1.3. Commodity shocks and the socialist 'big-push'

During most of the period of study covered in this paper (1975-1986), the government of Mozambique engaged in a development strategy inspired by marxist ideology and aimed at establishing a socialist-type economy in the country. This strategy was announced in 1977, followed by an extensive planning exercise that resulted in a long term development plan, the '1980-1990 Prospective and Indicative Plan' (PPI - for 'Plano Prospectivo Indicativo'). The paper therefore addresses the commodity shocks in the context of an ideologically inspired policy shock (the socialist 'big-push') that favoured expansionary fiscal and monetary stances. The principal argument throughout the paper is that shadowing the exogenous commodity shocks that affected the economy, the socialist 'big-push' amounted to a shock of its own, with powerful implications on the behaviour of public and private economic agents. The abnormal changes in consumption, investment and savings behaviour of both private and public economic agents that took place during this period can hardly be ascribed to the effects of the commodity shock alone. In particular, the expansive fiscal and monetary policies and the concomitant explosion of the fiscal and current account deficits were to a large extent inevitable under the socialist 'big-push'.

The combination of the regime shift (or ideological shock) with the commodity shocks complicates the analysis of the way the latter were perceived by the authorities and the private agents, as well as the nature and functioning of the transmission mechanism of the windfall gains or losses of income. Thus, while the quantitative exercise focuses on disentangling the presence, source, timing and size of the commodity shocks, the analysis of causality links between these shocks and the booms in investment, consumption, fiscal and current account deficits requires that the impact of the socialist 'big-push' be taken into account.

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4Hence the argument in this paper that far from 'causing' (or 'inducing') the investment, fiscal and foreign debt booms, the commodity boom played an enabling role by generating the required creditworthiness for the country to borrow abroad.

5Though there are theoretical and empirical reasons to believe that the investment and fiscal booms could have been induced by the commodity shocks, the paper makes no strong claim for that argument. Rather, the evidence suggests that the socialist 'big-push' played an important role in determining the patterns of savings, consumption and investment identified, though the pursuit of the expansive socialist policies themselves could have been facilitated by the occurrence of the windfall gains, the same way as its collapse was precipitated by the losses when the terms of
1.4. The issues

Shocks involve large, often unexpected, changes in the economic circumstances of a country. Both private economic agents and government must adjust by changing their production, consumption and savings patterns. Sometimes governments themselves create events which from the point of view of the private agents amount to shocks. This is the case when a government decides to implement radical change of the economic regime. Even in circumstances when the policy regime is relatively stable, governments often intervene and impose controls that tend to alter the way in which rational agents respond to exogenous changes in economic circumstances, creating a departure in their behaviour from what would be in the absence of interventions. When an exogenous shock occurs in the context of a regime change, agents have the added burden of having to adjust to the new regime, in addition to responding to the exogenous shock. The more complicated will be the situation when the regime change is towards a more restrictive and controlled environment. Finally, the way the government itself reacts to the exogenous shock is influenced by the nature of the existing or emerging regime. These issues define the subject matter of this paper.

In particular, the paper deals with three sets of issues that emerge in connection to the relationship between regime (or ideological) shifts and commodity shocks. All relate to the way the prevalence of the socialist-type regime influenced the transmission mechanism of exogenous shocks in the economy of Mozambique. The first derives from the role of the state in the socialist-type regime as a major owner of assets, direct recipient of the windfall income gains or losses, and as a major player in consumption, savings and investment decisions in the economy. The second relates to the extent to which quantitative allocations of goods (both intermediate and final) and trade and exchange controls will have allowed the government to condition the way in which private economic

trade became negative in 1982.


The paper is not necessarily structured around these issues, but they are discussed in various ways within the sections.

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agents perceived the shocks and internalized them in their production, consumption, savings and investment decisions, and thus the responses of the overall economy. The third relates to the implications of fiscal and monetary regimes that aimed at facilitating the operation of centralized planning and quantitative allocations. In particular, the implications of fiscal and monetary policies based on unrestricted monetization of a budget deficit generated by booming government spending to sustain capital investments in large-scale economic projects and social infrastructure.

While the essential elements of these policy stances are likely to be found in a number of other developing countries in Africa and elsewhere, the socialist 'big-push' in Mozambique was directly responsible for the generation of investment and fiscal booms in the late 1970s and early 1980s that were well above the income windfall from commodity trade shocks. This induced disproportionately higher foreign and domestic indebtedness, and the heavy dependence of the fiscal budget on foreign grants that still plagues Mozambique's economy.

2. Time Profiles, Size and Sources of Mozambique’s Commodity Shocks: 1975-1986

Ascertaining whether and when there has been a commodity shock to the economy is the first methodological step in the study of shocks. This involves the choice of the appropriate measures of the shock and its size relative to the economy. Because the paper focuses primarily on the effect of the perceived change in the international prices, changes in the barter terms of trade over time are used to detect and locate the timing of a commodity shock. The windfall or loss of income from commodity exports (as measured by the difference between the actual earnings and an appropriate counterfactual) is used to measure the absolute size of the shock. The proportion of the windfall to Gross Domestic Product at constant factor costs and the implicit permanent income rise or fall are used to measure the size of the shock relative to the economy. Because the determination of the windfall income entails the establishment of a counterfactual stream of earnings (i.e. the

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*This paper will focus more on the fiscal aspects of the transmission mechanism. The monetary components will be dealt with in a separate paper.*

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earnings that would have arisen had not there been a terms of trade change), the first crucial decision in the analysis concerns the choice of an appropriate base-year for the terms of trade and gross income measures. This section deals with these issues.

2.1 The choice of the base year

In this study, 1975 has been fixed as the base year for the terms of trade used to compute the counterfactual stream of income from Mozambique’s commodity exports\(^9\). Two criteria determined the choice of this base year. First, by 1975 the first major oil price shock had already taken place and in the subsequent two years the import price either declined or increased at relatively moderate rates compared with the export price, generating a sudden and favourable change in the country’s terms of trade. Second, in 1975 the international prices of primary commodities that constitute the bulk of Mozambique’s exports had fallen to their trend level following the major increase observed in 1974 (which was probably related to the hike in the international oil prices).

In addition to the base year for prices and terms of trade, the generation of counterfactuals for various macroeconomic indicators required the establishment of corresponding reference years. The rationale for the choices made in each case will be presented in the relevant sections of the paper. The base-year for real Gross Domestic Product (GDP) has been established at an average of its level in the two years 1976 and 1977. As shown in Table 1 (previous section) and depicted in Figure 1 below, in 1976

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\(^9\) The unit import and export price indexes have been computed by the author on the basis of data made available by the Ministry of Trade and the National Directorate for Statistics of the National Planning Commission of Mozambique. For exports, the commodities included cover between 74% (1975) and 99% (1984) of the country’s total commodity exports. This excludes miscellaneous (mostly manufactured) goods which were around 26% in 1975 and just over 1% in 1984. The coverage of the import basket is around 80%. The weights used in the calculation of the indexes of import and export prices are the average shares of the individual commodities for the two years 1975 and 1976.
GDP fell by around 17%, reflecting the impact of the decolonization process\textsuperscript{10} and the decline of international prices of primary commodities to their trend level\textsuperscript{11}.

\textsuperscript{10}The decolonization shock started in 1973/74 with the massive exodus of colonial settlers, capital flight, illegal exportation of plant equipment or its sabotage/destruction. The events were triggered by the defeat of the Portuguese army by Mozambique’s nationalist movement, and by the failure of attempts in 1974 by a right-wing movement of Portuguese settlers to halt the decolonization process and to take over power and set up a UDI/Rhodesian-type white-dominated ‘independent’ state in Mozambique. Even though these disturbances continued up to the end of 1976, it is assumed that most of it had taken place by then.

\textsuperscript{11}The price index of total export prices of these commodities for developing countries fell from 107 in 1974 to 86 and 95 in 1975 and 1976 (base: 1975-1977=100), implying declines of 19.6% and 11.2% relative to the base year. Their levels in 1972 and 1973 had been 51 and 78 respectively. Agricultural raw materials from developing countries increased by 10.8% between 1973 and 1974, only to fall again by 16.7% in 1975, more than offsetting the previous gain. The prices of ores and minerals from these countries increased by 32% in 1974 relative to the previous year, and fell by 18% in 1975 compared to 1974, remaining stable over 1976. Starting in 1977 a sharp increase in developing countries terms of trade is generally observed, with the total primary commodity price level increasing by 25%, those of agricultural raw materials and ores and minerals by an average 6.7% and 6.1 respectively. The overall terms of trade for non-oil exporting developing countries which (compared with the 244% oil-price hike between 1973 and 1975) only marginally increased by 12% between 1973 and 1974 and remained nearly stable in 1975, steadily declined since then. UNCTAD: Handbook of International Trade and Development Statistics.
It can therefore be said that the level of activity in 1977 is a reasonable approximation to the productive capacity of the economy at the time when it was subjected to the first commodity shock in 1977, and when the government approved and initiated the implementation of the socialist development strategy.

2.2. The timing of the commodity shocks in Mozambique

To identify commodity shocks in Mozambique the study scrutinized the time profiles of the overall barter terms of trade and the shares of individual commodities in total commodity export earnings for the period 1975 to 1986. These time profiles offer an initial indication of the timing and magnitude of the shocks. When the terms of trade income windfall has been computed, a more precise identification of the timing of the shock and assessment of its source and magnitudes are undertaken.

2.2.1. The changes in overall barter terms of trade

Overall, there appears to have occurred three terms of trade shocks in the period between 1975 and 1986 in Mozambique, each of an opposite sign relative to the preceding\textsuperscript{12}. The first terms of trade shock in independent Mozambique occurred in 1976-77, when they improved substantially due mainly to a substantial increase in export prices. Thus, on a year-to-year basis, the barter terms of trade increased by 13.0 and 24% in 1976 and 1977 respectively. For the rest of the 1970s through to 1981 they experienced relatively minor fluctuations within the range of -6% and 8%. However, behind this relative stability of the barter terms of trade there was a major fluctuation in the average unit import and export

\textsuperscript{12}This made it possible to isolate the influence of changes in these shares on the time profile of the import and export price indices and the terms of trade. While for all the commodities included in the calculations the import and export prices are actual c.i.f. and f.o.b. unit prices for Mozambique, the import prices of crude oil and machinery and equipment and the export price of oil derivatives are taken from international sources, as country specific quantity data were not available to allow the computation of unit prices. However, because the series for the values of exports and imports of these commodities where available, the weights for these items in overall barter terms of trade are country specific. The computation of price and terms of trade indexes by the author of this study was made necessary by the absence of any other source of import/export and terms of trade series long enough to cover the period of study in any consistent way. Comparing the results for those years in which series of unit import and export prices and terms of trade series are available from other sources, the series computed in this study have performed well in terms of picking up the orders of magnitude, trends and turning points.
prices. The unit export price increased by nearly 19% and 28% in 1979 and 1980 respectively, while the import price rose by around 10% and 36%\textsuperscript{13} (Table 2 and Figure 2).

The second terms of trade shock was of a negative direction, and occurred in 1982, when they fell by 22% fall in overall barter terms of trade. Further fluctuations in the terms of trade occurred in the rest of the second half of the 1980s, but the major one occurred in 1986, when they increased by an unprecedented 40%. This initiated the third terms of trade shock at the close of the period of study.

Overall, the export price index increased by more than 160% between 1975 and 1981, while the import price rose by only 73%. Cumulatively, terms of trade increased by nearly 60% between 1975 and 1977, and fell by nearly 22% between 1979 and 1982 (all of this decline occurring in 1982 alone). Starting in 1983 the terms of trade to Mozambique improved steadily up to 1986. This resulted in a cumulative increase of 22% between 1983 and 1985, compounded by nearly 40% rise in 1986 relative to 1985.

As it will be seen in the following sections, both the absolute and the relative sizes of the income gains and losses resulting from these terms of trade changes are small and it is unlikely that they would by themselves have induced the observed booms in investment, consumption and foreign borrowing. Rather, it is the interaction of the terms of trade shocks and the expansive socialist policies that can explain the macroeconomic imbalances that developed in the economy, particularly after the negative shock of 1982\textsuperscript{14}.

\textsuperscript{13}In 1980 Mozambique's terms of trade fell by nearly 6%, mainly due to the effect of the second oil price hike. With an increase in the export price of around 28%, the oil shock was definitely softened. This resulted from the fact that as well as being importer of crude oil, Mozambique had a large refining capacity and exported petroleum products which tended to move in line with the prices of crude oil. Thus, the terms of trade effect of the international price shock is mainly due to the differential shares of imports of crude and exports of petroleum products in total import bill and export earnings respectively. In 1980 the share of imports of crude oil and petroleum products in total commodity import bill was 36% (the highest experienced in any single year of the period of study). Meanwhile the share of the exports of petroleum products in total commodity export earnings was around 23% (also the highest in the period of study).

\textsuperscript{14}Later in the paper an attempt is undertaken to disaggregate the commodity and the 'big-push' shocks. The results should be taken with a lot of care. They cannot be considered conclusive because the quantitative exercise does not separate the interaction term, which is the crucial factor in the analysis of this paper. Within the methodology of this paper, there is no possibility of extracting the quantitative measure of this interaction factor.
Table 2. Mozambique. Unit import and Export Prices and Terms of Trade

<table>
<thead>
<tr>
<th>YEAR</th>
<th>INDEXES (1975–100)</th>
<th>TERMS OF TRADE</th>
<th>ANNUAL PERCENTAGE CHANGE</th>
<th>TERMS OF TRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EXPORTS</td>
<td>IMPORTS</td>
<td>EXPORTS</td>
<td>IMPORTS</td>
</tr>
<tr>
<td>1975</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>-</td>
</tr>
<tr>
<td>1976</td>
<td>138.3</td>
<td>94.3</td>
<td>146.7</td>
<td>36.3</td>
</tr>
<tr>
<td>1977</td>
<td>216.0</td>
<td>119.6</td>
<td>180.2</td>
<td>56.1</td>
</tr>
<tr>
<td>1978</td>
<td>206.0</td>
<td>124.0</td>
<td>165.1</td>
<td>-4.6</td>
</tr>
<tr>
<td>1979</td>
<td>204.6</td>
<td>136.0</td>
<td>150.5</td>
<td>-0.7</td>
</tr>
<tr>
<td>1980</td>
<td>289.6</td>
<td>203.4</td>
<td>142.4</td>
<td>41.5</td>
</tr>
<tr>
<td>1981</td>
<td>357.3</td>
<td>201.7</td>
<td>177.1</td>
<td>23.4</td>
</tr>
<tr>
<td>1982</td>
<td>308.1</td>
<td>216.9</td>
<td>142.1</td>
<td>-13.8</td>
</tr>
<tr>
<td>1983</td>
<td>360.5</td>
<td>187.7</td>
<td>186.7</td>
<td>13.8</td>
</tr>
<tr>
<td>1984</td>
<td>455.2</td>
<td>172.5</td>
<td>263.8</td>
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<tr>
<td>1985</td>
<td>507.8</td>
<td>150.1</td>
<td>337.6</td>
<td>11.6</td>
</tr>
<tr>
<td>1986</td>
<td>681.1</td>
<td>134.2</td>
<td>507.6</td>
<td>34.1</td>
</tr>
</tbody>
</table>


Notes: Import and export price indexes are Laspeyres, calculated by the author using unit import values (c.i.f.) and export values (f.o.b.) derived from primary quantity and value trade data from the sources indicated. Weights for individual commodities are average 1975–76 shares of total commodity import and export values. The unit import and export values were converted into Dollar terms to isolate the effect of large exchange rate movements.
The following two sub-sections deal with the detailed investigation of the sources of these changes in overall barter terms of trade, by analysing the time profiles of the unit export values and shares of individual commodity earnings in the total commodity export revenues.

2.2.2. Movements of unit export values of individual commodities

Differently from many Sub-Saharan countries, Mozambique’s structure of commodity exports is relatively diversified. This implies that before a disaggregated analysis, it would be unwise to associate the trade shocks signalled by the changes in the overall barter terms of trade with developments in the markets for one or two commodities. This sub-section undertakes such analysis.
Figures 3.a, b, c below show the time profiles of unit export values of the main traditional commodity exports. First it can be seen that nearly all the commodities experienced substantial export price increases between 1977/78 and 1981/82.

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35 These indices were computed from the current Dollar value of exports, and do not therefore embody the effect of change in the exchange rate of the domestic currency.