Session 2
Politique de change et répartition des revenus

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Exchange rate management remains a challenge for both LICs and MICs.

MICs: many follow an IT regime, but very few float freely.


But in these countries focus has been on price and financial stability…

…not income distribution or poverty (although both benefit the poor).
Integrated inflation targeting
LICs: Exchange Policy and Income Distribution covers a large range of issues.

Regulations on who has access to (limited) foreign exchange reserves, which exporters should be subject to surrender requirements, etc. Political economy considerations.

Here: narrow (selective) focus on theoretical channels, and empirical evidence, on the impact of (large) devaluations on income distribution.

Also, brief look at some research issues.
Channels through which Devaluations Affect Income Distribution
Five possible channels.

- Inflation and real wages.
- Relative prices and factor intensities.
- Fiscal channel.
- Precautionary saving channel.
- Financial channel.

Key issue: dynamic adjustment process (wage adjustment, increased factor mobility, changes in distribution of skills).
Inflation-real wage channel

- Focus of literature on *contractionary devaluation* in developing countries.

- Alexander (1952).


- Income redistribution is possible cause of a decline in output (absorption) after a devaluation.
Reasons: nominal wage rigidity and differences in propensities to consume from profits and wages.

Increase in prices following a devaluation: if there are lags in the adjustment of nominal wages to higher prices, there will be redistribution of income from wages to profits.

And if profit earners have a lower propensity to spend than wage earners, absorption will decline for a given level of real income.

Direct, short-run effect on distribution.
However, indirect, gradual redistribution effects between capital and wage earners also...

...through changes in relative prices and/or factor intensities. Focus of multi-sector models.

Product wage in tradable sector must fall for the real exchange rate to depreciate following a nominal devaluation. Profits then increase in that sector.

But product wage in nontradable sector would rise. Net effect on income distribution is ambiguous.
Relative price-factor intensity channel

- Example 1: basic **dependent economy** model with traded (T) and nontraded (NT) goods and perfectly mobile labor.

\[
\hat{P} = \alpha \hat{P}^T + (1 - \alpha) \hat{P}^N
\]

\[
\hat{P}^T = \hat{E} + \hat{P}^{T,F}
\]

\[
D^N(P_N/P_T) = S^N(W/P_N)
\]

\[
\hat{x} = \hat{P}^T - \hat{P}^N
\]
- \( P \): price level, \( P^T (P^N) \): price of tradable (nontradables goods), \( P^{T,F} \) foreign-currency price of tradables. Also \( \alpha \in (0,1) \).

- \( E (x) \): nominal (real) exchange rate.

- \( W \): nominal wage.

- \( D^N (S^N) \): Demand (supply) of nontradables. Both derivatives are negative.

- See Edwards (1989, Chapter 8).
Combining last 2 equations yields:

\[
\hat{x} = \left( \frac{\eta^S}{\eta^S + \eta^D} \right) \left( \hat{P}^T - \hat{W} \right)
\]

- \(\eta^S (\eta^D < 0)\): elasticity of supply (demand) of NT goods with respect to product wage (relative price).

- With constant productivity, for the real exchange to depreciate following nominal devaluation, real wages measured in terms of tradables must fall.

- Nominal wage \(W\) must increase at slower pace than the domestic price of tradables, \(P^T\).
With real wage resistance (indexation, trade unions, and so on), a nominal devaluation cannot generate a real depreciation.

However, when the real wage is measured in terms of the consumption basket, effect is ambiguous:

\[
\hat{x} = -\left(\frac{1}{\alpha + \eta^D / \eta^S}\right)(\hat{W} - \hat{P})
\]

If there are simultaneous productivity gains in the tradable sector: possible to observe both real depreciation and higher wages.
Example 2: dependent economy with traded (T) and nontraded (NT) goods, perfectly mobile labor, sector-specific capital, and flexible wages.

Real wages and profits in terms of either of the two goods depend on factor intensities.

Real devaluation will increase real payments to factors used intensively by the T sector (capital) and reduce real payments to the other (labor).

Real profits increase (fall) in the T (NT) sector, but ambiguous effect on real wages.
Real wages would decline in terms of T goods but increase in terms of NT goods.

Net effect on distribution: in general ambiguous.

Possibility of redistribution from the factors engaged in NT sector (purely domestic industries) to the factors engaged in T sector (export- and import-competing industries).

Key issue: **time dimension** for assessing these effects, given that prices begin to adjust and factors become more mobile in the longer run.
In the longer run, when factors of production become more mobile, the impact of devaluation on income distribution may change as the economy adjusts.

Possible dynamic process:

- Nominal wages are fixed for some time after devaluation.
- Wages begin to adjust to the higher price level and workers move among occupations, while capital remains sector specific.
- Capital also moves to the sectors with higher returns.

- Economy produces T and NT goods.

- Labor moves freely across sectors, but capital is sector specific.

- In addition production of new capital goods requires both NT goods and **imported machines**.

- Paper traces the dynamic paths of real factor incomes after devaluation.
Real return to capital in the NT sector always falls on impact, and conversely for the T sector.

Whether real wages rise or fall depends on factor intensity in each sector...

...and the share of imported machines in the production of capital goods.

In the long run the devaluation is neutral.
Other form of labor market rigidities that adjusts over time: **lack of skills**.

Devaluation expands the demand for labor in the T sector (lower product wage there), but workers in the NT sector may not have the skills required to perform there.

Labor is **not perfectly mobile** across sectors.

Higher unemployment for low-skilled workers, who may shift to the informal sector and depress wages there.
• However this increase may be **transitory**.

• If productivity increases in the T sector over time, product wage will increase, and this should raise incentives to invest in skills.

• Income distribution would worsen at first, but narrow over time.

• Again, important to account for **dynamic adjustment** when analyzing and testing for the effects of devaluation on distribution.
Fiscal channel

- If devaluation is contractionary: tax revenue (domestic sales, imports) may be large, putting pressure on fiscal deficits.

- If transfers and subsidies are cut as a result, poverty may increase.

- Transitory or persistent effect? Important time dimension as well.
Precautionary saving channel

- Linked to role of labor market structure (example: Azam (2004)).

- Model explains how cut in real **formal sector** wages following devaluation affects other segments of the labor market, especially incomes of workers in the informal sector (most of the poor).

- Nominal wage rigidity in formal sector.

- Perfect foresight; date of future devaluation is known with certainty (can be generalized).
● Formal sector workers are at the same time investors in the informal sector.

● As formal sector workers anticipate the cut in formal sector wages that devaluation brings about, capital intensity in the informal sector increases.

● Ex post, they run down their assets for consumption-smoothing purposes, thus reducing capital intensity of informal sector firms…

● …with a negative impact on incomes in the (urban) informal sector.
- A form of *precautionary saving* behavior.

- Prospect of a future cut in formal sector wages induces formal sector workers to start saving as soon as they forms this prediction.

- These increases in savings are invested in informal sector business, with a positive impact on the wages prevailing there. This extra capital is gradually depleted when the wage cut occurs (in the wake of the devaluation), in order to mitigate the fall in consumption.
The capital stock thus increases prior to the devaluation, as soon as formal sector workers start predicting the future wage cut, and decreases gradually after its occurrence.

The informal sector wage follows same pattern, going up in the pre-devaluation phase, starting when the prediction of the future wage cut arises, and going down in the post-devaluation phase.

Linked to increase in poverty and worsening of income distribution.
Financial channel

- Inflation effect of devaluation: lowers the value of nonindexed financial assets—for the poor, often the (limited) cash that they hold.

- Borrowers and lenders are also affected differently.

- Impact on poverty and distribution: ambiguous.

Empirical Evidence

Model-based (CGE) studies. Acharya (2010) for Nepal, Pauw et al. (2013) for Malawi, etc.

Time-series econometric studies, based on “day-to-day” (effective) exchange rate fluctuations.

Last type is not informative to understand the effects of (large) devaluations.
Before-after studies

Edwards (1989, Chapter 8)

- Data from 31 major devaluation (> 14%) episodes.
- Focus on behavior of the labor share (employee compensation) in GDP.
- In principle, informative about distribution of income between labor and capital.
- Timing of comparison: ±3 years of event.
Labor Share and Income Inequality across Countries

● Results: in 15 cases no significant change, in 9 cases significant decline, in 7 significant increase. Difficult to draw general conclusions.

● Changes in the labor share result from changes in the real wage and changes in labor productivity:

\[ \text{Labor share} = \frac{WL}{PY} = \frac{(W/P)}{(Y/L)} \]

● \( W \): wages \( L \): employment, \( Y \): GDP, \( P \): GDP deflator.

● Also questionable quality of data; well-known measurement problems (self-employed individuals, depreciation of capital, etc.).
Azam (2004)

- 1994 devaluation of the CFA franc. 2 surveys: Côte d’Ivoire (93, 95) and Niger (94, 95), before and after the devaluation. **Short-run** effects.

- Poverty increased significantly, despite a significant recovery of economic growth.

- All the social groups but mostly the urban poor.

- Argument: formal workers as investors (see earlier).

- Data problems, esp. Côte d’Ivoire (sample size).
Fofack and Monga (2001)


- Increase in urban poverty, 4 years on.

- Poverty and income distribution in rural areas: little effects.
Cravino and Levchenko (2017, 2018)

- Focus: 1994 Mexican peso devaluation.

- Poor households spend relatively more on tradable product categories and consume lower-priced varieties within categories.

- Devaluation raised the prices of consumption baskets of low-income households substantially more than those of high-income households.

- 2-year post-devaluation: sizable effect.
Drenik et al. (2018)

- Focus: proportion households with assets in foreign currency (increases with income).

- Nominal exchange rate devaluations: lead to a redistribution of liquid wealth across households, due to the revaluation of nominal net wealth denominated in different currencies.

- Important degree of redistribution from households with low income to those with high income.
Problems with B-A studies: difficult to

- Control for other determinants of inequality (incl. other policy changes).

- Capture dynamic effects.

- Problem is magnified for studies based on household surveys (frequency may not match economic time frame).
Time-series econometric studies

- Annual Gini data: from Un. of Texas Inequality Project (http://utip.lbj.utexas.edu/data.html).
- LT asymmetric effect of (effective) real exchange rate changes on income inequality in 22 of them.
- Appreciations have weaker effects on inequality.
- Due to downward price rigidity.
Time-series econometric regressions: better able to control for other determinants of inequality.

Previous study: controls for changes in real GDP.

However, other determinants.

However, this is different from assessing the impact of large nominal devaluations.

Movements in (real or nominal) effective exchange rates may have nothing to do with nominal devaluations.
Final Thoughts
1. Empirical literature does provide some support for redistribution against labor (formal and informal sectors) after large devaluations.

Recent B-A work based on household surveys uses much improved data and techniques.

However, dynamic effects (highlighted in theoretical literature) are not well accounted for.

Worth revisiting earlier cross-country B-A studies with larger samples, better data, and more advanced techniques.


Window of comparison can be varied for sensitivity analysis.

Cross-country regressions can supplement non-parametric and parametric tests.
2. Little focus on impact of devaluations on gender inequality. Data issues? Requires disaggregated data on distribution of labor force, factor intensities, wages.

Some CGE-based simulation studies: devaluation leads to an expansion of activity in agricultural and industrial sectors, and contraction in services.

If women are over-represented in services, nominal devaluations will not be gender neutral.

If gender effects are persistent: eventual impact on women’s bargaining power in the family.