

Box 2: The long-run price elasticities of imports and exports in the South African Reserve Bank's core macroeconometric model

The recent depreciation of the rand has highlighted the question of how responsive South African imports and exports are to changes in the exchange rate and relative price movements. In the case of a depreciation of the rand, South African exports become cheaper for foreigners, while in instances where South Africa is a price taker in international markets with foreign currency-denominated prices given, the rand receipts of exporters rise. This boosts South African export volumes. Simultaneously, with a depreciation of the domestic currency, imported goods become more expensive for South Africans, causing a substitution effect favouring locally produced goods over imported goods.

The accompanying table displays the long-run import and export price elasticities in the South African Reserve Bank's core macroeconometric model. Import volumes are more responsive to changes in relative prices than export volumes. In the long run, an increase of 1,0 per cent in the relative price of exported goods and services leads to an increase of 0,3 per cent in the volume of such exports. Furthermore, an increase of 1,0 per cent in the relative price of imported goods and services eventually results in a decline of 0,8 per cent in the volume of non-oil imports. The immediate effects of such price changes are much smaller since these substitution effects take time to work through. It may be noted that imports of oil are treated as an exogenous variable in the model.

Long-run import and export price elasticities

	Absolute price elasticity
Imports of non-oil goods and services.....	0,8
Total exports of goods and services	0,3
Sum	1,1

The combined import and export price elasticity in excess of 1,0 in absolute terms validates that the Marshall-Lerner condition holds for the South African economy. Over the long run, a depreciation in the domestic currency will lead to an improvement in the net position on the current account of the balance of payments.

An earlier version of the core model of the South African Reserve Bank is discussed in "The core forecasting model of the South African Reserve Bank", Working Paper WP/07/02, available on the Bank's website. In the current version of the model the external block still functions in essentially the same way, although coefficient estimates have been updated on the basis of new data.