

The role of macro policies in the management of terms of trade shocks in developing countries

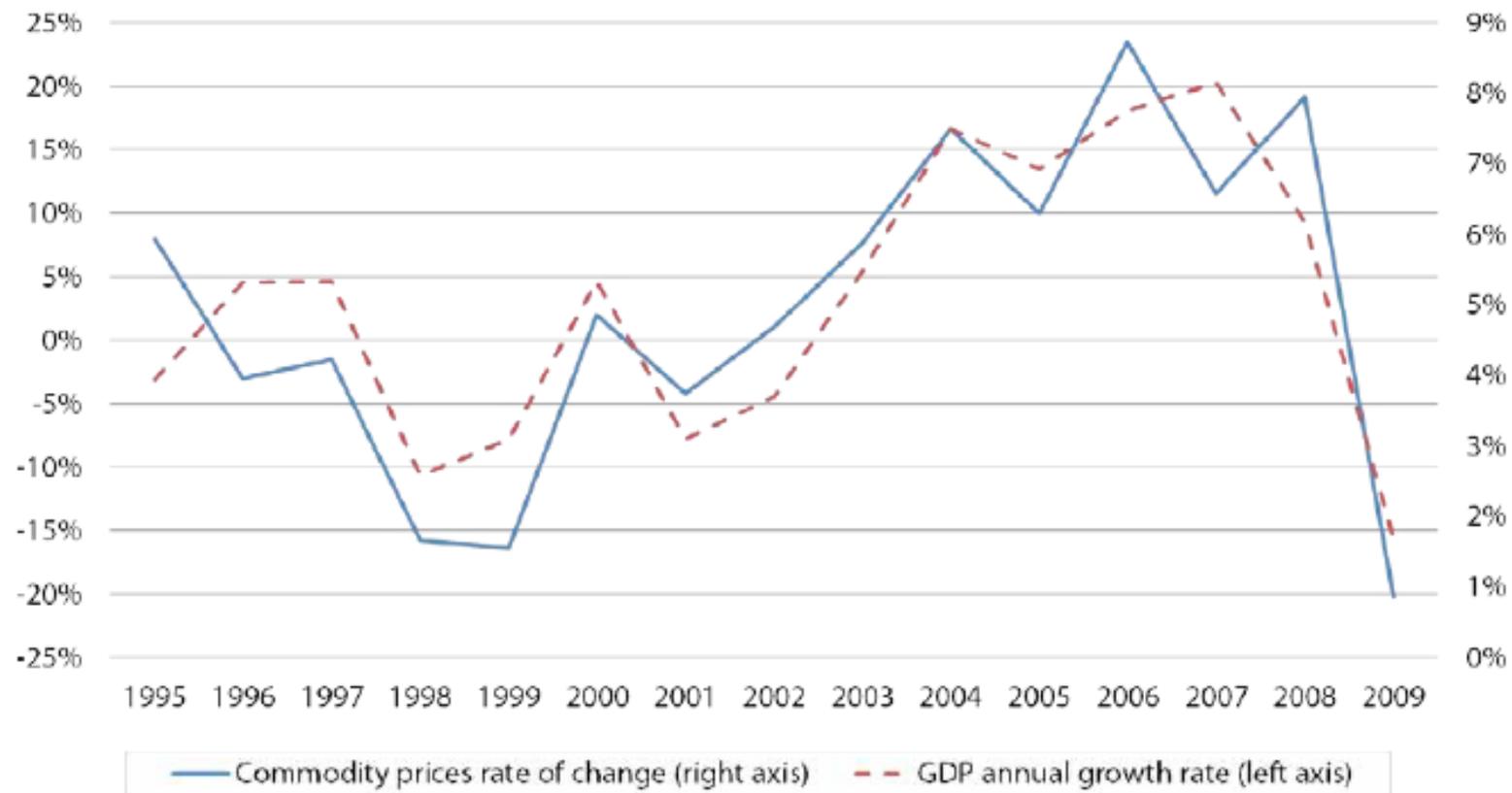
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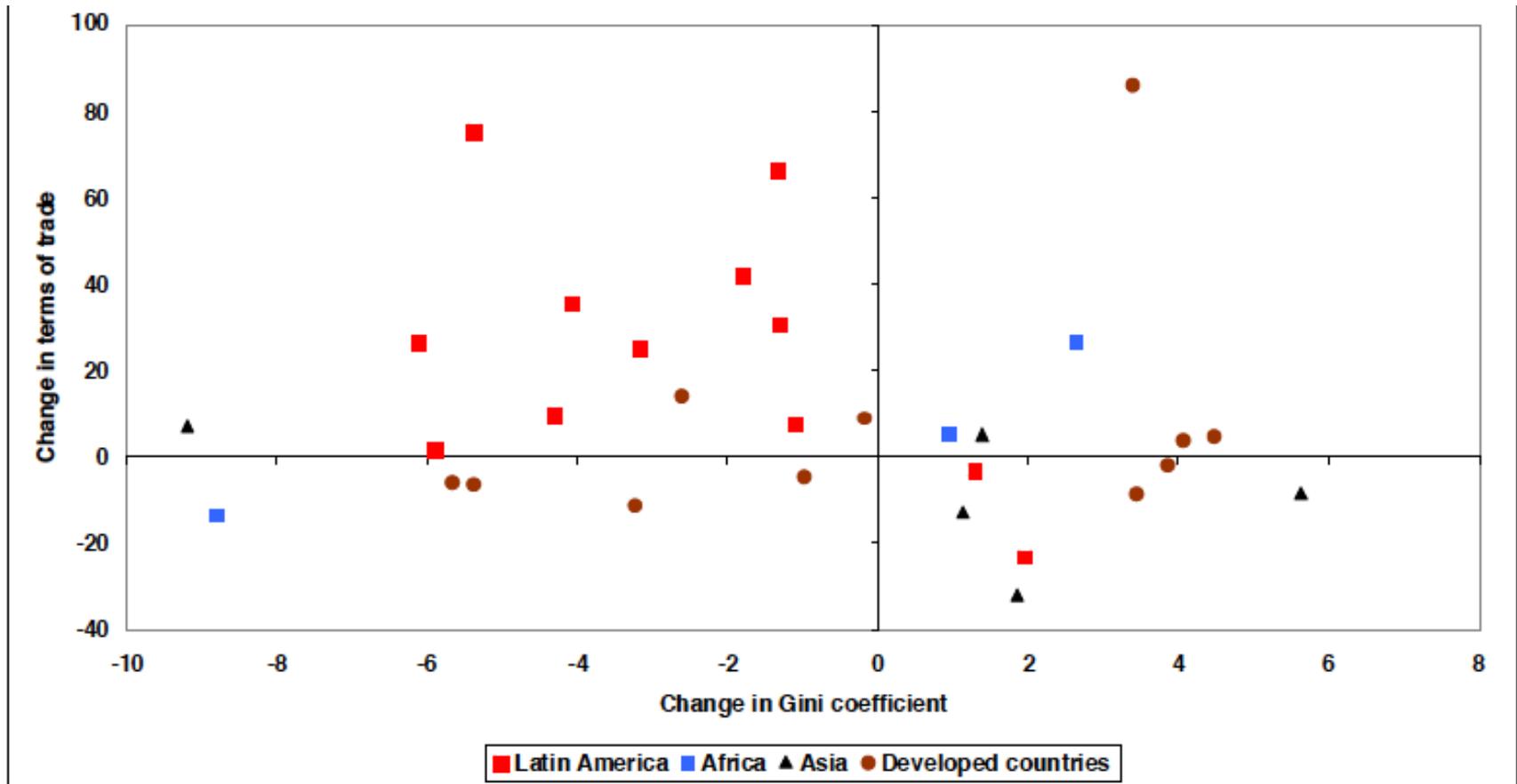
Comments at the session on "What role for macroeconomic policy in the management of shocks?" at the conference on "What responses to terms of trade shocks in poor and vulnerable countries?" organized by the Banque de France and the Fondation pour les Etudes et Recherches sur le Developpement International (FERDI) on January 24, 2017 in Paris, France

Chart 2.7: Rate of change in annual commodity prices and GDP growth rate in developing countries, 1995–2009

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Terms of trade and income distribution selected countries 2000-2010



Source: UNCTAD secretariat calculations based on SWIID, UNCTADstat and WEO database

Share of government revenues in rents from extractive industries, selected commodities and countries

Share of government revenues in rents from extractive industries, selected commodities and countries, 2002–2009

(Per cent)

	2002	2003	2004	2005	2006	2007	2008	2009
Oil								
Angola	72.7	76.1	72.8	61.7	69.3	66.3	62.4	48.7
Azerbaijan	..	41.5	30.0	27.6	29.6	31.6	58.2	..
Bolivarian Republic of Venezuela	59.0	62.0	62.0	58.0	69.0	67.0	75.0	..
Chad	..	28.8	19.6	16.2	36.5	43.1	55.9	31.3
Copper								
Chile	43.2	72.8	49.0	53.3	50.2	44.3	62.6	..
Indonesia	46.0	44.0	42.0	45.0	42.0	..	..	..
Zambia	..	..	..	1.0	3.0	7.9	12.0	..
Gold								
Mali	..	..	20.9	19.3	11.1	34.4	33.3	..
Peru	21.8	27.9	26.3	30.0	28.5	29.7	27.4	..
United Republic of Tanzania	19.2	13.1	18.7	32.0	10.1	13.2	16.3	10.3

Source: UNCTAD (2010: table 5.2).

Note: Rent is defined as the difference between the sales value and the cost of production, including capital depreciation. 2008 data for Chad include anticipated 2009 payments to the Government.

The arrangements between the gov's and TNCs dictate the share of rents accruing to the government from a commodity or TOT boom.

Terms of trade volatility and economic growth

Favourable terms of trade changes, in countries whose governments capture a significant share of the associated windfall revenues, enjoy an enlargement of their policy space stemming from favourable developments in both the balance of payments and fiscal revenues.

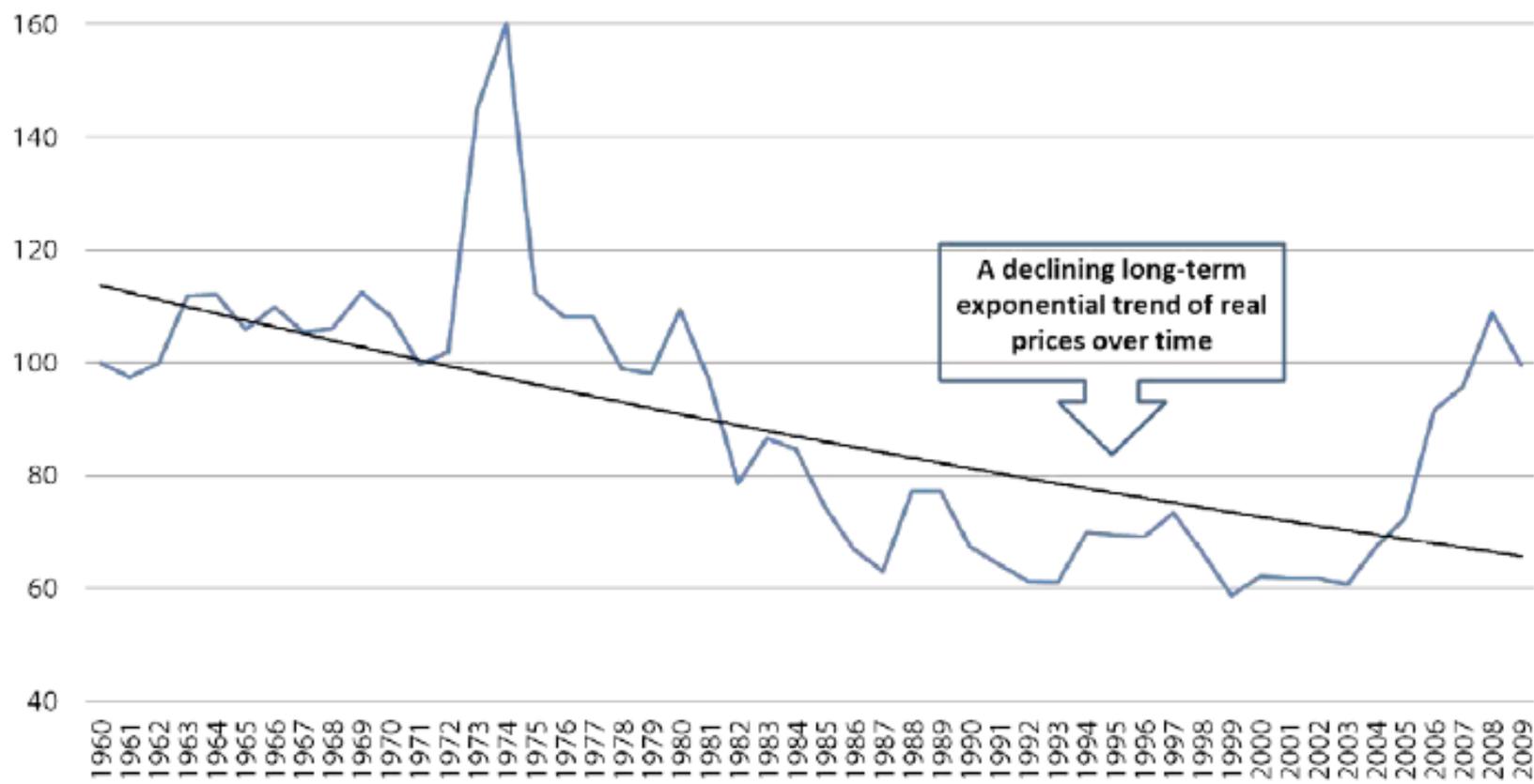
The challenge arises as to how this greater policy space can be used best to bolster long-term growth and development. Higher productive investment and a better income distribution, on the one hand, or pursuing counter-cyclical policies, and therefore, save part of the windfall.

Several studies have shown that a large part of the variance in developing countries' growth performances, can be directly explained by external shocks, especially TOT shocks (Easterly et al., 1993, Guillaumont and Guillaumont-Jeanneney, 1997).

Hence, a key challenge is to deal with two potentially offsetting forces: Over the short run, positive terms-of-trade shocks will always (*ceteris paribus*) raise GDP, and the empirical issue is only how much. Over the long run, however, a positive terms of-trade shock in primary product-producing countries will reinforce comparative advantage, suck resources into the export sector from other activities, and cause deindustrialization" (Hadass and Williamson, 2003: 640–641).

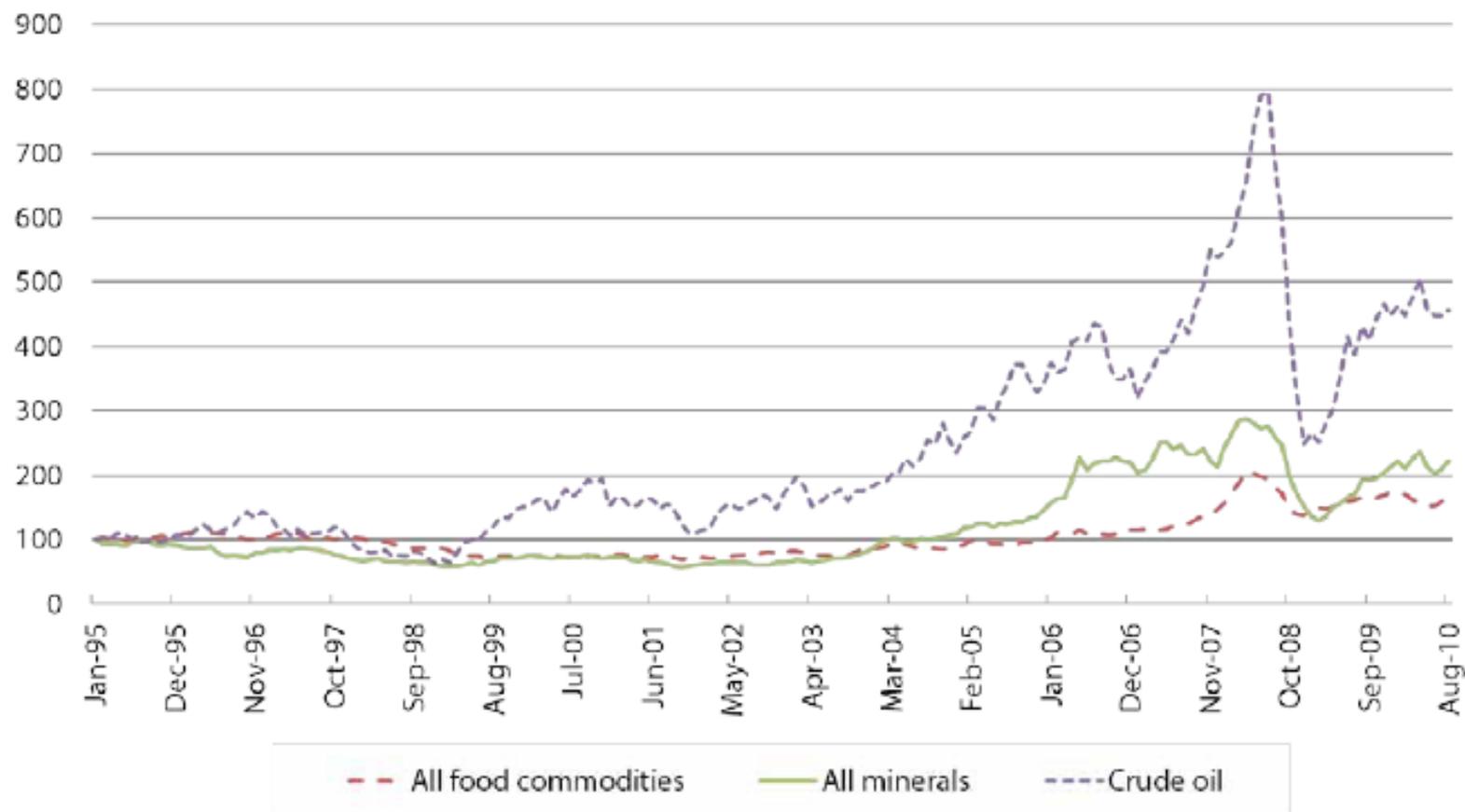
Index of real commodity prices, 1960–2009 (1960=100)

Chart 2.5: Index of real commodity prices, 1960–2009 (1960=100)



Source: Calculated using data from UNCTAD, Commodity Price Statistics 2010 and International Financial Statistics 2010

Annex 2.B: Monthly Current Price Index for Major Commodity Categories, Jan 1995–Aug 2010 (Jan 1995=100)



Source: Calculated using data from UNCTAD, *Commodity Prices Statistics 2010*

Impact of TOT shocks on a developing economy

A typical price dilemma may arise: increased agricultural commodity prices for exports can generate additional income, which can be beneficial in countries where agriculture is a large share of the economy; but at the same time, the increased agricultural commodity prices can reduce real incomes of both urban and rural net food buyer households.

The relative importance of these two opposite effects, together with the degree of substitutability between domestic and foreign goods, and the ability of the economy to adjust to changed relative prices will determine the overall impact;

The degree of households' participation in agricultural markets, the balance between tradables and non-tradables in both the factor and the output markets will also contribute to determining the results.

What can macroeconomic policy do?

Example. Impact or terms of trade changes in Tanzanian economy (Conforti and Sarris, 2007, 2008)

- agriculture is 45% of GDP and 70% of employment;
- farm average size is 1 to 3 ha, backward technology, mostly rainfed
- poverty is highest in rural areas; 40% of households below the basic needs poverty line
- increasing agricultural labour productivity through infrastructures and integration has a strong pro-poor impact (Wobst, 2003)

Terms of trade changes in Tanzanian economy

- Terms of trade shock between 2001-2007 was a deterioration of the TOT by 18%, equivalent to a negative shock equal to 5.9% of GDP

Table 5. Origin of the external price shock
(percent of 2001 GDP)

	exports	imports
Agriculture, Fishery & Forestry	2.28	0.38
Food	0.03	0.33
Others	1.42	8.87
Total (sum of the above)	3.73	9.58

Source: author's calculations

Methodology

Comparative static CGE model calibrated to a 2001 data set.

Model structuralist in the sense that not all markets balance by price adjustment.

Model structure and closure assumptions

flexible prices in commodity markets

- flexible wages in skilled labor markets (assume fixed total quantity of female and male skilled labor available)
- fixed wages in unskilled labour (assume fixed wage differentials for skilled labour, hence substitution among unskilled labor classes, but variable total supply of unskilled labor). Lewis assumption
- fixed levels of total land (substitution among ag. products allowed) and fixed capital in each sector
- savings-driven investment, flexible exchange rate with fixed foreign savings
- fixed level of government current expenditures, endogenous government surplus (government savings), fixed tax rates

Further structural considerations

- income effects and the attendant closure rules which assume less than full employment is a more appropriate assumption for low income commodity dependent countries like Tanzania.
- The Tanzanian economy may fail to benefit from the opportunities arising from the improved world agricultural prices due to its structural constraints, that may limit the transmission of price signals from the border to producers; and due to the low degree of adjustments of the domestic economy, arising from the wide presence of non tradable and subsistence activities, as well as large trade and marketing margins.
- Objective: Analyze the effect of structural conditions in determining the response to price shocks, as well as to the related policy responses.

Scenarios simulated

import and export price increases (BASEPR), plus

- 20 percent cut in import tariffs (TARCUT)
- 20 percent increase import tariffs (TARINC)
- 20 percent cut in the tariffs on products whose price has increased in BASEPR (TARSELECT)
- 10 percent export tax (EXPT)
- 20 percent decrease in marketing margins (TRANSPDW)
- foreign savings increased to compensate the total increased net import bill in BASEPR (FSAVBL)
- foreign savings increased to compensate half of the increased net import bill in BASEPR (FSAVHBL)

Aggregate impacts of the TOT shock under high and low marketing margins (TD)

Table 6. Aggregated results under the basic scenarios

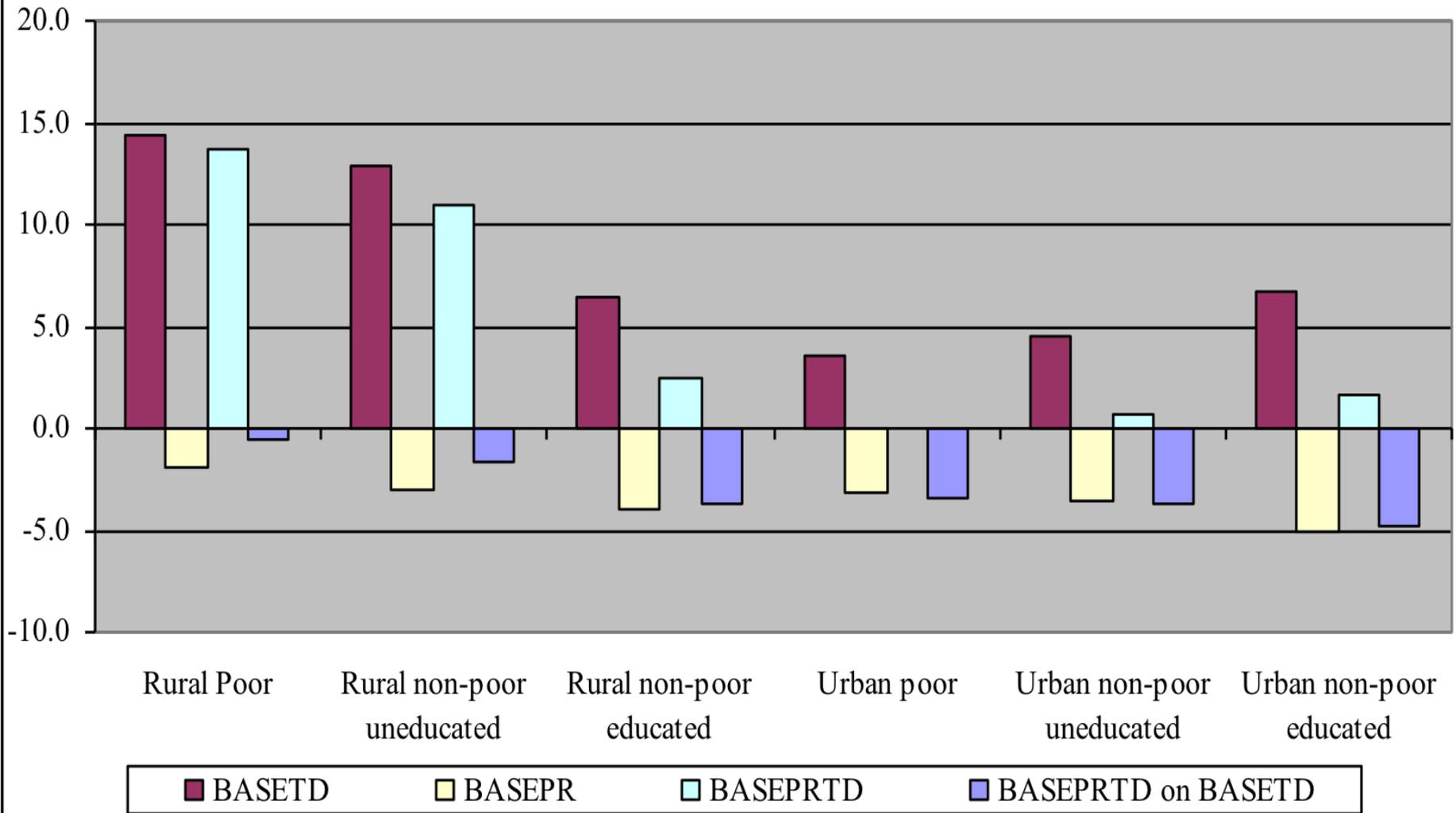
(million Tz shillings in BASE and percentage changes from BASE in other scenarios)

	BASE	BASETD	BASEPR	BASEPRTD	BASEPRTD on BASETD
GPD	7804.2	3.9	-1.3	2.9	-1.0
agricultural import	24.8	16.1	-3.4	11.5	-4.0
total imports	209.3	11.4	-7.0	3.9	-6.7
agricultural export	22.6	54.9	35.7	88.2	21.5
total exports	107.8	9.1	6.0	14.3	4.7
investment	1.000	0.7	-11.2	-11.8	-11.3
government savings	92.5	-24.0	30.0	1.8	33.9
unskilled labour	2.5	14.4	-3.0	12.6	-1.8
nominal exchange rate	1.000	4.7	-21.1	-17.4	-21.0
real exchange rate (trd/nontrd)	1.000	-8.1	2.1	-7.4	0.7

Source: author's calculations

Impact of the TOT shock on household welfare

Figure 1. Percentage welfare changes from BASE



Conclusions I

- The ability of the country to adjust to a change in its TOT is limited at best, and that a significant share of this limitation depends on the presence of structural constraints.
- The negative TOT shock generates a significant negative income effect in the economy: production and consumption are reduced, together with savings, and this drives down both GDP and investment. The economy becomes more polarized on few exportable products - but output shrinks in most other activities. Welfare is reduced, especially for the urban poor, where the incidence of net food buyers is higher, and less so for the rural poor households, where self-consumption is widespread
- Cutting tariffs produces positive but very limited effects: it can counteract the reduction in domestic production, and this yields a positive outcome on unskilled labour, which drives GDP slightly up. On the contrary, export taxes appear to produce questionable effects: output decreases further in all activities but the few exportables and some non tradables. Rather, reducing indirect taxation yields a moderate expansionary effect, as it stimulates production in the activities which are oriented towards the domestic market, especially in agriculture. And the injection of foreign resources appears to affect primarily the nominal exchange rate, whose appreciation penalizes production and exports, while easing imports.
- The same price and policy shocks would produce less dramatic changes if the marketing margins would be 20 smaller than what they are in the actual SAM: trade would react more, but GDP and unskilled labour would be reduced less. This indicates that tackling some of the structural bottlenecks would increase the adaptability of the economy.

Conclusions II

- The booming of world commodity prices may produce excessive polarization of the economy on few viable exportables – while leaving behind most of the other activities - and generate the undesirable welfare outcomes that were observed in the simulations. As seen, while policies can dampen these negative outcomes, tackling structural constraints seems to yield a higher impact, especially in terms of improved adaptability of the economy

Microeconomic considerations

- In economies with large and frequent negative income shocks (environmental or other), and credit constraints, households tend to hold precautionary savings.
- These savings are normally held in assets that can be easily liquidated (livestock, jewels, cash, food stocks, etc.)
- Since these savings are largely in non-capital items, the larger the amount of precautionary shocks the lower the amount of productive capital that is invested out of any amount of fixed savings.
- Implication is lower growth

What can governments do to induce households to hold less in liquid precautionary savings and invest more?

- 1. Institute more reliable safety nets for households hit by negative income shocks
- 2. Organize and possibly subsidize a variety of household specific insurance instruments that can be reinsured in international markets (e.g. weather index insurance)
- 3. Create macro precautionary funds that are built up in times of positive shocks and depleted in times of negative shocks.
- Issues or credibility and trust of governments as households must perceive permanent changes in probability distributions of exogenous random events before altering their behavior.

Thank You