census Bureau collects this information from exporters through the Electronic Export Information (EEI), a mandatory declaration for exported goods. The Census Bureau aggregates these data and classifies them using Harmonized System (HS) codes at the 10-digit level. In addition, the U.S. Census Bureau provides concordance tables to translate HS codes into NAICS codes, which are used to construct the average export price index.

The Chinese export value per unit used in this paper is constructed from Chinese export data obtained from the Trade Data Monitor (TDM) database. TDM compiles its data directly from official sources, China Customs Statistics, and harmonizes them under a standardized product classification at the HS 6-digit level. The database covers the value and quantity of trade flows by product and destination, which allows for the computation of unit values—an approximate measure of export or import prices at the product level.

To construct the export price index, the average unit value is computed by dividing monthly export values by quantities for each exported item at the HS classification level. This measure is then normalized by its average value per unit in 2008. To address measurement error in the export data, the database is cleaned by dropping extreme observations: normalized average unit values greater than 10 or lower than 0.1 are excluded and values with a monthly change larger than 50%.¹⁴

An export price index at the 6-digit NAICS level is then constructed as a Laspeyres price index, with 2008 as the base year. This export price index is used to compute the cost and market channel indices described in the previous section.

The paper covers the period from 2008 to 2023 because the earliest input-output and uti-

¹⁴ Amiti et al. (2024) use a similar data-cleaning procedure to analyze average import values per unit for several countries.

lization matrices disaggregated at the six-digit NAICS classification, which is the most disaggregated level available, are from 2008. Since this paper uses shift-share instruments, where the shares (i.e., input and market share weights) are computed using these matrices, the dataset used in this paper starts in 2008.¹⁵

5 Effects of U.S. and Chinese export price changes on Mexican prices

This section presents the estimation of the pass-through of U.S. and Chinese export prices to Mexican PPI and CPI through the cost and market channels. U.S. export prices to the euro area and to small open economies with free trade agreements with the United States,¹⁶ as well as Chinese export prices to destinations other than Mexico and the United States are used as instrumental variables respectively.

5.1 Effects on Producer Prices

The table 1 shows the summary statistics for the U.S. Market and Cost Channel Instruments. The average changes in U.S. export prices increase over time, while the dispersion remains relatively unchanged. Additionally, manufacturing sectors rely more heavily on U.S. inputs than service sectors: on average, 21% of the inputs used by manufacturing sectors in 2008 came from the U.S., compared to 5.8% for service sectors. Furthermore, the average market share of U.S. products is 18.1%.

Similarly, the table 2 presents the summary statistics for the Chinese Market and Cost Channel Instruments. The average changes in Chinese export prices associated with the Cost Channel are larger for manufacturing sectors than for service sectors, reflecting the greater share of Chinese inputs used by manufacturing relative to services.

Table 3 reports the estimated transmission of accumulated changes in U.S. and Chinese export prices to Mexico on manufacturing and services producer price indices through the cost channel. The estimates are obtained using an econometric model similar to local projec-

¹⁵ See Borusyak et al. (2025) for more details on shift-share instruments.

¹⁶ These small open economies are Australia, Canada, Chile, Costa Rica, Peru, and Singapore.

Table 1: Summary Statistics of U.S. Market and Cost Channel Instruments

		Manufacturing Market channel	Manufacturing Cost channel	Services Cost channel
2 quarters	Mean	0.0027	0.0029	0.0010
	Standard deviation	0.0629	0.0535	0.0185
	Interquantile range	0.0198	0.0167	0.0034
4 quarters	Mean	0.0048	0.0055	0.0019
	Standard deviation	0.0672	0.0664	0.0202
	Interquantile range	0.0229	0.0235	0.0042
8 quarters	Mean	0.0091	0.0102	0.0036
	Standard deviation	0.0739	0.0699	0.0246
	Interquantile range	0.0280	0.0302	0.0058
Average weight		0.181	0.213	0.058
Largest weight		0.696	0.703	0.416
Observation counts				
No of NAICS6 products		280		347
No of NAICS3 industries		21		45
No of products-periods shocks		46,964		60,031

Note: The table reports summary statistics for the Cost Channel ($CC_{j,m,t+h}$) and Market Channel ($MC_{j,m,t+h}$) for horizons $h = 2, 4$, and 8 quarters. Additionally, the weights report statistics for the share of U.S. imported inputs ($\sum_i \gamma_{j,i,2008} \omega_{i,2008}^{U.S.}$) and the U.S. market share ($\sigma_{j,2008} \omega_{j,2008}^{U.S.}$), which are used to compute the Cost and Market Channels, respectively.

tion with both OLS and IV methods, controlling for quarter–sector fixed effects and lagged variables. When fixed effects are included, the OLS estimates for the U.S. show a lower pass-through of accumulated cost changes to producer prices, indicating that global shocks and sectoral heterogeneity may influence the dynamics of producer price inflation in Mexico and U.S. export prices. However, this is the only significant estimate, providing evidence that, in general, changes in export input prices are not an important channel for the pass-through of inflation from large trade partners to Mexican PPI.

Table 4 shows how accumulated changes in U.S. export prices to Mexico affect variations in Mexican producer prices through the market channel using different local projection specifications. Similar to the cost channel regressions in Table 3, the inclusion of fixed effects helps control for international inflationary pressures and sectoral heterogeneity that influence both U.S. export prices and domestic prices. Furthermore, the IV local projection estimates indicate a much larger effect of U.S. export price changes on Mexican competitors' prices

Table 2: Summary Statistics of Chinese Market and Cost Channel Instruments

		Manufacturing Market channel	Manufacturing Cost channel	Services Cost channel
2 quarters	Mean	0.0013	0.0009	0.0003
	Standard deviation	0.0114	0.0066	0.0044
	Interquantile range	0.0010	0.0017	0.0007
4 quarters	Mean	0.0022	0.0015	0.0005
	Standard deviation	0.0129	0.0069	0.0047
	Interquantile range	0.0015	0.0024	0.0009
8 quarters	Mean	0.0042	0.0029	0.0010
	Standard deviation	0.0171	0.0082	0.0051
	Interquantile range	0.0027	0.0036	0.0013
Average weight		0.049	0.044	0.015
Largest weight		0.466	0.335	0.144
Observation counts				
No of NAICS6 products		280		347
No of NAICS3 industries		21		45
No of products-period shocks		44,816		60,015

Note: The table reports summary statistics for the Cost Channel ($CC_{j,m,t+h}$) and Market Channel ($MC_{j,m,t+h}$) for horizons $h = 2, 4$, and 8 quarters. Additionally, the weights report statistics for the share of Chinese imported inputs ($\sum_i \gamma_{j,i,2008} \omega_{i,2008}^{China}$) and the Chinese market share ($\sigma_{j,2008} \omega_{j,2008}^{China}$), which are used to compute the Cost and Market Channels, respectively.

than the OLS estimates, while the IV estimation with lags indicates a significant pass-through of U.S. inflation to Mexican producer prices after one year.

In contrast, the results for China show the opposite pattern, as the IV estimates are less significant than the OLS estimates. Despite this, the IV estimation with lags provides some statistical evidence, at the 90% confidence level, of a pass-through of Chinese export prices through the market channel.

Figure 1 shows the impulse response functions estimated using the IV panel model, which includes fixed effects and lagged variables. Accumulated changes in U.S. export prices affect Mexican manufacturing PPI through the market channel persistently and significantly from two quarters up to almost two years, with the maximum pass-through occurring after one and a half years before declining. The estimation of the market channel reveals the absence of a previous trend, suggesting that the specification provides credible evidence of capturing the relative effects of export price competition.

Table 3: Estimates of the pass-through of U.S. and Chinese export input prices to Manufacturing and Services PPI through the Cost Channel (α_h)

USA						
	OLS			IV		
	No FE no lags (1)	FE no lags (2)	FE 4 lags (3)	No FE no lags (4)	FE no lags (5)	FE 4 lags (6)
t+4	0.048** (0.021)	0.010 (0.022)	0.010 (0.023)	0.037 (0.025)	0.031 (0.026)	0.032 (0.026)
N° obs.	87,816	85,417	82,517	87,559	85,160	82,009
1° stage F				997.01	712.37	150.35
t+8	0.068** (0.028)	-0.003 (0.027)	0.003 (0.032)	0.044 (0.035)	0.049 (0.033)	0.054 (0.036)
N° obs.	81,197	78,978	76,089	80,963	78,744	75,636
1° stage F				1872.13	1231.75	232.47
t+12	0.098** (0.036)	0.004 (0.037)	0.011 (0.040)	0.035 (0.043)	0.069 (0.046)	0.058 (0.047)
N° obs.	74,593	72,554	69,767	74,372	72,333	69,376
1° stage F				3218.94	2333.18	469.75
China						
	OLS			IV		
	No FE no lags (1)	FE no lags (2)	FE 4 lags (3)	No FE no lags (4)	FE no lags (5)	FE 4 lags (6)
t+4	-0.050 (0.067)	0.064 (0.096)	0.115 (0.112)	-0.164 (0.151)	0.488 (0.421)	0.652 (0.501)
N° obs.	75,373	73,067	68,007	75,107	72,801	67,837
1° stage F				3173.14	2146.49	474.97
t+8	0.026 (0.100)	0.168 (0.165)	0.146 (0.176)	-0.155 (0.175)	0.391 (0.441)	0.245 (0.466)
N° obs.	68,971	66,856	62,116	68,749	66,634	61,990
1° stage F				5949.13	4130.39	791.82
t+12	0.100 (0.086)	0.138 (0.144)	0.163 (0.178)	-0.113 (0.188)	0.049 (0.484)	0.253 (0.608)
N° obs.	62,777	60,859	56,281	62,570	60,651	56,164
1° stage F				7455.30	4391.68	643.49

Note: The table reports estimates of the passthrough from U.S. export prices to Mexican Producer Price indices through the cost channel. The fixed effects combine month and industry (NAICS 3-digit). The IV is estimated using an instrument for the cost channel constructed from the average U.S. export prices to the Eurozone, Canada, Chile, Australia, Costa Rica, Peru, and Singapore, and the average Chinese export prices to the rest of the world, except Mexico and United States. The lags are the quarterly log difference of the Mexican price indices and cost channel associated to the price of U.S. and Chinese exports to Mexico, and the log difference of the weighted U.S. Dollar–Mexican Peso and Chinese Renminbi–Mexican Peso exchange rates. Standard errors are clustered at the product level. Coefficients with * and ** are significant at 10% and 5%.

Table 4: Estimates of the pass-through of U.S. and Chinese export input prices to Manufacturing PPI through the Market Channel (β_h)

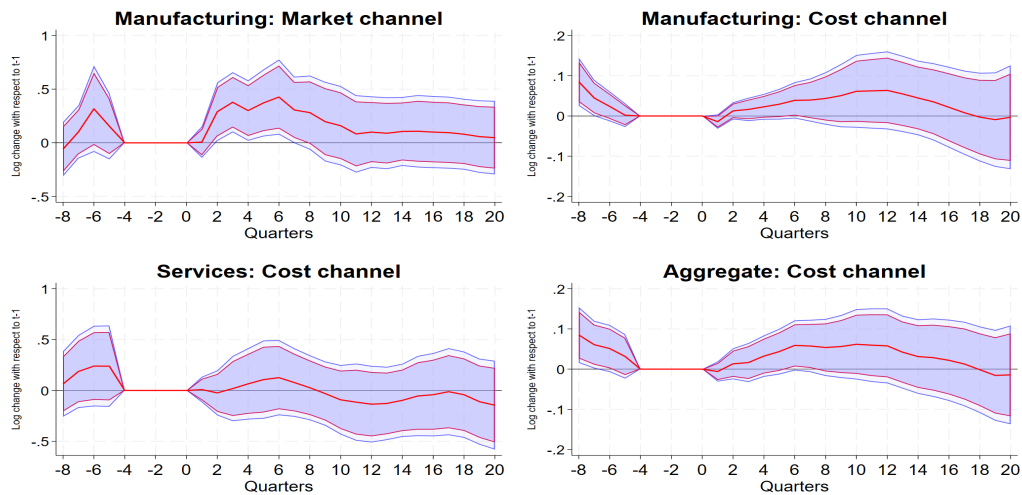
USA						
	OLS			IV		
	No FE no lags (1)	FE no lags (2)	FE 4 lags (3)	No FE no lags (4)	FE no lags (5)	FE 4 lags (6)
t+4	0.148** (0.027)	0.081** (0.018)	0.066** (0.017)	1.005** (0.213)	0.463** (0.157)	0.301** (0.144)
N° obs.	56,257	56,090	54,385	56,251	56,084	54,371
1° stage F				389.10	272.36	50.29
t+8	0.193** (0.038)	0.103** (0.028)	0.100** (0.031)	0.834** (0.226)	0.329* (0.169)	0.282 (0.176)
N° obs.	52,057	51,902	50,191	52,051	51,896	50,177
1° stage F				617.64	384.79	66.17
t+12	0.145** (0.041)	0.086** (0.036)	0.097** (0.040)	0.307 (0.190)	0.168 (0.163)	0.100 (0.170)
N° obs.	47,858	47,715	46,071	47,854	47,711	46,068
1° stage F				979.40	713.16	146.33
China						
	OLS			IV		
	No FE no lags (1)	FE no lags (2)	FE 4 lags (3)	No FE no lags (4)	FE no lags (5)	FE 4 lags (6)
t+4	0.081** (0.035)	0.052* (0.030)	0.057 (0.037)	0.057 (0.122)	0.105 (0.126)	0.230* (0.137)
N° obs.	47,996	47,838	43,698	47,777	47,619	43,593
1° stage F				1610.84	984.12	169.19
t+8	0.131** (0.057)	0.131** (0.053)	0.165** (0.066)	0.222 (0.173)	0.213 (0.169)	0.345* (0.193)
N° obs.	44,000	43,855	39,965	43,811	43,666	39,894
1° stage F				2665.61	1675.11	297.15
t+12	0.200** (0.075)	0.208** (0.076)	0.254** (0.090)	0.392 (0.278)	0.217 (0.216)	0.452* (0.265)
N° obs.	40,098	39,965	36,185	39,916	39,783	36,112
1° stage F				2521.10	1554.02	271.27

Note: The table reports estimates of the effect of U.S. export prices to Mexican Producer Price indices through the market channel. The fixed effects combine month and industry (NAICS 3-digit). The IV is estimated using an instrument for the market channel constructed from the average U.S. export prices to the Eurozone, Canada, Chile, Australia, Costa Rica, Peru, and Singapore, and the average Chinese export prices to the rest of the world, except Mexico and United States. The lags are the quarterly log difference of the Mexican price indices and cost channel associated to the price of U.S. and Chinese exports to Mexico, and the log difference of the weighted U.S. Dollar–Mexican Peso and Chinese Renminbi–Mexican Peso exchange rates. Standard errors are clustered at the product level. Coefficients with * and ** are significant at 10% and 5%.

However, there is more limited evidence of an effect of changes in U.S. export input prices on manufacturing PPI through the cost channel, with some evidence of pass-through after one and a half years at the 90% significance level. Additionally, there is no significant effect of the cost channel on service producer prices.

Overall, these results suggest that U.S. and Chinese export prices affect Mexican producer prices primarily through the market channel, with little evidence of pass-through from U.S. export input prices.

Figure 1: Response of Mexican Manufacturing and Services Producer Price indices to U.S. Export Price Changes through the Cost and Market Channel

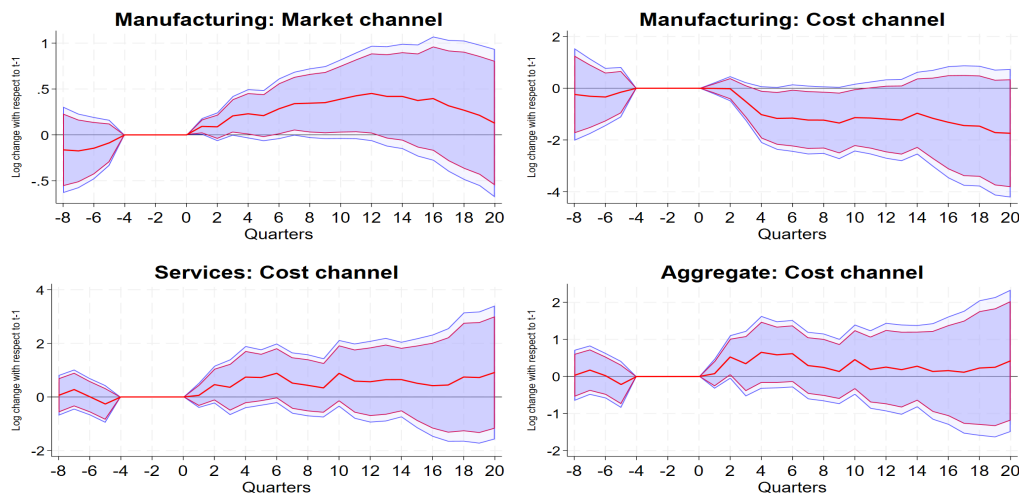


Note: The figure illustrates the impulse response functions (IRFs) of accumulated percentage changes in Producer Price indices to the accumulated percentage changes in the Cost and Market Channel indices, which are related to variations in U.S. export prices to Mexico. These IRFs are estimated using a panel IV local projection model, with instruments for the Cost and Market Channels constructed from the average U.S. export prices to the Eurozone, Canada, Chile, Australia, Costa Rica, Peru, and Singapore. The dark blue and light blue areas represent the 90% and 95% confidence intervals, respectively, clustered at the product level.

Figure 2 shows the effect of changes in Chinese export prices on Mexican producer prices through the cost and market channels, revealing there is some evidence the market channel has a significant effect on producer prices after three and seven quarters. This effect differs from the effect of the market channel associated with U.S. export prices, which lasts significantly for almost two years, as shown in Figure 1.

Additionally, there is no evidence of positive pass-through from changes in Chinese exported input prices to manufacturing and services producer prices through the cost channel.

Figure 2: Response of Mexican Manufacturing and Services Producer Price indices to Chinese Export Price Changes through the Cost and Market Channel

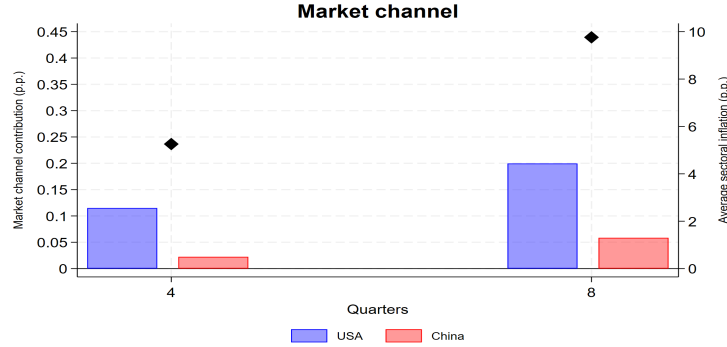


Note: The figure illustrates the impulse response functions (IRFs) of accumulated percentage changes in Producer Price indices to the accumulated percentage changes in the Cost and Market Channel indices, which are related to variations in Chinese export prices to Mexico. These IRFs are estimated using a panel IV local projection model, with instruments for the Cost and Market Channels constructed from the average Chinese export prices to the rest of the world, except Mexico and United States. The dark blue and light blue areas represent the 90% and 95% confidence intervals, respectively, clustered at the product level.

Figure 3 compares the average contribution of changes in U.S. and Chinese export prices to the Producer Price Index through the market channel. The contribution of U.S. export prices to Mexican producer prices is larger than that of Chinese export prices. However, these contributions are relatively limited, as average changes in U.S. export prices contribute around 0.1 percentage points (p.p.) after one year and 0.2 p.p. after two years, while average producer price changes between 2008 and 2023 were approximately 5 p.p. after one year and 10 p.p. after two years.

The increase in Mexico's manufacturing producer price indices associated with rises in U.S. and Chinese export prices through the market and, in some cases, cost channels is heterogeneous across sectors. The effect of the U.S. market channel is driven by the response

Figure 3: Contribution of the Average Change in Export Prices through the Market Channel to the Average Change in Mexican Manufacturing Producer Prices between 2008 and 2023



Note: The bars show the average contribution of the market channel ($\beta_h E_h(MC_{j,m,t+h}) \times 100$), measured in percentage points (p.p.) on the left-hand-side y-axis, while the diamonds represent the average changes in Manufacturing Producer Prices ($E_h(\Delta_h \ln P_{j,m,t+h}^{MEX}) \times 100$), measured in percentage points on the right-hand-side y-axis.

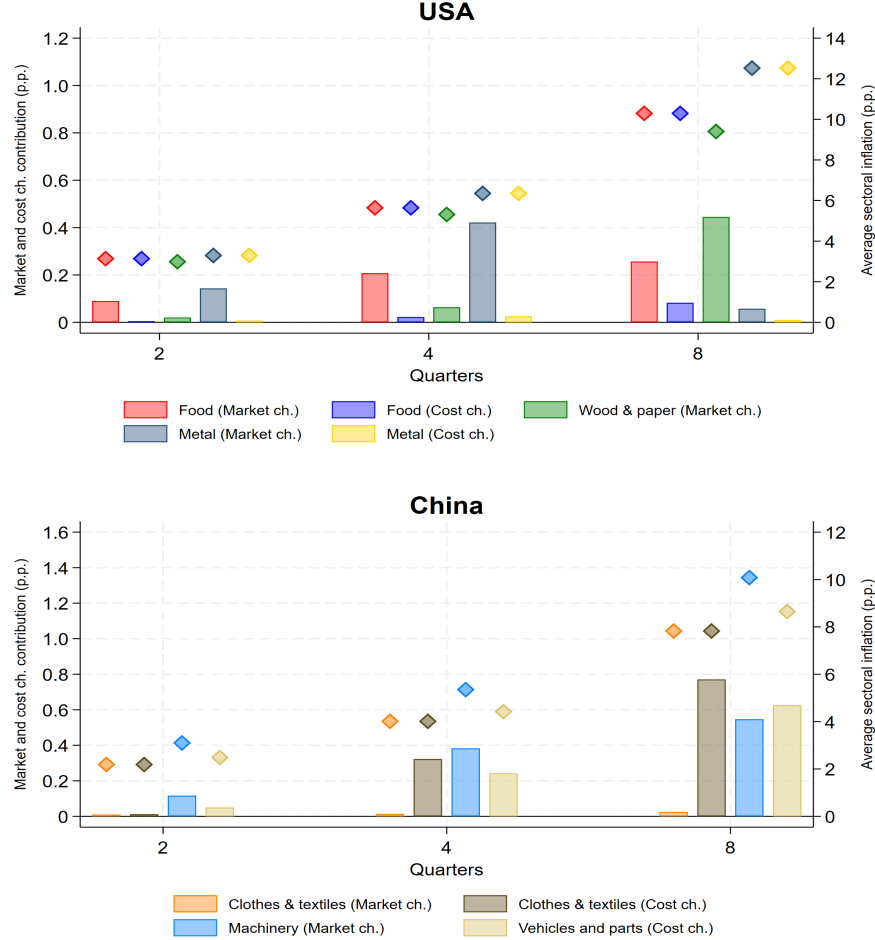
of Mexican food and beverage products, wood and paper products, and metals, as shown in Figure 4. The figure also reveals a smaller effect of U.S. export input prices on food and metals.

Additionally, the Chinese market channel affects the prices of Mexican machinery and, to a lesser extent, clothing and textiles, while changes in Chinese input prices affect price variations in clothing and textiles, as well as vehicles and parts.

5.2 Effects on Consumer Prices

CPI are different than PPI, because they include only final goods for consumption, as well as imported goods consumed by households. Table 5 presents the estimation of the cost channel of U.S. and Chinese export price inputs on Mexican CPI for manufacturing and services using different specifications with OLS and IV estimations, along with sector-specific fixed effects and lagged variables. Although OLS estimations reveal a significant correlation between the Chinese cost channel and CPI between two and three years, this relationship becomes mostly insignificant with IV estimations. This suggests that Chinese export prices do not significantly affect Mexican consumer prices through the cost channel. Similarly, there is

Figure 4: Contribution of the Average Change in Export Prices through the Market and Cost Channels at Sectoral level to the Average Change in Mexican Manufacturing Producer Prices between 2008 and 2023



Note: The bars show the average contribution of the market and cost channel for statistical significant coefficients ($\beta_h E_h(MC_{j,m,t+h}) \times 100$) on sectoral PPI, measured in percentage points (p.p.) on the left-hand-side y-axis, while the diamonds represent the average changes in Manufacturing Producer Prices ($E_h(\Delta_h \ln P_{j,m,t+h}^{MEX}) \times 100$), measured in percentage points on the right-hand-side y-axis. The three-digit NAICS codes for the sectors are as follows: food and beverages (311 and 312), wood and paper (321, 322, and 323), metals (331 and 332), clothing and textiles (313, 314, and 315), machinery (333), and vehicles and parts (336).

no evidence of pass-through of U.S. export input price on Mexican consumer prices.

However, there is evidence of pass-through from Chinese export prices to Mexican CPI through the market channel. Table 6 presents these market-channel estimates across different specifications, showing pass-through of Chinese export prices in the IV estimation with lags.

Table 5: Estimates of the pass-through of U.S. and Chinese export input prices to Manufacturing and Services CPI through the Cost Channel (α_h)

USA						
	OLS			IV		
	No FE no lags (1)	FE no lags (2)	FE 4 lags (3)	No FE no lags (4)	FE no lags (5)	FE 4 lags (6)
t+4	0.014 (0.042)	0.029 (0.041)	0.035 (0.041)	-0.079 (0.076)	0.010 (0.068)	0.006 (0.066)
N° obs.	30,488	29,692	28,171	30,417	29,620	28,057
1° stage F				4468.65	3601.02	807.70
t+8	0.102 (0.074)	0.116 (0.074)	0.129* (0.077)	0.008 (0.136)	0.159 (0.139)	0.039 (0.141)
N° obs.	28,390	27,650	26,190	28,322	27,581	26,086
1° stage F				6016.58	5329.81	1209.44
t+12	0.157* (0.092)	0.154* (0.089)	0.181* (0.093)	0.159 (0.169)	0.369* (0.207)	0.089 (0.142)
N° obs.	26,309	25,621	24,234	26,249	25,559	24,134
1° stage F				6761.69	5837.69	1212.20
China						
	OLS			IV		
	No FE no lags (1)	FE no lags (2)	FE 4 lags (3)	No FE no lags (4)	FE no lags (5)	FE 4 lags (6)
t+4	0.404** (0.204)	0.240 (0.151)	0.304 (0.203)	-0.529 (0.523)	-0.109 (0.695)	0.064 (0.669)
N° obs.	25,937	25,242	22,473	25,933	25,242	22,428
1° stage F				1233.63	654.29	111.59
t+8	0.506* (0.262)	0.342* (0.187)	0.727** (0.248)	-1.801* (1.084)	0.021 (1.286)	0.741 (1.019)
N° obs.	24,006	23,362	20,711	24,002	23,362	20,672
1° stage F				1483.61	774.16	137.57
t+12	1.318** (0.435)	1.006** (0.467)	1.467** (0.547)	-3.258 (2.185)	1.635 (2.344)	5.452* (3.282)
N° obs.	22,081	21,485	18,971	22,077	21,485	18,939
1° stage F				1366.23	807.59	56.52

Note: The table reports estimates of the passthrough from U.S. export prices to Mexican Consumer Price indices through the cost channel. The fixed effects combine month and industry (Group of Generic items). The IV is estimated using an instrument for the cost channel constructed from the average U.S. export prices to the Eurozone, Canada, Chile, Australia, Costa Rica, Peru, and Singapore, and the average Chinese export prices to the rest of the world, except Mexico and United States. The lags are the quarterly log difference of the Mexican price indices and cost channel associated to the price of U.S. and Chinese exports to Mexico, and the log difference of the weighted U.S. Dollar–Mexican Peso and Chinese Renminbi–Mexican Peso exchange rates. Standard errors are clustered at the product level. Coefficients with * and ** are significant at 10% and 5%.

However, the other OLS and IV estimations do not show this pattern, suggesting that global shocks and pre-trends generate an attenuation bias. Additionally, there is no evidence of pass-through from U.S. export prices to Mexican consumer prices through the market channel.

Despite the fact that U.S. export prices have a significant effect on Mexican PPI through the market channel, this is not true for Mexican CPI in general, where the market and cost channels associated with U.S. prices do not generate significant effects on consumer price indexes, as shown in Figure 5. However, Figure 6 shows that Chinese export prices significantly and persistently affect Mexican CPI through the market channel, while there is no evidence of pass-through from Chinese export input prices or cost channel to CPI variation.

These differences reveal that the economic relationship between trade partners affects the nature of the pass-through of export prices. In the case of Mexico, an open economy highly integrated into U.S. value chains, U.S. inflation affects Mexican input and producer prices but has no significant effect on consumer prices, providing some evidence that the effect operates mainly through the market channel on input goods. In contrast, China, one of the largest exporting economies in the world, influences consumer prices through exports of final goods.

The market channel related to Chinese export prices explains, on average, 0.2 p.p. of annual CPI inflation between 2008 and 2023, while average inflation during this period was 5 p.p., as shown in Figure 7. In addition, it explains 0.6 p.p. of the average accumulated inflation over two years, while average accumulated inflation over the same horizon was 9 p.p., showing the increasing share of Chinese export inflation explaining national inflation over time.

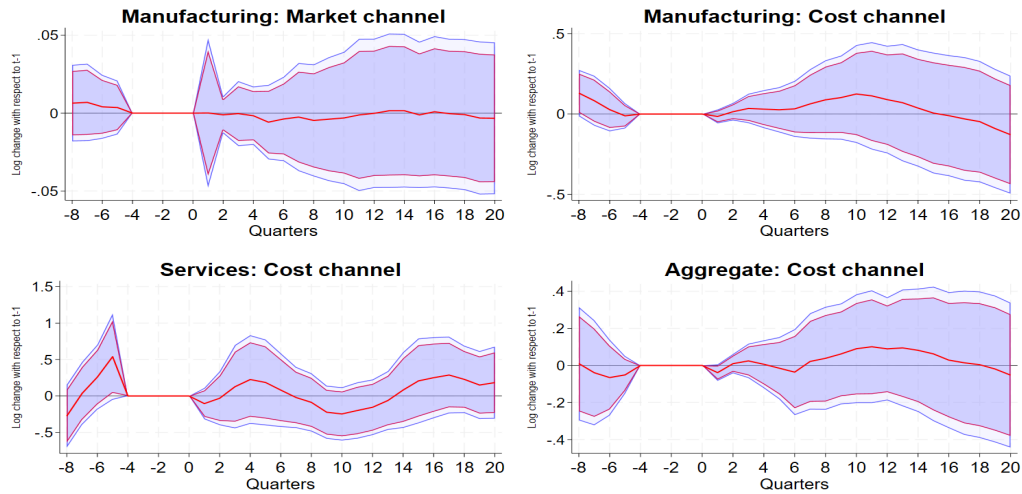
Finally, Figure 8 shows that the transmission of Chinese export prices to Mexican consumer prices through the market channel is explained mainly by the effect on durable goods. Although the overall estimates for U.S. export prices are not significant, there is evidence of transmission through input prices in the food and beverages and restaurants and hotels sectors, as well as through the market channel in the medicines and health care sectors. Additionally, Chinese export input prices have some effects on inflation in transportation and communication services.

Table 6: Estimates of the pass-through of U.S. and Chinese export input prices to Manufacturing CPI through the Market Channel (β_h)

USA						
	OLS			IV		
	No FE no lags (1)	FE no lags (2)	FE 4 lags (3)	No FE no lags (4)	FE no lags (5)	FE 4 lags (6)
t+4	0.004 (0.008)	0.001 (0.007)	0.002 (0.007)	0.017 (0.017)	0.004 (0.013)	-0.002 (0.010)
N° obs.	21,216	20,452	19,125	21,145	20,380	19,011
1° stage F				3105.33	2546.58	563.42
t+8	0.000 (0.021)	0.001 (0.014)	0.000 (0.013)	0.012 (0.025)	0.008 (0.021)	-0.005 (0.018)
N° obs.	19,742	19,034	17,770	19,674	18,965	17,666
1° stage F				4439.12	3789.34	1045.86
t+12	-0.007 (0.028)	0.003 (0.018)	0.003 (0.018)	0.015 (0.029)	0.011 (0.023)	0.000 (0.024)
N° obs.	18,285	17,630	16,444	18,225	17,568	16,344
1° stage F				4696.96	4161.84	971.63
China						
	OLS			IV		
	No FE no lags (1)	FE no lags (2)	FE 4 lags (3)	No FE no lags (4)	FE no lags (5)	FE 4 lags (6)
t+4	0.019 (0.014)	0.017 (0.011)	0.038* (0.021)	0.069 (0.086)	0.146** (0.054)	0.138** (0.038)
N° obs.	17,427	16,778	14,122	17,423	16,788	14,077
1° stage F				834.61	397.26	64.31
t+8	0.029 (0.029)	0.018 (0.022)	0.052** (0.019)	0.109 (0.164)	0.169 (0.124)	0.227** (0.078)
N° obs.	16,130	15,532	12,992	16,125	15,551	12,953
1° stage F				934.39	440.74	68.08
t+12	0.051 (0.059)	0.037 (0.049)	0.072 (0.045)	0.187 (0.196)	0.195 (0.168)	0.224** (0.101)
N° obs.	14,821	14,272	11,874	14,822	14,287	11,842
1° stage F				777.18	428.65	15.08

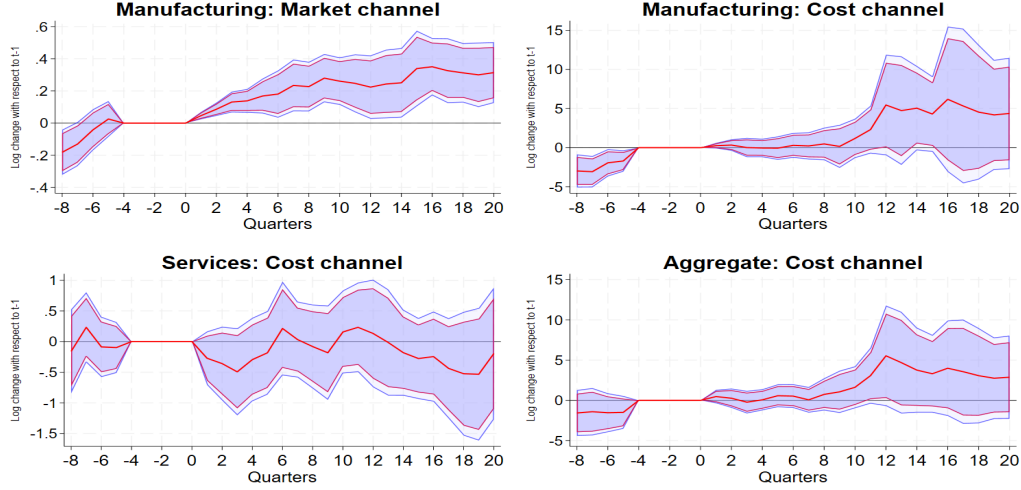
Note: The table reports estimates of the effect of U.S. export prices to Mexican Consumer Price indices through the market channel. The fixed effects combine month and industry (Group of Generic items). The IV is estimated using an instrument for the market channel constructed from the average U.S. export prices to the Eurozone, Canada, Chile, Australia, Costa Rica, Peru, and Singapore, and the average Chinese export prices to the rest of the world, except Mexico and United States. The lags are the quarterly log difference of the Mexican price indices and cost channel associated to the price of U.S. and Chinese exports to Mexico, and the log difference of the weighted U.S. Dollar–Mexican Peso and Chinese Renminbi–Mexican Peso exchange rates. Standard errors are clustered at the product level. Coefficients with * and ** are significant at 10% and 5%.

Figure 5: Response of Mexican Manufacturing and Services Consumer Price indices to U.S. Export Price Changes through the Cost and Market Channel



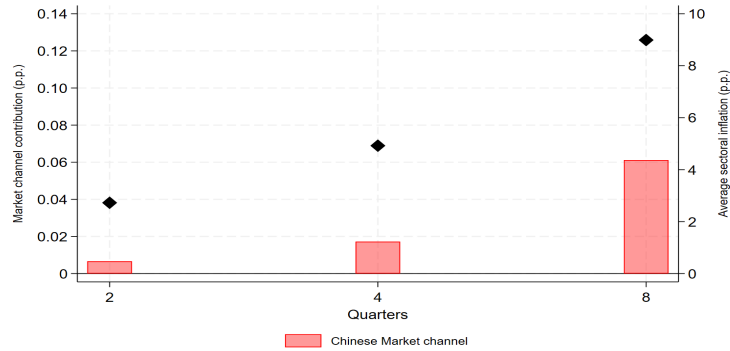
Note: The figure illustrates the impulse response functions (IRFs) of accumulated percentage changes in Consumer Price indices to the accumulated percentage changes in the Cost and Market Channel indices, which are related to variations in U.S. export prices to Mexico. These IRFs are estimated using a panel IV local projection model, with instruments for the Cost and Market Channels constructed from the average U.S. export prices to the Eurozone, Canada, Chile, Australia, Costa Rica, Peru, and Singapore. The dark blue and light blue areas represent the 90% and 95% confidence intervals, respectively, clustered at the product level.

Figure 6: Response of Mexican Manufacturing and Services Consumer Price indices to Chinese Export Price Changes through the Cost and Market Channel



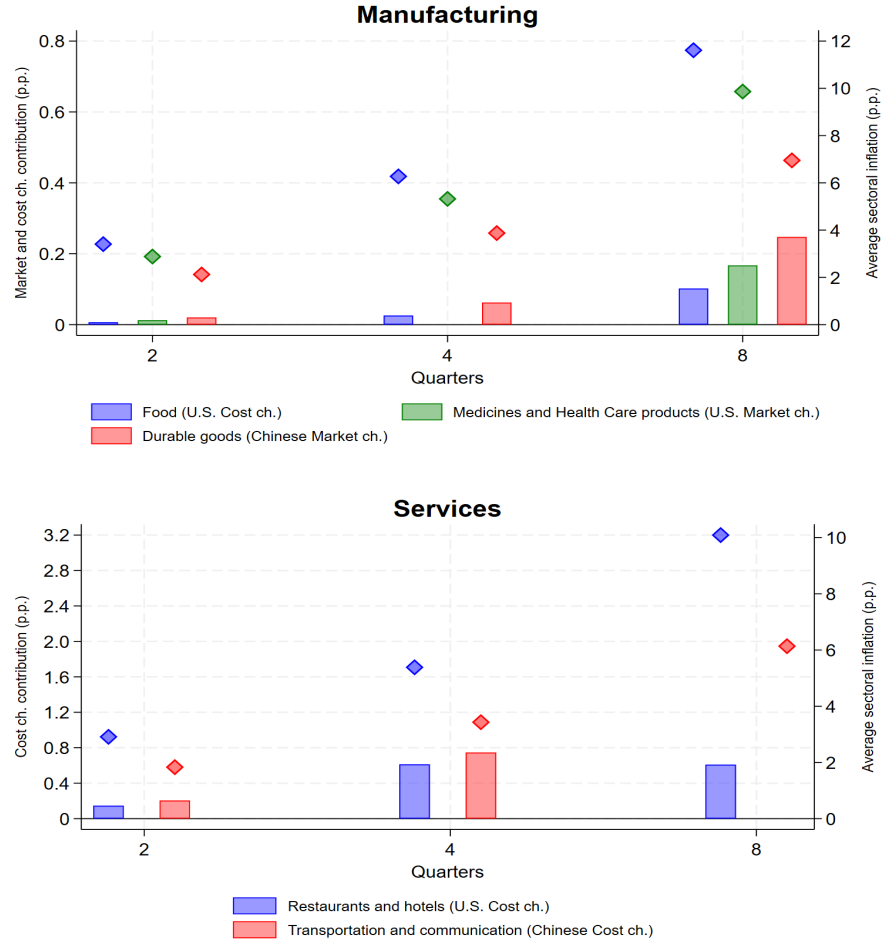
Note: The figure illustrates the impulse response functions (IRFs) of accumulated percentage changes in Producer Price indices to the accumulated percentage changes in the Cost and Market Channel indices, which are related to variations in Chinese export prices to Mexico. These IRFs are estimated using a panel IV local projection model, with instruments for the Cost and Market Channels constructed from the average Chinese export prices to the rest of the world, except Mexico and United States. The dark blue and light blue areas represent the 90% and 95% confidence intervals, respectively, clustered at the product level.

Figure 7: Contribution of the Average Change in Chinese Export Prices through the Market Channel to the Average Change in Mexican Manufacturing Consumer Prices between 2008 and 2023



Note: The bars show the average contribution of the market channel ($\beta_h E_h(MC_{j,m,t+h}) \times 100$), measured in percentage points (p.p.) on the left-hand-side y-axis, while the diamonds represent the average changes in Manufacturing Producer Prices ($E_h(\Delta_h \ln P_{j,m,t+h}^{MEX}) \times 100$), measured in percentage points on the right-hand-side y-axis.

Figure 8: Contribution of the Average Change in Export Prices through the Market and Cost Channels at Sectoral level to the Average Change in Mexican Consumer Prices between 2008 and 2023



Note: The bars show the average contribution of the market and cost channel for statistical significant coefficients ($\beta_h E_h(MC_{j,m,t+h}) \times 100$) on sectoral CPI, measured in percentage points (p.p.) on the left-hand-side y-axis, while the diamonds represent the average changes in Manufacturing Producer Prices ($E_h(\Delta_h \ln P_{j,m,t+h}^{MEX}) \times 100$), measured in percentage points on the right-hand-side y-axis.

6 Conclusions

This paper studies the effects of U.S. and Chinese export price changes on Mexican PPI and CPI by analyzing two pass-through channels: the cost channel captures the effect of changes in the prices of imported inputs used in production, while the market channel reflects the impact of foreign prices on domestic prices in sectors where imported goods compete with domestically produced goods, as well as the direct effect of imported final goods on consumer prices. We use monthly panel data from January 2008 to December 2023.

The main finding is that the market channel is the most important mechanism through which export prices are transmitted to Mexican PPI and CPI, with little evidence of pass-through from foreign input prices to either PPI or CPI. However, the market channel associated with U.S. export prices generates inflationary effects on Mexican PPI for up to two years, explaining 0.1 percentage points out of the average annual PPI inflation rate of 5 percentage points, while having no significant impact on CPI.

By contrast, changes in Chinese export prices affect both Mexican PPI and CPI through the same channel. Although the impact on PPI inflation is smaller than that of the U.S., the effect on CPI inflation is significant and more persistent, explaining 0.2 percentage points out of the average annual CPI inflation rate of 5 percentage points. This greater sensitivity of CPI to Chinese export inflation through the market channel indicates that the mechanical effect on CPI plays an important role in the Chinese pass-through.

The impact of U.S. export prices on PPI inflation is primarily driven by the food and beverages, wood and paper, and metals sectors, while the effect of Chinese export prices on CPI inflation is mainly driven by durable goods sectors.

There are important open questions regarding why the cost channel does not have a significant effect on inflation and why the market channel is more important. Moreover, these results have important implications for price stabilization and monetary policy during periods of elevated international inflation, especially when it originates in large economies. These questions could be explored further in future research.

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A Appendix. The Open Economy Model

This appendix presents a structural model that provides microfoundations for the reduced-form equations used in the main text. The derivations show how foreign prices affect domestic prices through both cost and market channels, which correspond to the empirical specification.

A.1 Households

Identical households aggregate the J varieties demanded into a single basket using a CES aggregator:

$$C_t = \left[\sum_J c_{j,t}^{\frac{\Psi-1}{\Psi}} \right]^{\frac{\Psi}{1-\Psi}} \quad (11)$$

Ψ is the elasticity of substitution across varieties (or products) consumed, $c_{j,t}$ is the consumption of the variety j and C_t is aggregate consumption. The household minimizes the cost of the consumption basket, and the associated FOC yields the demand for each variety (or product):

$$c_{j,t} = \left(\frac{p_{j,t}}{P_t} \right)^{-\Psi} C_t \text{ where } P_t = \left[\sum_J p_{j,t}^{1-\Psi} \right]^{\frac{1}{1-\Psi}} \quad (12)$$

A.2 Wholesalers and retailers

These competitive firms purchase imported and domestically produced tradable varieties to bundle the two products. Retailers sell these bundles to households, while wholesalers sell them as inputs to domestic firms. Wholesalers and retailers combine domestic and imported varieties using a CES aggregator:

$$y_{j,t} = \left[\chi^j (I_{j,t})^{\frac{\eta_j-1}{\eta_j}} + (1-\chi^j) (d_{j,t})^{\frac{\eta_j-1}{\eta_j}} \right]^{\frac{\eta_j}{1-\eta_j}} \quad (13)$$

η_j is the elasticity of substitution between imported and domestic goods of variety j , χ^j is the weight of imported goods, $I_{j,t}$ denotes imported goods, and $d_{j,t}$ denotes domestically produced tradable goods purchased. The FOC of the profit-maximization problem provides the demand for domestic goods:

$$d_{j,t} = \frac{\chi^j}{1-\chi^j} \left(\frac{p_{j,t}^I}{p_{j,t}^H} \right)^{\eta_j} I_{j,t} \quad (14)$$

where $p_{j,t}^I$ is the price of imported goods and $p_{j,t}^H$ is the price of domestic goods. The price of each bundle is given by:

$$p_{j,t} = [\chi^j (p_{j,t}^I)^{1-\eta_j} + (1-\chi^j) (p_{j,t}^H)^{1-\eta_j}]^{\frac{1}{1-\eta_j}} \quad (15)$$

Note that the parameter ω_j is related to the effective import share χ^j implied by the CES aggregation in Equation 15.

A.3 External sector

The price of imports in domestic currency, $p_{j,t}^I = \tau_{j,t} X_t Pexp_{j,t}$, is determined by trade or transport costs $\tau_{j,t}$, the exchange rate X_t , and the export price in foreign currency $Pexp_{j,t}$. Foreign firms sell exported goods according to the following supply function:

$$I_{j,t} = \Xi_j Pexp_{j,t}^{\lambda_j} \quad (16)$$

A.4 Tradable good producers

Domestic producers of tradable goods hire workers (l_t^j) and purchase several input bundles ($y_{i,t}$) from wholesalers to produce using a production function with returns of scale equal to θ_j .

$$d_{j,t} = A_t^j (l_t^j)^{v_j} \prod_i y_{i,t}^{\alpha_j \rho_{j,i}} \text{ where } v_j + \sum_j \alpha_j \rho_{j,i} = \theta_j \quad (17)$$

v_j is the technical coefficient for labor, and $\alpha_j \rho_{j,i}$ is the technical coefficient for the input bundle i . The minimum cost function for these producers is:

$$CT_j = B_t^j w_t^{\frac{v_j}{\theta_j}} \prod_i p_{i,t}^{\frac{\alpha_j \rho_{j,i}}{\theta_j}} \quad (18)$$

where $B_t^j = \left(\frac{\theta_j (v_j^{-v_j} \prod_i (\alpha_j \rho_{j,i})^{-\alpha_j \rho_{j,i}})}{A_t^j} \right)^{\frac{1}{\theta_j}}$, as well as $p_{i,t}$ and w_t is the price of input i and wage per worker, respectively. Tradable good producers set prices that maximize their profits, taking into account the demand function (equation 14) and the foreign supply function (equation 20). The price that maximizes their profits is:

$$p_{j,t}^H = \left(\frac{\eta_j}{\eta_j - 1} \frac{B_t^j}{\theta_j} \right)^{\frac{\theta_j}{\theta_j - \eta_j(1-\theta_j)}} \left(\frac{\chi^j}{1-\chi^j} \Xi_j \right)^{\frac{1-\theta_j}{\theta_j - \eta_j(1-\theta_j)}} w_t^{\kappa_j} \tau_{j,t}^{\delta_j} X_t^{\delta_j} Pexp_{j,t}^{\beta_j} \prod_i p_{i,t}^{\frac{\alpha_j \rho_{j,i}}{\theta_j - \eta_j(1-\theta_j)}} \quad (19)$$

From this equation, the following are composite parameters:

$$\beta_j = \frac{(\lambda_j + \eta_j)(1 - \theta_j)}{\theta_j - \eta_j(1 - \theta_j)}$$

$$\delta_j = \frac{\eta_j(1 - \theta_j)}{\theta_j - \eta_j(1 - \theta_j)}$$

$$\text{and } \omega_{j,i} \approx \frac{\chi^j \rho_{j,i}}{\theta_j - \eta_j(1 - \theta_j)}$$

Equation 19 can be expressed in reduced form as a function of foreign prices, input bundle prices, and wages, corresponding to the market, cost, and wage channels defined in the main text. Substituting the imported price expression into the pricing rule and combining with the CES aggregation yields a reduced-form expression in which foreign export prices enter both directly and through input costs, as shown in Equation 5 of the main text. Note that foreign export prices affect domestic prices both through their impact on input costs and through their role as competitors in domestic markets, which are captured by the cost and market channels in the empirical specification.

A.5 Non tradable good producers

Similarly to tradable good producers, non-tradable good producers have the following production function:

$$c_{j,t} = A_t^j (l_t^j)^{v_j} \prod_i y_{i,t}^{\alpha_j \rho_{j,i}} \text{ where } v_j + \sum_j \alpha_j \rho_{j,i} = \theta_j < 1 \quad (20)$$

Non-tradable good producers sell their varieties (products) to households. They set prices that maximize their profits, taking into account household demand for varieties (equation 12). The price that maximizes profits is:

$$p_{j,t}^{nt} = \left(\frac{\Psi}{\Psi - 1} \frac{B_{j,t}}{\theta_j} \right)^{\frac{\theta_j}{\theta_j - \Psi(1 - \theta_j)}} w_t^{\frac{v_j}{\theta_j - \Psi(1 - \theta_j)}} (P_t^\Psi C_t)^{\frac{1 - \theta_j}{\theta_j - \Psi(1 - \theta_j)}} \prod_i p_{i,t}^{\frac{\alpha_j \rho_{j,i}}{\theta_j - \Psi(1 - \theta_j)}} \quad (21)$$