A NOTE ON THE TRANSMISSION OF SHOCKS TO INTERNATIONAL FOOD AND ENERGY COMMODITY PRICES ON FOOD INFLATION IN LATIN AMERICA

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FOOD INFLATION IN LATINAMERICA HAS BEEN HIGHER THAN IN OTHER AREAS

FOOD PRICE INFLATION: INTERNATIONAL COMPARISON

THE RECENT SHOCK HAS BEEN STRONG AND WIDESPREAD AMONG COUNTRIES

FOOD INFLATION PEAKS

INTERNATIONAL FOOD PRICES IS TRANSMITTED DOWN THE VALUE CHAIN WITH A LAG

• There are several papers that analyse the pass-through of food commodity prices to food inflation: Ferrucci et al (2012), Ianchovichina et al (2014) and Rigobon (2010), among others.

• Other papers analyse the pass-through from energy prices to food inflation: Peersman (2022), de Winne and Peersman (2016) and Roeger and Leibtag (2011). among others.

• Yang (2015) finds that low-income countries have a food commodity pass-through twice larger than high-income countries.

• Rigobon (2010) shows that emerging markets suffer a significant pass-through from oil prices to food consumer prices, while the effect on advanced economies food inflation is small or null

• Our paper tries to study both types of shocks on food inflation in Latin America
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<th><strong>COMMODITY PRICES</strong></th>
<th>FOOD COMMODITY AND ENERGY PRICES COME FROM WORLD BANK. WE CONVERT THEM TO LOCAL CURRENCY</th>
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<td><strong>FOOD PPI AND CPI</strong></td>
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<td><strong>LATAM AGGREGATES</strong></td>
<td>WE AGGREGATE EACH COUNTRY PRICES BY TWO WAYS: SIMPLE AVERAGE AND GDP-WEIGHTED</td>
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The pass-through from international food commodity prices and oil is analyzed through a VARX model.

Commodity price pass-through from a value chain perspective: \( y = (\text{Int com food}; \text{PPI food}; \text{HICP food}), p=(\text{Int oil}) \)

\[
y_t = c + \sum_{i=1}^{I} A_i y_{t-i} + \sum_{i=0}^{J} \beta_i p_{t-i} + \epsilon_t
\]

We have added current and 6 lags for oil prices, whereas I=1 was selected through Hannan-Quinn criteria.

The system is identified recursively by applying Cholesky decomposition.

The model takes into account the value chain: food commodity prices are ordered first, then the producer food prices and, last, the food consumer prices.

The model is estimated in log-changes, reflecting monthly price changes.
One question that arises is that pass-through from both commodities to food consumer prices may be asymmetric.

In order to account for possible non-linearities, we transform our previous model on the basis of Kilian and Vigfusson (2011):

\[
y_t = c + \sum_{i=1}^{I} A_i y_{t-i} + A_0 y_t + \sum_{i=0}^{J} \beta_i p_{t-i} + \sum_{i=0}^{K} B_i x_t^* + \sum_{i=0}^{L} C_i p_t^* + \epsilon_t
\]

Non-linearities are captured through Net-12, as defined by Hamilton (1996):

\[
x_t^* = \max(0, \log(cmmt) - \max((\log(cmmt_{-1}), \log(cmmt_{-2}), ..., \log(cmmt_{-12})))
\]

\[
p_t^* = \max(0, \log(fuel_t) - \max((\log(fuel_{t-1}), \log(fuel_{t-2}), ..., \log(fuel_{t-12})))
\]

The model is recursive so it can be estimated through OLS.
NET12 CAPTURES “PURE” PRICE INCREASES, THAT IS, THAT ARE NOT A CORRECTION OF A PREVIOUS DECLINE

LEVEL OF FOOD COMMODITY PRICE

MONTHLY GROWTH OF FOOD COMMODITY PRICE

NET 12
FOOD COMMODITY PRICE SHOCK (10 PP)

Note: Linear model
OIL PRICE SHOCK (10 PP)

Note: Linear model
LOOKING AT HISTORICAL SHOCKS IN PERSPECTIVE

HISTORICAL DECOMPOSITION, SIMPLE AVERAGE

% year on year, percentage points


-10 -5 0 5 10 15

OIL SHOCKS

FOOD COMMODITY PRICE SHOCKS

FOOD PRODUCER PRICE SHOCKS

CONSUMER FOOD PRICE SHOCKS

DEVIATION OF FOOD INFLATION FROM ITS LONG TERM TREND
ASYMMETRIES IN THE PASS-THROUGH OF FOOD COMMODITY PRICE SHOCKS (10 PP): EVIDENCE OF ASYMMETRY

Note: Asymmetric model. Negative shocks are inverted.
ASYMMETRIES IN THE PASS-THROUGH OF OIL PRICE SHOCKS (10 PP): VERY PRELIMINARY RESULTS

Note: Asymmetric model. Negative shocks are inverted
USING THE MODEL TO FORECAST CPI FOOD INFLATION DEVELOPMENTS: NON-LINEARITIES IN PRACTICE

LATAM WEIGHTED AVERAGE: PROJECTIONS OF FOOD INFLATION CONDITIONED ON FUTURES FROM NOV-2023

% year on year

2022 2023 2024

SYMmetric ASSYMetric OBSERVED
• Food inflation in Latin America is higher than in other parts of the world. This, along the relatively high weight of this component in the area, make the topic relevant

• There is a pass-through from both international food commodity prices and energy prices on food inflation

• Also, we find evidence of an asymmetric transmission of food commodity prices to food inflation

• Our models predict that food inflation in Latin America will be higher than 4% in 2024
THANK YOU FOR YOUR ATTENTION