Increases in Global Commodity Prices: Macroeconomic Effects and Policy Responses of Developing Countries

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High prices for food and other commodities raise concerns

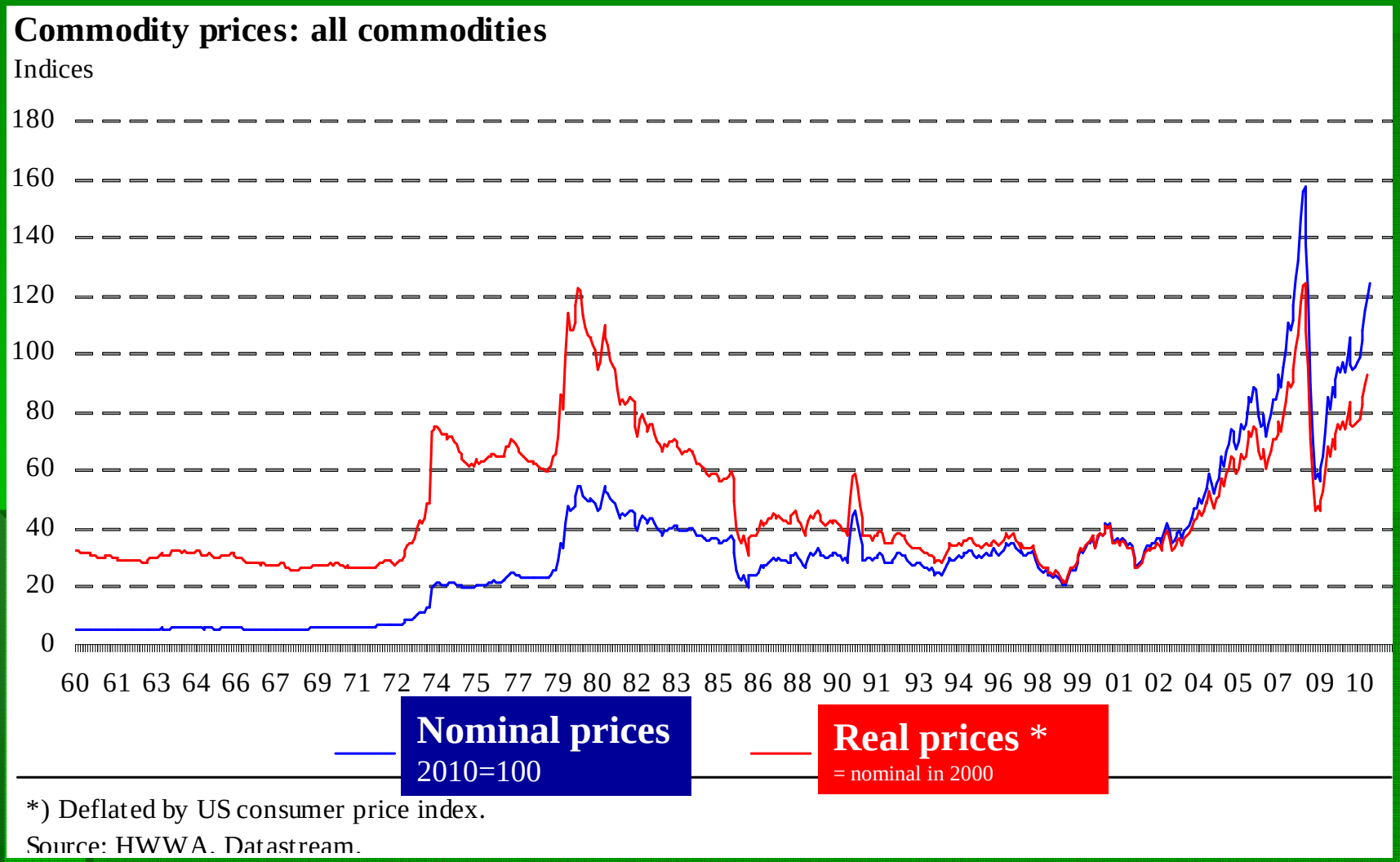
- French President Nicolas Sarkozy placed food price volatility on the G-20 agenda for 2011.

- Many fingers of blame have been pointed:
  - at evil speculators,
  - at the US Fed,
  - at growth in China…

The questions

- Why are prices for food & other commodities so high?
- What is the record with microeconomic policies to try to reduce the volatility of the prices of commodities?
- How should a food-importer set monetary policy?
- How do the answers to these questions change for a country that also exports commodities (e.g. minerals), with world prices that are equally volatile?

The 2008 & 2011 price spikes were as high as the 1970s



Why are prices for food & other commodities so high?

- Two competing views of how prices are determined
  - "Commodities are goods."
    - => Prices are determined by the flow of current supply & demand and their current economic fundamentals
      - such as disruptions from weather or politics .
  - Vs. "Commodities have become more like assets,"
    - especially those commodities that are storable.
    - => They are determined by calculations regarding expected future fundamentals and alternative returns;
      - – in other words, by speculators.

The asset model:

- If commodities are storable and markets work efficiently,
- the expected future change in the price of the commodity (relative to the interest rate), should help determine today's price.
- Via 3 channels:
  - (i) the decision whether to harvest/cull/log/extract today
    - vs leaving the crop/deposits in the fields/woods/ground until tomorrow;
  - (ii) the decision whether to hold inventories,
    - or to sell them today;
  - (iii) the decision whether to go long in futures markets,
    - or go short.

Both views are partly right (and partly wrong)

- **In support of the flow/goods view:**
  - 2008 observation: Paul Krugman argued that inventories (stockpiles) of oil, etc., had not risen
    - as they should if the high prices were caused by an increase in the expected rate of return to holding commodities.
  - 2011 observation:
    If flows did not matter, the release of oil from US SPR & other countries' stockpiles (30 m barrels each) on June 23 would not have caused prices to fall 4% that day.

Both views are partly right (and partly wrong)

- **In support of the asset view:**
  - Although individual commodities are impacted by "flow" fundamentals,
    - such as Russian drought, US ethanol subsidies, instability in oil producing countries, etc.,
  - it cannot be a coincidence that the prices of virtually all fuels, minerals, & farm products rose sharply in 2008 and again in 2011.
  - True, fuels & grains are partial substitutes in production; but this cannot be the complete answer.

Establishing that the asset model is important does not settle whether *destabilizing* speculators are to blame.

- Speculation often reflects fundamentals.
  - It can be stabilizing –
    - dampening volatility when high prices are recognized as temporary;
    - and carrying the message of likely future changes in fundamentals.

- But occasionally speculators are destabilizing, carried away by speculative bubbles.

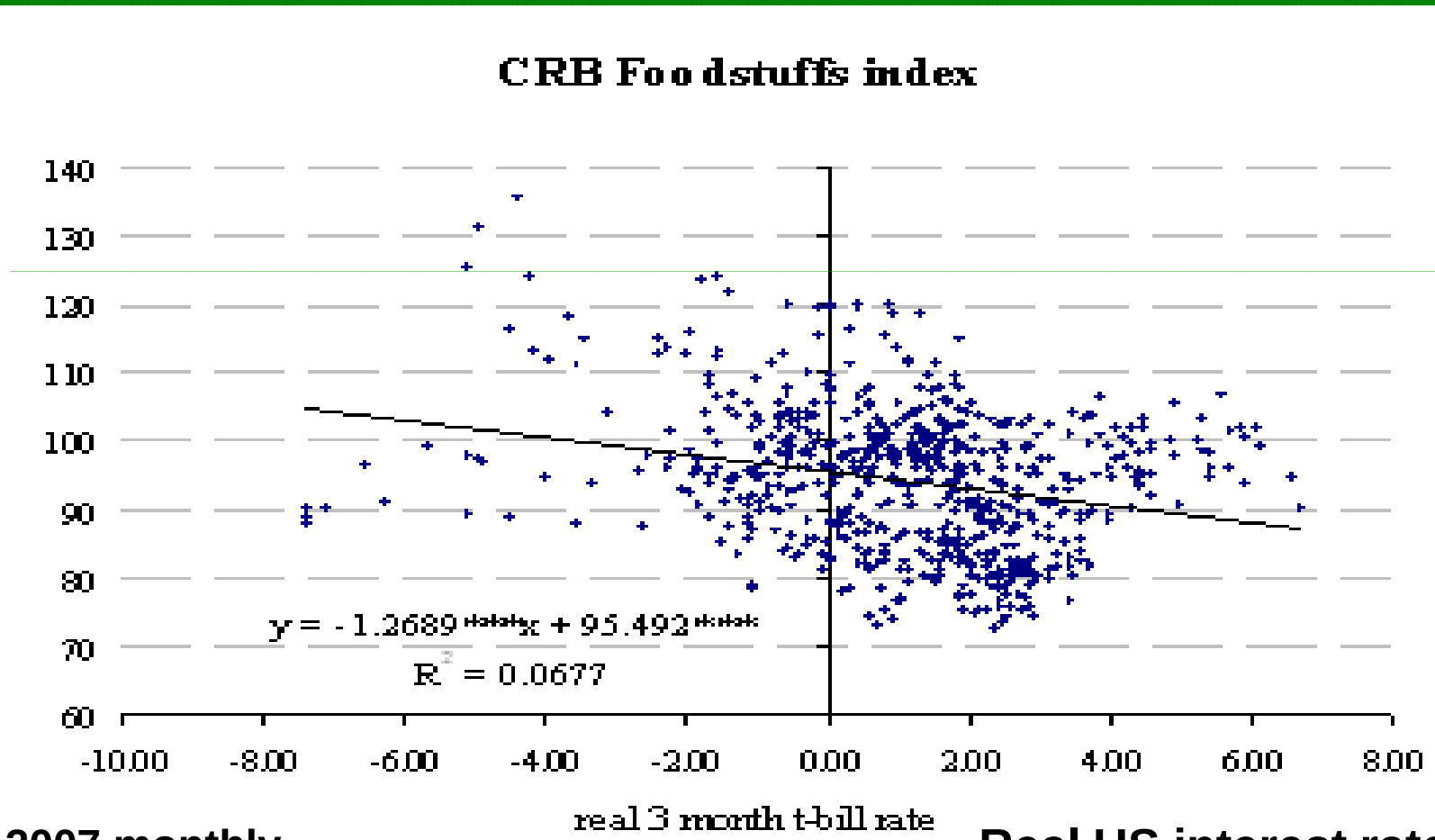
High commodity prices (in $) over the last 5 years can be attributed broadly to two factors:

1. Low real interest rates
2. Strong growth prospects in China & other Emerging Markets

Real commodity prices are negatively correlated with the real interest rate – A.Saiki, Dutch Nat.Bk.

Real $ food price index,

Moody's excl. oil



1951-2007 monthly

Real US interest rate

Regardless what determines global commodity prices, small & developing countries must take them as given.

Locally, in a small open economy

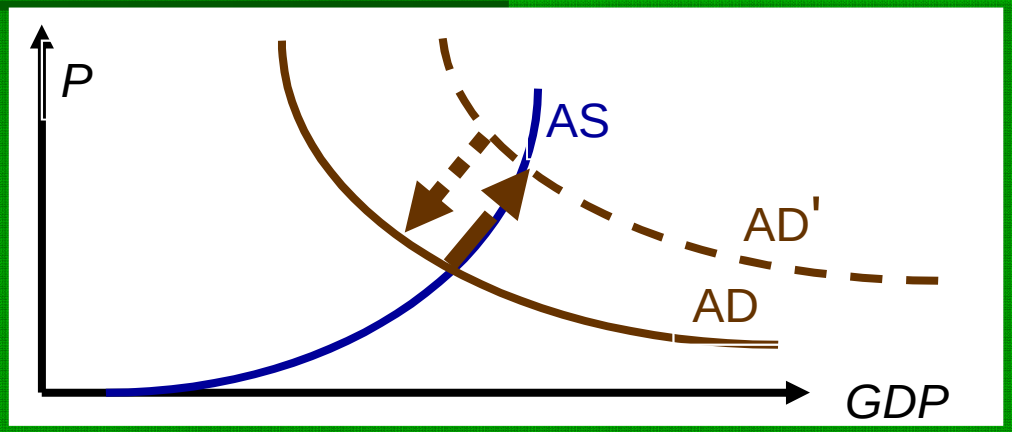
- Price is exogenous in terms of $ =>
- The exchange rate is passed through to local-currency prices of the commodity.

The effects of high agricultural prices

- Consumers hurt worldwide,
  - especially the poor,
  - for whom food takes a major bite out of household budgets.
- Popular discontent over food prices has fueled political instability in some countries,
  - most notably in Egypt & Tunisia,
  - contributing to the Arab Spring uprisings.

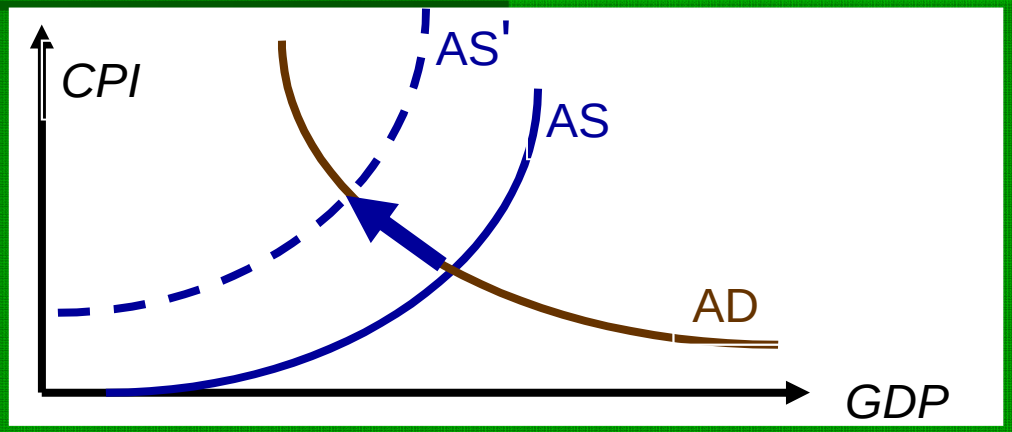
Macroeconomics

- If an increase in the price of food is due to a boom in Aggregate Demand:
  - then it can be offset by tighter monetary policy,
    - aided by currency appreciation
      - if the exchange rate is flexible.



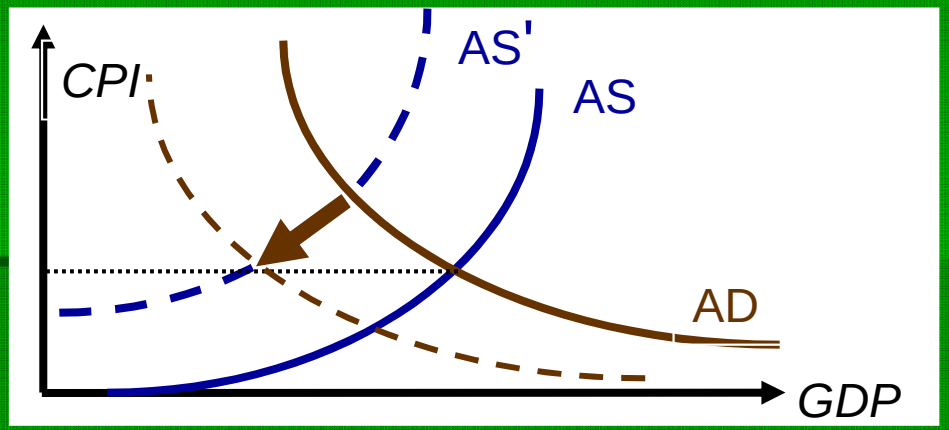
Macroeconomics

- An increase in the price of food imports is an adverse Aggregate Supply shock:
  - higher inflation for any given level of GDP,
  - Or lower GDP for a given level of inflation.
  - Especially if inflation is measured by CPI.



Monetary policy can't offset such a supply shock

- If monetary policy is tightened to prevent the CPI from rising, the result may be a severe recession.



- The central bank cannot fight an adverse shift in the terms of trade.

Microeconomics

The record with policies to reduce the volatility of the prices of commodities

- In theory, government stockpiles might be able to smooth price fluctuations, releasing commodities in times of shortage and buying when prices are low.
- But the record in practice is not encouraging.

The record with microeconomic policies to reduce the volatility of the prices of commodities, continued

- In rich countries, the primary producing sector usually has political power;
- stockpiles of food products are used to keep prices high rather than low.
  - The EU's Common Agricultural Policy is a classic example –
    - and has been disastrous for EU budgets, economic efficiency, and consumer pocketbooks.

Microeconomic policies, continued

- In developing countries, farmers often lack power.
  - Example: African countries adopted commodity boards for coffee & cocoa
    - at the time of independence.
    - The original rationale: to buy the crop in years of excess supply and sell in years of excess demand, thereby stabilizing prices.
    - In practice the price paid to cocoa and coffee farmers was always below the world price.
      - As a result, production fell.

Microeconomic policies, continued

- Politicians seek to shield consumers through price controls on staple foods & fuel.
  - But the artificially suppressed price usually requires rationing to domestic households.
    - Shortages and long lines can fuel political rage as well as higher prices can.
  - Otherwise, the policy can require imports in order to satisfy the excess demand,
  - and so can raise the world price even more.

Microeconomic policies, continued

- Some food-producing countries use *export controls* to insulate domestic consumers from a world price rise.
  - In 2008, India capped rice exports,
  - and Argentina did the same for wheat exports,
  - as did Russia in 2010.

An initiative at the G20 meeting of agriculture ministers in Paris in June that deserved to succeed:

- Producing and consuming countries in grain markets should cooperatively agree to refrain from export controls and price controls.
  - The result might be *lower* world price volatility.
  - One hopes for steps in this direction, working through the World Trade Organization.

Another initiative at the G20 meeting of agriculture ministers in Paris in June deserved to succeed:

- Bio-fuel subsidies should be eliminated.
  - Ethanol subsidies, such as those paid to American corn farmers, do not accomplish policymakers' avowed environmental goals, but do divert grain and thus help drive up world food prices.
  - So far, the initiative has failed.
  - The US is the biggest obstacle.

The overall lesson for microeconomic policy

- Attempts to prevent food prices from fluctuating or to insulate consumers generally fail.
- Even when enacted in the name of reducing volatility and income inequality, their effect is often different.
- Better to accept volatility and cope with it,
  - e.g., well-designed transfers to the poor
    - along the lines of Oportunidades or Bolsa Familia

Back to macroeconomics:

Monetary policy for a food-importing country

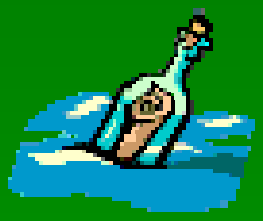
- The choice of monetary regime:
  - Fixed exchange rates or floating?
  - Inflation Targeting ?

Fixed vs. floating exchange rates

- Fixed exchange rates have many advantages,
  - especially providing an anti-inflationary anchor for monetary policy.

- But floating exchange rates have many advantages too,
  - especially accommodating trade shocks:
    - appreciating when the terms of trade improve,
    - depreciating when they worsen;
    - thus automatically stabilizing the balance of payments

Floating



- Bolivia might consider moving away from its exchange rate peg
  - to the extent that the economy is in danger of overheating.
  - Some appreciation – a natural consequence of rapid growth and high real interest rates – would help hold down inflation.
- But then some alternative nominal anchor would be needed,
- to help meet central banks' mandate of preventing inflation in the long run.

Inflation Targeting (IT) became the favorite choice of economists

- after the failures of currency pegs in the Emerging Market crises of the 1990s.
- Three South American countries officially adopted IT in 1999, in place of exchange rate targets:
  - Brazil,
  - Chile,
  - Colombia.

- Mexico had done so earlier, after the peso crisis of 1994.
- Peru followed in 2002, switching from official money targeting.
- Guatemala officially entered a period of transition to IT,
  - under a law passed in 2002.

In some ways, **I**nflation **T**argeting has worked well.

- It apparently anchored expectations and avoided a return to inflation in Brazil, for example, despite two severe challenges:
  - the 50% depreciation of early 1999, (exited from the real plan), and
  - the similarly large depreciation of 2002, (Lula shock).
  - Giavazzi, Goldfajn & Herrera (2005); Mishkin (2004)

But the 2008-10 global financial crisis revealed some drawbacks of Inflation Targeting,

much as the 1994-2001 EM crises revealed some drawbacks of exchange rate targeting.

- One vulnerability is asset bubbles.

- Another is terms of trade changes.

The terms of trade (1)

- A worsening of the terms of trade can take the form of either:
  - **(1)** A rise in global prices of imports such as food
  - (2) A fall in the global prices of export commodities.
- **(1)** A CPI target, interpreted literally, forces the central bank to respond to an increase in $ import prices with a monetary tightening so severe that the currency appreciates in proportion
  - so that local-currency prices of imports are held flat
  - It is the *opposite* of accommodating the terms of trade,
  - causing likely problems for the balance of payments.

The 4 inflation-targeters in Latin America

show correlation (currency value$_{\text{in \$}}$, import prices$_{\text{in \$}}$)

- > 0 ;
- > correlation before they adopted IT;
- > correlation shown by non-IT Latin American countries.

Table 1 LAC Countries' Current Regimes and Monthly Correlations of Exchange Rate Changes ($/local currency) with $ Import Price Changes

	Exchange Rate Regime	Monetary Policy	1970-1999	2000-2008	1970-2008
ARG	Managed floating	Monetary aggregate target	-0.0212	-0.0591	-0.0266
BOL	Other conventional fixed peg	Against a single currency	-0.0139	0.0156	-0.0057
BRA	Independently floating	Inflation targeting framework (1999)	0.0366	0.0961	0.0551
CHL	Independently floating	Inflation targeting framework (1990)*	-0.0695	0.0524	-0.0484
CRI	Crawling pegs	Exchange rate anchor	0.0123	-0.0327	0.0076
GTM	Managed floating	Inflation targeting framework	-0.0029	0.2428	0.0149
GUY	Other conventional fixed peg	Monetary aggregate target	-0.0335	0.0119	-0.0274
HND	Other conventional fixed peg	Against a single currency	-0.0203	-0.0734	-0.0176
JAM	Managed floating	Monetary aggregate target	0.0257	0.2672	0.0417
NIC	Crawling pegs	Exchange rate anchor	-0.0644	0.0324	-0.0412
PER	Managed floating	Inflation targeting framework (2002)	-0.3138	0.1895	-0.2015
PRY	Managed floating	IMF-supported or other monetary program	-0.023	0.3424	0.0543
SLV	Dollar	Exchange rate anchor	0.1040	0.0530	0.0862
URY	Managed floating	Monetary aggregate target	0.0438	0.1168	0.0564
Oil Exporters					
COL	Managed floating	Inflation targeting framework (1999)	-0.0297	0.0489	0.0046
MEX	Independently floating	Inflation targeting framework (1995)	0.1070	0.1619	0.1086
TTO	Other conventional fixed peg	Against a single currency	0.0698	0.2025	0.0698
VEN	Other conventional fixed peg	Against a single currency	-0.0521	0.0064	-0.0382

IT coun-tries show correl-ations > 0.

* Chile declared an inflation target as early as 1990; but it also had an exchange rate target, under an explicit band-basket-crawl regime, until 1999.

Why is the correlation between the import price and the currency value revealing?

- These central banks claim to target *core* CPI, i.e., excluding volatile food and fuel components.
- But then the currency of a commodity importer should not respond to an increase in the world price by appreciating.
- If anything, floating currencies should *de*preciate in response to such an adverse terms of trade shock.
- When these IT currencies respond by appreciating instead, it suggests that the central bank is tightening monetary policy to reduce upward pressure on the CPI.

Wanted !

- New candidate variable for nominal target.
- The economic variable should be:
  - simpler for the public to understand *ex ante* than core CPI,
    and yet
  - robust with respect to supply shocks.
- "Robust with respect to supply shocks" means that the central bank should not have to choose *ex post* between two unpalatable alternatives:
  - an unnecessary economy-damaging recession or
  - an embarrassing credibility-damaging violation of the declared target.

Trade shocks

- If the supply shocks are terms of trade shocks, then the choice of CPI to be the price index on which IT focuses is particularly inappropriate.
- Alternative: an output-based price index
  - such as an export price index, the GDP deflator, or PPI;
  - My preference: a price index for final sales.
- The important difference is that
  - import goods show up in the CPI, but not in the output-based price indices,
  - and vice versa for export goods: they show up in the output-based prices but much less in the CPI.

My proposal – Product Price Targeting (PPT):

Call it IT, but target an output price index instead of CPI

- I.e., target a broad index of all domestically produced goods.
- The central bank in practice could not hit the target exactly,
  - in contrast to the way it could hit exactly a target for the exchange rate, the price of gold,
  - or even the price of a basket of 4 or 5 mineral or ag. commodities.
- There would instead be a declared band for the PPI target, which could be wide if desired, just as with the targeting of the CPI, M1, or other nominal variables.
  - Open market operations to keep the price index inside the band
    - could be conducted in terms of either foreign exchange
    - or domestic securities.

Advantage of PPT (Product Price Targeting) when food import prices are volatile.

- It does not let the currency get overvalued when import prices rise,
- as a strict CPI target would.

How do the answers change for a country that also *exports* commodities (minerals) with world prices that are equally volatile?

- If the $ price of mineral exports is highly correlated with the $ price of food imports, then it is not a terms of trade issue.
- Monetary policy is free to pursue domestic goals of growth and price stability
  - which includes tightening/appreciation to prevent overheating.



Table 2: Major Commodity Exports in LAC countries and Standard Deviation of Prices on World Markets

	Leading Commodity Export*	St. Deviation of Log of Dollar Price 1970-2008
ARG	Soybeans	0.2781
BOL	Natural Gas	1.8163
BRA	Steel	0.5900
CHL	Copper	0.4077
COL	Oil	0.7594
CRI	Bananas	0.4416
ECU	Oil	0.7594
GTM	Coffee	0.4792
GUY	Sugar	0.4749
HND	Coffee	0.4792
JAM	Aluminium	0.4176
MEX	Oil	0.7594
NIC	Coffee	0.4792
PAN	Bananas	0.4416
PER	Copper	0.4077
PRY	Beef	0.2298
SLV	Coffee	0.4792
TTO	Natural Gas	1.8163
URY	Beef	0.2298
VEN	Oil	0.7594

Bolivia exports a range of minerals and other commodities.

The leading export, natural gas, has the most variable price of all major commodities.

Source: Global Financial Data

Appendix 1: Volatilities of terms of trade, export prices & import prices

RANK BY VOLATILITY — **Standard deviation of log of price indices**

Country / Region	Terms of Trade (as reported by EIU)	Calculated Terms/ Trade	Export Price Index in US$	Import Price Index in US$
Latin America	0.407	0.407	0.210	0.373
Middle East & N.Afr.	0.291	0.291	0.360	0.246
Main CIS	0.285	0.2847	0.437	0.256
Sub-Saharan Africa	0.136	0.136	0.317	0.221
Greater China	0.046	0.046	0.228	0.209
United States	0.042	0.042	0.112	0.149
North America	0.021	0.021	0.125	0.139
Eastern Europe	0.017	0.017	0.247	0.235

Lat.Am. has the highest terms of trade volatility,

even though oil exporting regions have more volatile export prices.

<= import prices are also volatile

and not as highly correlated with export prices (as Africa).

The terms of trade (2)

- A worsening of the terms of trade can take the form of either:
  - (1) A rise in global prices of imports such as food
  - **(2) A fall in the global prices of exports.**
- **(2)** Accommodating the terms of trade means allowing the currency to rise or fall in value along with world prices of the export commodity.

The high volatility of Latin America's terms of trade makes it a good candidate for PPT

- Recap of advantages:
- Relative to an exchange rate target,
  - PPT allows accommodation of trade, while yet preserving a nominal anchor.
- Relative to an inflation target,
  - PPT allows appreciation when price of export commodity (minerals) goes up, not when price of import commodity (food) goes up –
  - whereas a CPI target gets it backwards.












V JORNADA monetaria

Crisis Alimentaria, Inflación y Respuestas de Política

Lunes 18 de julio de 2011, La Paz - Bolivia