Macro Vision

May 21, 2026

Tracking the pass-through of oil price increases to inflation

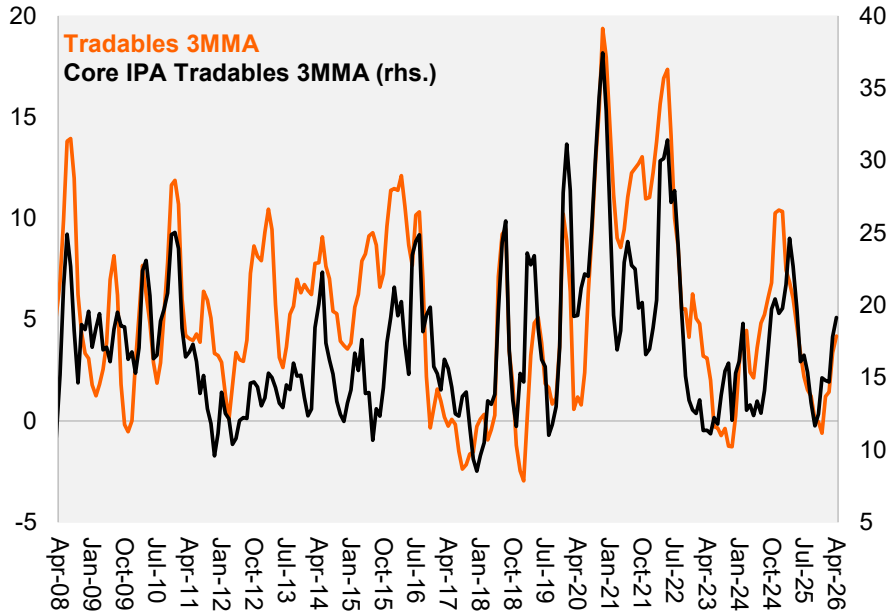
- Rising oil prices affect inflation through both direct and indirect channels. The direct channel operates via fuel and energy prices, while the indirect channel works through intermediate input costs and transportation. The former typically materializes quickly in price indices, whereas the latter is more diffuse, operates with lags, and is harder to quantify.
- To measure the indirect channel, we combine two approaches. The first is an econometric model, in the spirit of the BCB (Banco Central do Brasil) box from September 2018, which estimates a Phillips curve for market-set prices with state-dependent coefficients. The second relies on Supply and Use Tables (SUT) to map the use of oil derivatives along production chains and derive indirect oil intensity weights for IPCA components.
- While the econometric model captures the historically observed pass-through, the SUT-based approach provides an upper-bound estimate under the assumption of full pass-through. The econometric model suggests that a 10% oil price shock raises inflation in market-set prices by around 40 basis points (bps), translating into roughly 30 bps for headline IPCA. The SUT approach, in contrast, points to a higher upper bound of approximately 70 bps for market-set prices and 50 bps for headline IPCA. Adding the direct effect of about 20 bps (per 10% increase in oil prices), the total impact ranges between 50 bps and 70 bps.
- Our baseline scenario (IPCA at 5.2% in 2026) assumes an average oil price of USD 85/bbl and an exchange rate of BRL 5.15. Under these assumptions, the estimated total impact of the oil shock is 110 bps, of which 60 bps stems from the indirect channel. Based on the methodologies above, the potential indirect effect could be higher, ranging from 75 to 125 bps. This suggests an upside risk to inflation and supports a more cautious stance by the Central Bank regarding the easing cycle ahead.

Oil prices affect inflation through multiple channels. The direct channel arises when increases in oil prices are transmitted to refined products such as gasoline and diesel. This effect tends to show up quickly in both producer and consumer price indices. The speed and magnitude of pass-through may be dampened by tax adjustments, subsidies, and pricing lags between refineries and retail fuel prices.

The indirect channel reflects cost pressures along production chains: transportation, logistics, energy, packaging, and industrial inputs. This effect is broader-based and typically harder to offset via economic policy, as it is not concentrated in a narrow set of final goods. Empirically, the pass-through usually appears first in producer price indices and subsequently in consumer inflation (IPCA), with sector-specific lags.

Recent readings of the IGP indices suggest that the oil shock is already putting pressure on industrial goods, especially final consumer goods, components more closely linked to the IPCA. In the chart below, we construct a proxy for producer prices (core IPA for tradable goods), focusing exclusively on final consumption goods in the IGP, weighted by their respective IPCA weights. This measure indicates that pass-through from IGP to IPCA has been occurring with relatively short lags, pointing to a rapid transmission of the shock to a portion of market-set prices.

Fast pass-through from IGP wholesale indices to IPCA



Source: FGV, IBGE, Itaú

With the shock already feeding into wholesale price indices (IGPs) and beginning to show up in IPCA, the focus shifts to quantifying the indirect channel and its lag structure. To estimate the indirect impact of the oil shock, we rely on two complementary methodologies: an econometric model of pass-through to market-set prices and a Supply and Use Tables (SUT) exercise that derives indirect weights along production chains.

a) Econometric exercise of pass-through to market-set prices:

The econometric framework follows the BCB (Banco Central do Brasil) box presented in the September 2018 Inflation Report, which estimates a Phillips curve for market-set prices and allows the exchange rate pass-through coefficient to vary over time as a function of state variables (business cycle conditions and shock magnitude). In our specification, we replace the external channel in the original framework, namely imported inflation via the exchange rate and commodity prices in local currency, with an oil price shock measured in BRL, while preserving the structure of state-dependent coefficients that vary across different macroeconomic conditions.

To implement this, we estimate an OLS regression based on the following specification:

$$\pi_t^{Market-set\ prices} = \beta_1 \pi_t^e + (1-\beta_1)\pi_{t-1} + \beta_2 Output\ gap_t + \beta_3 \sum Oil_t + \beta_4 \sum Oil_t * Output\ gap_t^{negative} + \beta_5 \sum Oil_t * Magnitud^{positive} + \beta_6 Z_t$$

Where $\pi_t^{Market-set\ prices}$ is quarterly inflation in market-set prices; π_{t-1} is lagged headline IPCA inflation (inertia); π_t^e is Focus survey expectations for inflation two years ahead; $Output\ gap_t$ is the output; $Output\ gap_t^{negative}$ is the output gap truncated at zero (i.e., equal to zero when positive and equal to the observed gap when negative); Oil_t is the oil price shock in BRL (in log differences, dlog), both contemporaneous and with lags; $Magnitud^{positive}$ is defined as the increase in Oil_t relative to the previous quarter, considered only when positive ($\max(\Delta Oil_t, 0)$) and smoothed using a two-quarter moving average. The control variables (Z_t) include shocks to agricultural and metal commodity prices in BRL (as measured by the ICBR), as well as seasonal dummy variables[1].

[1] In line with the box presented in the Quarterly Inflation Report, we test whether the degree of inflation expectations anchoring also affects the pass-through of oil price shocks, but find no statistical significance.

Estimated coefficients

Market set prices	1 (R^2 74%)	2 (R^2 75%)
Expectations (β_1)	0.6	0.6
Inertia (1-β_1)	0.4	0.4
Output gap (β_2)	0.1	0.1
Oil (β_3)	4.0	3.3
Oil whuen output gap <0 (β_4)	-2.5	-2.6
Positive Magnitud >0 (β_5)	-	1.0

**Significant coefficients only*

Source:Itaú

Em ambas as especificações, o efeito do petróleo sobre preços livres é significativo, assimétrico e pró-cíclico. O termo base (β_3) mede o repasse médio do choque de petróleo, enquanto as interações (β_4 and β_5) permitem que esse repasse varie com o ciclo e com a natureza do choque. Na Especificação 1, um choque de 10% no petróleo implica alta de cerca de 40 p.b. em preços livres; entretanto, em períodos de maior ociosidade (i.e. hiato negativo, que não é o caso atual), a capacidade de repasse diminui quase pela metade. Na Especificação 2, o repasse médio é um pouco menor (30 p.b. a cada 10%), mas o modelo aponta assimetria: choques altistas geram repasse mais elevado (40 p.b.), enquanto hiato negativo reduz novamente a transmissão, quase pela metade. Em suma, o *pass-through* do petróleo é maior em choques altistas e menor em períodos de ociosidade.

b) Exercício via Tabela de Recursos e Usos (TRU):

Using the IBGE's Supply and Use Tables (SUT), we map the direct and indirect use of inputs along production chains, thereby estimating the indirect weight of oil and its derivatives on IPCA components[2]. Based on the intermediate consumption matrix, we construct a matrix of technical coefficients and, through the Leontief inverse, derive total effects (both direct and indirect). We then isolate the indirect component and map SUT products to IPCA items, allowing us to obtain indirect weights by consumption group. This methodology is presented and discussed in Macro Vision - Indirect impact of inputs on inflation.

Indirect weight of oil derivatives in the IPCA basket

TRU	Market Set Prices	Food at home	Goods	Services
Petroleum products	**7.4**	2.3	2.9	2.2
Diesel	2.3	0.9	0.9	0.6
Others	5.0	1.5	2.0	1.5

Source:Itaú

In this exercise, a 10% oil price shock may raise inflation in market-set prices by approximately 70 basis points (bps) through the indirect channel. The decomposition suggests that roughly one-third of this effect stems from diesel (around 20 bps), in line with the freight and transportation channel, while other oil derivatives account for the bulk of the impact (around 50 bps), reflecting the diffusion through multiple intermediate inputs along production chains.

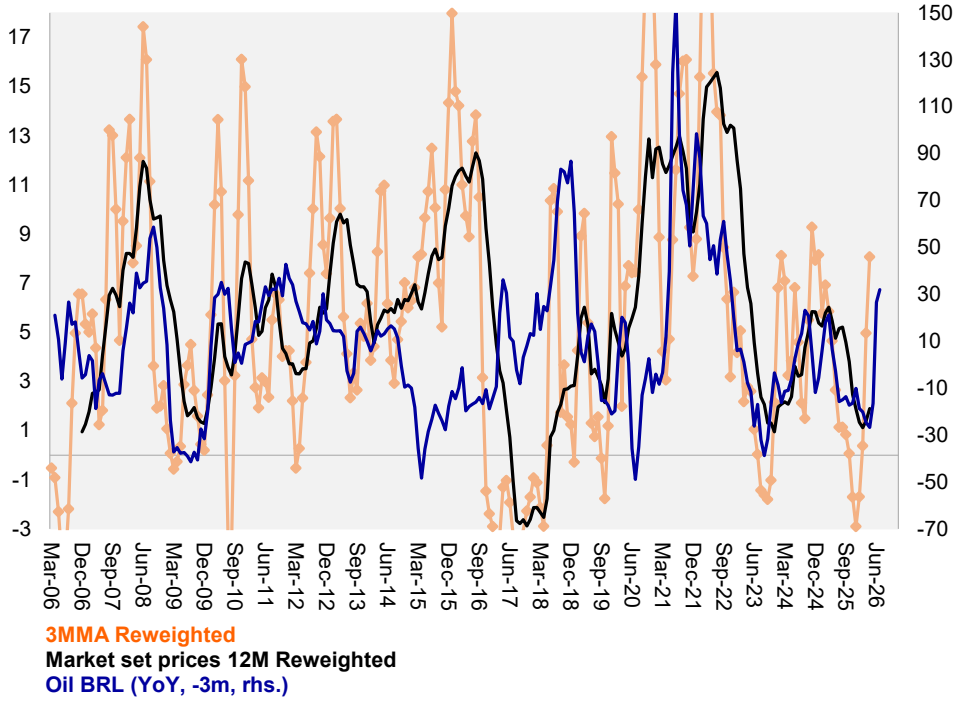
[2] This study follows the same methodological framework as previous analyses that used IBGE's Supply and Use Tables (SUT) to reweight the IPCA and quantify indirect effects: (i) "The weight of wages: A core measure that reweights" (Macro Vision, May 16, 2024) and (ii) "Indirect impact of inputs on inflation" (Macro Vision, Sep 9, 2024).

As this exercise assumes full pass-through throughout the production structure, it should be interpreted as an upper bound for the impact of the oil shock on IPCA inflation. For this reason, we combine the SUT-based approach with econometric evidence to calibrate both the lag structure and the effective degree of pass-through.

One implication of this methodology is the construction of an oil-sensitive IPCA core, obtained by reweighting tradable goods in the IPCA basket (32% of the total index) according to their intensity of oil-derivative use as intermediate consumption (see details in: Macro Vision – The weight of wages). This indicator acts as a thermometer for the indirect channel: as the oil shock propagates through production chains, the reweighted index tends to accelerate more clearly than traditional aggregate core measures.

In practice, the most recent data suggest that this reweighted core has already begun to incorporate the oil shock at the margin, pointing to a more visible transmission to the set of items with greater exposure to oil derivatives.

At-the-margin acceleration in tradable items most sensitive to oil



Source: IBGE, Itaú

Our current IPCA scenario, with inflation at 5.2% in 2026, assumes an average oil price of USD 85/bbl and an exchange rate of BRL 5.15/USD. Relative to our pre–Middle East conflict scenario, we estimate a total impact of 110 basis points (bps) from higher oil prices, of which 50 bps stem from the direct effect of oil and fuel prices and 60 bps from the indirect channel.

Based on the methodologies discussed above, the potential indirect impact could range between 75 and 125 bps. This exercise reinforces an upside risk balance for inflation, which may be amplified or mitigated depending on changes in the outlook for oil prices and the exchange rate (see table), and is likely to warrant greater caution by the Central Bank in conducting its easing cycle.

Risks to 2026 IPCA inflation (in bps) conditional on BRL and oil scenarios

IPCA 2026 (direct / indirect)	Oil			
BRL	**85**	**95**	**105**	**115**
4.80	-15 / -26	4 / 10	22 / 45	40 / 80
4.90	-11 / -14	7 / 21	26 / 56	45 / 92
5.00	-8 / -2	11 / 33	30 / 68	49 / 103
5.15	0 / 15	16 / 50	36 / 86	56 / 121
5.30	2 / 32	22 / 68	42 / 103	62 / 138

Source: Itaú

Conclusion:

The exercises indicate that oil price shocks have the potential to generate a meaningful impact on inflation through market-set prices. For a 10% increase in oil prices, the econometric model suggests an increase of approximately 40 basis points (bps) in market-set prices (around 30 bps in headline IPCA over a four-quarter horizon). In contrast, the SUT-based approach points to a higher potential upper bound, of roughly 70 bps in market-set prices (and 50 bps in IPCA), under the assumption of full pass-through along production chains.

The difference between the estimates should be interpreted as effective pass-through versus potential pass-through: the model disciplines the observable transmission and its dependence on state variables, while the SUT framework provides an upper bound and organizes sectoral exposure. From an operational perspective, the oil-sensitive core constructed using the SUT helps monitor the diffusion of the shock and, at the margin, already points to some incorporation of oil-related cost pressures.

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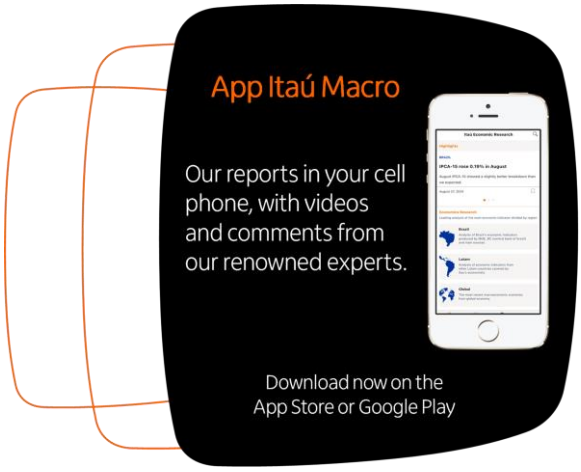

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