COMMODITY EXPORT BOOMS IN DEVELOPING COUNTRIES

John Cuddington

Many developing countries rely heavily on one or two primary commodities for national income and foreign exchange. As table 1 shows, the share of primary commodities in the exports of developing countries was less than 50 percent in 1986. Although this ratio has fallen from 80 percent in 1965, primary commodities continue to loom large in the exports of low-income and middle-income developing countries.

In nearly all these countries, developments in commodity markets strongly affect the economy as well as the budget. Trade taxes generate a large portion of government revenue, and many governments have a direct stake in the production of commodities, especially fuels, metals, and minerals. Others earn profits (or incur losses) as international marketing agents for private producers.

This article surveys the experience of countries whose commodity exports have boomed because of either discoveries of natural resources or increases in world prices. By capitalizing on such developments, some countries have improved their growth while servicing their debt. Others have mismanaged the booms and as a result have lost opportunities and (arguably) reduced their economic welfare. The article reviews the theoretical literature on resource booms and the “Dutch disease” and then discusses the experiences of Colombia, Cameroon, Kenya, Nigeria, and Jamaica in the 1970s. In drawing some conclusions from the country studies and other recent empirical research, the article highlights aspects of booms that are underemphasized in the literature on the Dutch disease.
Table 1. Structure of Merchandise Exports
(percentage of total merchandise exports)

<table>
<thead>
<tr>
<th>Economic group</th>
<th>Fuels, minerals, and metals</th>
<th>Other primary commodities</th>
<th>Total primary commodities</th>
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<td>Low-income economies</td>
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<td>17</td>
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<td>China and India</td>
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<td>Other low-income economies</td>
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<td>Middle-income economies</td>
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<tr>
<td>Lower middle-income</td>
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<td>Developing countries</td>
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<td>27</td>
<td>26</td>
<td>51</td>
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<tr>
<td>Oil exporters</td>
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<tr>
<td>Exporters of manufactures</td>
<td>9</td>
<td>8</td>
<td>45</td>
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<tr>
<td>Highly indebted countries</td>
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<tr>
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<tr>
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<td>1</td>
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<tr>
<td>Industrial market economies</td>
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Booming Sector Economics and the Dutch Disease

To specify when and how government intervention might be beneficial, an analysis of commodity booms needs to consider both their microeconomic and their macroeconomic consequences. At the micro level, the effect is initially on the sector that produces the booming commodity, but it spreads to other sectors as domestic demand increases and factor markets adjust. In prolonged booms, considerable structural change may be needed. At the macro level, external shocks have important monetary effects through their impact on foreign exchange reserves and access to foreign capital markets.

The consequences of the boom for allocations can be summarized by focusing on two effects: the spending effect and the resource movement effect. For short-lived booms, the spending effect is more important. It refers to the higher level of domestic spending on both tradable and nontradable goods as the boom raises domestic wealth. This in turn causes an appreciation of the real exchange rate—that is, the relative price of nontradables rises in terms of nonbooming tradables. Unlike tradables, the supply of nontradables is generally not perfectly elastic at the preboom price. Hence, the spending effect usually causes the price of nontradables to rise in relation to that of tradables.

The boom also results in a contraction of the nonbooming tradables sector as relative prices adjust. This is often referred to as
deindustrialization or deagriculturalization—an economic mechanism that helps to restore market equilibrium. Even so, it is often considered undesirable by policymakers, particularly if it occurs on a large scale and the boom is expected to be short-lived. For example, the temporary loss in production may mean a loss of development momentum, if the lagging sector provides benefits that spill over to other industries. Such spillover benefits might include learning by doing, which generally depends on cumulative production experience. The best policy in such cases is a production subsidy to the lagging sector. If the capital market functions imperfectly, it is usually optimal to increase this subsidy during temporary booms to prevent an excessive contraction of the lagging sector (see van Wijnbergen 1984). A second reason for intervention is the possibility of temporary unemployment in the lagging sector caused by nominal wage and price stickiness.

In economies where the booming sector is not an enclave, isolated from other parts of the economy, higher prices and profits induce producers in the booming sector to draw resources from the lagging tradables sector, the nontradables sectors, or the pool of unemployed. This resource movement will result in more severe deindustrialization and appreciation of the real exchange rate than would occur if the booming sector were an enclave. This is likely to heighten the concern of policymakers over the potentially adverse consequences of the boom.

Finally, it should be noted that export booms involving increases in the world price of exportables (that is, an improvement in the terms of trade) have an ambiguous effect on the current account of the balance of payments, depending on the boom’s impact on saving and investment. For booms that are expected to be temporary, the presumption is that the short-lived rise in income will cause current spending to rise, but by a smaller amount, so that the current account improves. The optimal borrowing or lending strategy becomes more complex if the country faced credit constraints in international capital markets before the boom (Cuddington 1987).

This section highlights some key aspects of the boom experiences of five countries—Colombia, Cameroon, Kenya, Nigeria, and Jamaica—in order to put into perspective generalizations made in the following section. Although Colombia’s policy response to the 1976–80 coffee boom had shortcomings, it compares favorably with that of other booming commodity exporters in the 1970s. Cameroon was adept and timely in its macroeconomic management of

Individual Country Experience with Booms

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booms. Kenya, Nigeria, and Jamaica are examples of countries where rather poor fiscal management led to long-term structural problems.8

**Colombia: Macro Effects of the 1976–80 Coffee Export Boom**

Colombia’s 1976–80 coffee boom, caused by an increase in world prices, improved the country’s current account from a deficit of 2.8 percent of gross domestic product (GDP) in 1974 to a surplus that peaked at 2.3 percent in 1977.9 GDP growth fleetingly exceeded its postwar average in 1978. More important, the coffee export boom caused a huge buildup in foreign exchange reserves. This situation was accentuated by foreign exchange regulations requiring exporters to convert foreign exchange earnings into domestic currency. Import restrictions that limited the demand for foreign exchange were relaxed gradually. The country’s reserves, excluding gold, rose tenfold from US$475 million in 1976 to US$4,831 million in 1980.

The increase in foreign reserves had important consequences for Colombia’s inflation and its real exchange rate. When coffee prices peaked in 1977, Colombian inflation (according to the consumer price index) reached 33.1 percent a year, compared with world inflation of 11.3 percent.10 Thus Colombia’s inflation differential relative to that of the rest of the world tended to widen during boom years.11 That also happened in other countries experiencing commodity export booms in the 1970s (see Davis 1983).

Because the rise in the inflation differential (in relation to the United States and the world) was not matched by an equal increase in the rate of crawl of the Colombian peso, a sharp appreciation of the real exchange rate occurred. The index of the trade-weighted real effective exchange rate appreciated more than 30 percent from 118.6 in 1975 to 87.4 in 1982, when the monetary authority belatedly began to engineer a real depreciation of the peso.12 The peso appreciation and strong real wage increases during the boom drastically reduced the international competitiveness of noncoffee exports.

Evidently, these factors more than offset slow progress on trade liberalization during this period, because the growth of noncoffee exports slowed significantly. As a result, Colombia experienced the sort of slowdown in its nonbooming tradables sector discussed in the literature on Dutch disease. The ratio of noncoffee exports plummeted from 10.7 percent of GDP in 1976 to 6.6 percent in 1983, roughly the same share as in the mid-1960s, before the drive for export diversification began. Thus the slow steady progress in diversifying the country’s export base between 1967 and 1974 was
reversed during the coffee boom. This lack of diversity in the export base contributed to the severity of the economic downturn when the coffee boom ended.

It has been claimed that inflation is an unavoidable side effect of export booms because the surge in foreign exchange earnings leads to rapid growth in foreign exchange reserves. This is particularly true if exporters are legally obliged to convert foreign exchange revenue into domestic currency, as in Colombia. The foreign exchange inflow causes an increase in the domestic monetary base, which is allegedly difficult to sterilize in the absence of well-developed financial markets. In Colombia, however, the link between foreign reserve inflows and the monetary base appears to have been "loose. In fact, the simple correlation coefficient between the series over the 1951–84 period was slightly negative (−0.094), not positive, as the argument would suggest.

Even without a mature government bond market, which would permit contractionary open market operations, there are other ways to sterilize foreign reserve inflows. To reduce net credit from the central bank to the government (which is what contractionary open market operations do), the government can repay loans from the central bank in periods when foreign reserve inflows are large. Alternatively, the government can reduce its net liabilities from the central bank by running a fiscal surplus and either depositing this surplus in its accounts at the central bank or repaying loans from the central bank.

Another way to reduce the monetary impact of export booms is to raise the reserve requirements on commercial bank deposits. From a fiscal policy standpoint, reserve requirements are a tax on the financial system. From a monetary perspective, increases in reserve requirements reduce the money multiplier. Thus, even if export booms cause an increase in the monetary base, their effect on broader monetary aggregates will be reduced. This mechanism for sterilizing foreign reserve inflows has been used extensively during export booms in some developing countries. For example, in 1977 the monetary authority in Colombia introduced marginal reserve requirements of 100 percent to reduce the monetary impact of the coffee boom. Nevertheless, the monetary aggregates grew well in excess of growth in real GDP. Initially, the rapid monetary expansion caused real interest rates to drop to negative values, but the rates returned to positive levels by 1979, as the public investment program expanded and inflation remained high.

The budgetary consequences of Colombia’s 1976–78 coffee export boom are typical of those experienced during export booms in developing countries. In the early 1970s the Colombian government was running small fiscal deficits of around 2 percent of GDP.
Initially, the coffee boom of 1976 produced a small fiscal surplus of 0.8 percent of GDP. Government revenue grew by 28.9 percent—slightly less than the growth in nominal GDP (31.4 percent). At the same time, expenditure was slow to adjust upward, presumably because of lags in the budgetary process. This situation was temporary, however. Rapid growth in government spending began in 1977 and accelerated even after the boom peaked in 1978. Government expenditure grew at annual rates of 29.9, 35.8, 39.4, and 49.7 percent, respectively, from 1977 to 1980. These growth rates, which were well in excess of nominal GDP growth, caused the ratio of government expenditure to GDP to rise from 8.3 percent in 1976 to 10.8 percent in 1981. Consumption expenditure accounted for a substantial part of this increase; public investment, however, also increased sharply after 1979.

The effect of the boom was less pronounced on government revenue than on expenditure. Revenue climbed from 8.1 percent of GDP in 1974 to 9.5 percent in 1975, reflecting tax reforms in 1974 and 1975. During the coffee boom, revenue growth was only slightly greater than the growth in GDP. Thus the government failed to generate the additional revenue needed to pay for the aggressive increase in spending, and the fiscal surplus at the beginning of the boom quickly eroded. Within three years, a deficit had appeared. It grew steadily to 3.5 percent of GDP in 1984, as the divergence between the growth in revenue and expenditure continued.

Because sharing arrangements among different levels of government and publicly operated commodity stabilization accounts are widespread, only the consolidated public sector accounts give a complete picture of the budgetary impact of export booms. In Colombia, the consolidated public sector budget showed the same inability to match revenue growth to the runaway increases in spending as did the central government budget. Public revenue rose from 26.8 percent of GDP in 1975 to a peak of 39.5 percent of GDP in 1980, before falling somewhat when the economic slowdown began. From 1976 to 1981, however, the growth in current expenditure exceeded revenue growth. As a result, public saving declined during the boom from 7.0 percent of GDP in 1976 to 3.4 percent in 1981.

Capital investment also increased sharply, particularly after 1978. Public investment as a percentage of GDP rose from 4.0 percent in 1977 to 7.5 percent in 1981 and 1982. This rise reflected expansion in the electric and transportation sector as well as joint ventures with foreign companies in the coal and oil industries. Because public saving was falling throughout the boom, the budget of the consolidated public sector moved from a small surplus of 1.3 percent of GDP in 1976–78 to a deficit of 4.1 percent of GDP, as the public
investment program expanded.¹⁹ These investments were financed by more public sector borrowing abroad.

The Colombian government concentrated these investments on large-scale projects in noncoffee export businesses, such as coal and oil. If these investments had met standard profitability criteria (using the true opportunity cost of capital), this strategy could have fostered the country's aim of export diversification. Unfortunately, the full potential was not realized. In fact, the boom saw a collapse in nontraditional exports, which suggests that the investment policy's favorable impact on nontraditional exports was overwhelmed by the effects of the growing overvaluation of the exchange rate during the boom.

Cameroon: A Case of Adept Boom Management

Cameroon experienced two commodity export booms: a coffee price boom in 1976–77 and an oil boom in 1979–80—before which Cameroon did not export oil. The former was a price shock; the latter a result of exploitation of new offshore oil reserves beginning in 1978.²⁰ These two external shocks had different effects on the growth of real GDP, as explained below. Cameroon's management of these back-to-back booms, through prudent fiscal policy, was exemplary.

Assessing Cameroon's economic growth performance is difficult because of unreliable statistics. Available data, however, suggest that real GDP growth dropped during the 1976–77 coffee boom. In fact, a sharp rise in the world price of a country's export commodities often results in little or no surge in real GDP. Why? Although there may be some reallocation of resources, the level of capacity utilization may not be greatly affected, particularly if the economy is near full employment or if unemployment is structural. Thus even though real national income rises because of a change in the terms of trade, real domestic product shows little change.

In contrast, the 1979–80 oil boom was caused by an expansion in productive capacity, not just an increase in world prices. The boom caused real GDP to increase sharply—from 2.9 percent in 1975–78 to 14.9 percent in 1979–80—before falling to 7.3 percent in 1981–83, as world oil prices declined from their peak.

In their comparative study of boom management in Cameroon, Côte d'Ivoire, and Senegal, Devarajan and DeMelo (1987) conclude that Cameroon's macro management during the 1970s was first-rate. The increase in spending associated with the booms was modest; the government's budget, which was conservative before the booms, remained so throughout the 1970s. The real exchange rate
did not appreciate sharply, in contrast to the pattern in other booming economies (including Côte d’Ivoire and Senegal). The authors point out that the initial windfall from the coffee boom in Cameroon and from the coffee and cocoa boom in Côte d’Ivoire accrued to the countries’ commodity stabilization funds, as prices paid to domestic producers were kept below world prices. Whether this policy moderates the spending effect of the boom depends on how the government uses the additional resources. In Cameroon, current government expenditure was restrained so that substantial public saving occurred, and a large part of the windfall was invested in domestic capital formation, thereby minimizing the need to borrow abroad. According to Devarajan and DeMelo,

The post-1978 oil boom was of much greater significance but elicited a similar response. While estimates vary, there is reason to believe that up to three-fourths of the oil revenues were saved abroad. In fact, the government has used the oil revenues to retire a small part of its foreign debt. Consequently, in contrast to other oil exporters’ experiences, Cameroon’s real exchange rate continued to depreciate in the first few years of the oil era. To the extent that this windfall was spent domestically, it was channeled into investment rather than consumption; while the share of public expenditure in GDP fell slightly between 1978 and 1982, that of public investment almost doubled (1987, p. 451).

In fact, capital expenditure grew fourfold between 1978 and 1981 but then ceased to grow in real terms because the authorities recognized the limits on their capacity to absorb investment efficiently at these levels.

Cameroon was able to prevent the sharp currency appreciation that typifies commodity export booms even though, as a member of the Communauté Financière Africaine zone, it has a fixed exchange rate. In fact, gradual real depreciation occurred, implying that either internal prices of tradables were rising or prices of nontradables were falling. Cameroon’s inflation rate dropped slightly during the 1979–80 boom, although it rose sharply afterward. This suggests that prices of nontradables were rising, but at a slower rate than prices of tradables and, hence, the overall price level. The government used some of its revenue from the oil bonanza to raise producer prices of cash crops, keeping the real exchange rate from appreciating and preventing the traditional export sector from contracting Dutch disease (Devarajan and DeMelo 1987).

Although government revenue reflected royalties and taxes on the four oil companies operating in Cameroon, the revenue from production sharing was channeled into extra budget accounts.
amount of revenue was not divulged. Although such secrecy has potentially dubious effects on responsibility and accountability for public revenue, it has the benefit of reducing pressures to increase government spending, which emerge once it becomes clear that the government is flush with funds. (This was a major problem in Nigeria and Mexico, where there were breakdowns in budgetary controls as oil revenue flowed in.)

In spite of the overall success of Cameroon’s policies, the public expenditure response to the oil boom in a couple of areas was less than ideal. Between 1979 and 1985 current expenditures rose in tandem with receipts. There was a sharp rise in “subsidies and transfers,” made up largely of operating subsidies to the public enterprises, many of which generated losses as a result of poor management. Another source of concern was the rapid increase in the number of permanent civil servants, which could create a heavy burden when oil revenue declined.

Kenya: The Distribution of the Windfall and Fiscal Control

The Kenyan coffee boom in the late 1970s shows that fiscal control problems can arise even when the initial windfall accrues to the private sector. Kenya’s situation was unusual in that farmers received the full world price for their coffee, after deducting marketing and processing costs. Bevan, Collier, and Gunning note, “There were no attempts to sterilize the coffee money by putting it in, for example, some form of stabilization fund, although the Central Bank argued for this and also the IMF [International Monetary Fund] suggested something of that nature. The government, however, refused to take any such action and decided to let all the gains be passed on to the farmers” (forthcoming, p. 32). Although the government was not a direct recipient of the coffee windfall, its revenues from other taxes rose substantially. Unfortunately, this contributed to (and accelerated) the breakdown in the government’s control over public expenditures. Bevan, Collier, and Gunning stress the political economy aspect of the budget process.

[It] reflected the political difficulty of holding back expenditures in an economy with many obvious needs, when it was widely known that the Treasury had access to extra money. In an attempt to make it more difficult for the Treasury to cut down their requests, spending ministries refused to rank projects in any priority. The Treasury therefore had to enforce spending ceilings on ministries with little guidance about the relative merits of proposals. Not only did many bad projects thus come

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to be retained, but the net effect was for the Treasury to err on the side of extravagance (forthcoming, p. 35).

This lack of budgetary control led to an economic crisis in the early 1980s.

Our interpretation of the events . . . [is] that the coffee boom was the root cause of the 1981 crisis, while the crisis of the mid-1970s was a smaller adjustment problem. The boom led to a breakdown of control over public expenditure, which was not restored until 1983. There was an expansion of the public sector considerably in excess of what was sustainable under normal circumstances, and additionally private demand expanded too rapidly. The boom thus caused the serious disequilibrium in the economy. As a result of the boom the government became unable to handle its finances in an efficient and responsible way, and in consequence was unable to handle the second oil [import] price shock efficiently (Bevan, Collier, and Gunning, forthcoming, p. 53).

Clearly, the Kenyans suffered not from the coffee boom itself but from an inappropriate fiscal response to the boom. In retrospect, the coffee boom of the 1970s must be seen as a missed opportunity to accelerate Kenya’s economic development.

Nigeria: The Link between the Exchange Rate and Revenue

Nigeria is another example of fiscal dependence on primary export earnings and lack of expenditure restraint during export booms. According to Rajaram, “In the nine-month period before mid-1974, Nigerian government oil revenues almost quadrupled, the rise being due to the oil price increase, increased production and greater tax, royalty and ownership shares in oil revenue. The balance of payments surplus increased by a factor of 20 correspondingly” (1985, pp. 15–16).

The government responded with a large increase in nontradables expenditures.

A very large part of the spending was on education, transport and communication, and construction (military barracks, conference centers). The Udoji Commission’s recommendations also increased the public sector wage bill by almost 60 percent. . . . The income created by the spending increased demand for food and with domestic supplies being inelastic in the short run this quickly spilled over into imports. Port and transport bottlenecks were quickly reached and food prices began rising. Inflation received further impetus from the high level of government
expenditure which, having overtaken revenue, had pushed the budget into a deficit. The monetary expansion fueled the inflationary spiral (Rajaram 1985, p. 16).

As foreign exchange reserves began to decline in 1981, the government took on large external loans rather than curtail expenditures. In 1981–86, government oil income, mainly from the oil profits tax, royalties, and profits of the Nigerian National Petroleum Company, averaged 68 percent of total retained revenue (that is, after subtracting revenue collected by the federal government and passed on to state and local governments under revenue sharing agreements). After a 22 percent increase in 1980, oil revenue declined by 30 percent in 1981–83 as world oil prices fell. In 1984, however, revenues jumped 30 percent as a result of a sharp increase in production and changes in the exchange rate.

The Nigerian experience demonstrates the link between exchange rate policy and state revenue where the government is a net supplier of foreign exchange to the economy. When export booms lead to exchange rate appreciation, the government revenue base is eroded. Besides reducing the naira value of oil revenues, Nigeria’s currency appreciation lowered revenue from ad valorem import duties. It also switched profits from the relatively taxable manufacturing sector (tradables) to the untaxed commercial and distribution sectors (non-tradables). Consequently, federally collected revenue fell from about 25 percent of GDP in 1981 to 20 percent of GDP in 1985. However, the revenue to GDP ratio improved sharply to 24 percent in 1986, as a result of devaluation in the last quarter of the year and efforts to widen the tax base. The sensitivity of government revenue to the exchange rate suggests that avoiding overvalued exchange rates during booms will help prevent fiscal problems—provided the government succeeds in limiting expenditure if revenues remain intact.

**Jamaica: Booms and Economic Stagnation**

Jamaica’s growth in the 1960s is in sharp contrast to its economic stagnation in the 1970s and first half of the 1980s. The country experienced positive economic growth during every year of the 1960s except 1963, when the growth rate dropped slightly before surging ahead at 12.3 percent in 1964. In 1970–85, real growth languished, and GDP dropped by 5 percent to 6 percent in some years. This stagnation was accompanied by higher inflation than in the 1960s—or in the industrial countries during the 1970s.

It is useful to examine Jamaica’s fiscal situation during this period. The ratio of the fiscal deficit to GDP was 2 percent to 3 percent in the 1960s. It climbed in the early 1970s, from 2.7 percent of GDP...
in 1970 to 5.3 percent in 1973. Even though Jamaica’s bauxite earnings soared in 1974–75, the fiscal deficit rose to 7.9 percent of GDP. When the boom ended, the deficit ballooned to 15.5 percent of GDP, as revenues fell and expenditures increased sharply. A second bauxite boom in 1979–80 did nothing to improve the fiscal balance. The deficit rose to 20.8 percent of GDP in 1980, as expenditures outstripped increased revenue.

Conventional stabilization policy would have dictated a reduction, not an increase, in the deficit ratio. Yet Jamaica’s fiscal deficit to GDP ratio rose during both the 1974–75 and 1979–80 booms compared with its level before the booms. This fiscal performance was anything but stabilizing. Moreover, the secular deterioration in the country’s fiscal position has been a major contributor to the unsustainable external imbalances plaguing the Jamaican economy during the 1980s.

Despite two export booms in the 1970s, Jamaica’s fiscal position worsened dramatically. Control over public expenditure waned, and slow revenue growth was accompanied by heavy dependence on foreign borrowing. Between 1970 and 1980, Jamaica’s public and publicly guaranteed long-term debt rose from 30.2 percent of exports and 12.0 percent of GDP to 101.2 percent of exports and 60.0 percent of GDP. The debt became even more onerous in the early 1980s, as demand from traditional export markets for bauxite and alumina stagnated and the government failed to correct growing fiscal imbalances and an overvalued exchange rate.

A new government, which came to power in October 1980, attempted to reduce the role of the public sector and create a policy environment more conducive to rapid growth in the export-oriented sectors. From 1980 to 1985, however, progress was minimal. Management of the economy became the primary concern of policymakers, who were faced with reduced capital inflow from abroad and the need for repeated rescheduling of existing external obligations. Given the country’s heavy debt-servicing burden, the fiscal authorities had little financial or fiscal flexibility to conduct countercyclical stabilization policy in the recessionary domestic environment of the first half of the 1980s. Even the narrower objective of restoring fiscal balance was made considerably more difficult by the large debt overhang.

Generalizations from Country Experiences

In practice, there has been a tendency to overspend during and following export booms, which has considerably reduced realizable welfare gains. Overspending may be the result of excessive increases in consumption by either the private or the public sector, or overly
ambitious and inefficient capital investment programs. The ratchet effect of increased government spending during booms, which proves difficult to reduce once the booms subside, is common.

It is naturally equilibrating for the real exchange rate to appreciate during booms and to cause contraction in the nonbooming tradables sectors. A number of points can be made about this phenomenon as it relates to exchange rate management. First, if the exchange rate is overvalued at the start of the boom, further appreciation may not be needed to restore equilibrium. This was the case in Colombia, Nigeria, and Jamaica during the late 1970s, as these countries entered their second booms of the decade. Second, if excessive spending results from an export windfall, the equilibrating appreciation of the real exchange rate will have to be greater than would have been required under optimal expenditure levels. Third, contraction of the lagging sector may have some negative effects if cumulative development benefits from continuous production are lost. This situation may have occurred in Colombia, where the 1976–80 coffee boom erased much of the gradual expansion in nontraditional exports fostered by policies over the decade before the boom. Finally, the monetary impact of the boom, through its effect on the inflow of foreign reserves, may cause a temporary surge in inflation, while the real exchange rate overshoots its equilibrium level (see Edwards 1985).

In many cases, the size and the persistence of the real exchange rate appreciation following export booms appear excessive from a social standpoint, although determining the socially optimal path for real exchange rates is virtually impossible. The high value of the domestic currency often persists long after the boom has subsided, hampering the readjustment of the nonbooming tradable goods sector. The overvalued exchange rate may be sustained for a while because of the large accumulation of foreign exchange reserves during the boom. This situation reduces pressure on the central bank to depreciate the real exchange rate quickly after the boom. Permanently higher levels of government spending, which are often initiated during temporary booms, also contribute to sustained overvaluation. This occurred in the coffee boom in Colombia and the oil boom in Nigeria in the late 1970s.21

Several features are common to booming economies, in addition to the tendencies to overspend and to allow exchange rate overvaluation to become acute. The following patterns are typical of the developing countries examined in this study and elsewhere:

- Periodic surges in exports lead to large, but often short-lived, trade surpluses or even current account surpluses, as well as overall balance of payments surpluses and a large inflow of foreign exchange to the central bank.
Expenditure and imports respond to the rise in foreign exchange earnings and increased national wealth with a lag of a year or two. In many cases, the monetary authority responds to the massive inflow of foreign exchange reserves by relaxing quantitative restrictions and other regulations; usually the import of capital goods and intermediate inputs is given priority. The increased availability of foreign exchange and the overvaluation of the exchange rate, particularly if they are perceived as temporary, both contribute to rising import demand.

Higher export prices cause a rise in real gross national income (and wealth) through the improvement in the terms of trade, even in the absence of any changes in output volumes. There may or may not be an impact on real GDP, that is, real output measured in volume or constant-currency units.

The last point suggests that in commodity price booms, it is important to distinguish between the effects on real income and real output (GDP). The extent to which real output rises during an export boom depends on the following factors:

- The availability of idle capacity in the economy.
- The expansionary monetary consequences of the boom (as discussed in the Colombian case), which may contribute to the increase in aggregate demand.
- The extent to which unemployment in the economy is Keynesian (rather than classical or structural). This determines whether the boom-induced stimulus to aggregate demand will, in fact, raise output.
- The extent to which imports are allowed to expand to meet higher aggregate demand. If the rise in exports is more or less matched by an increase in imports, the net impact on aggregate demand will be minimal. In cases such as this, where net exports are unchanged, the export boom will not succeed in raising real GDP even if there is idle capacity.

Empirically, the effect of the export price surge on real output growth is often small and short-lived. In his seminal book, MacBean (1966) explored the link between export price shocks and national output in detail, using time series and cross-country analyses for a number of commodity-exporting developing countries. The author found little evidence of a statistically significant correlation between the two variables. Most later researchers have concurred with MacBean's findings.

Data for the developing countries in this study also indicate that the responses of real GDP were small. In some cases, GDP growth was actually negative, as in Jamaica during its 1974–75 and 1979–80 bauxite price surges. Generally, the commodity price booms did not raise real GDP. Inflation (measured using the GDP deflator) did
surge during most booms and remained high in postboom periods. The evidence suggests that governments interested in short-term stabilization policy should focus on the inflationary consequences of the boom.\textsuperscript{25}

This may seem surprising given the widespread policy concern over the impact of commodity booms on real GDP and employment in developing countries. How can this concern of policymakers be reconciled with the statistical insignificance of the relation between export booms and real GDP obtained by econometric research? Perhaps by distinguishing between export booms caused by favorable terms of trade and those caused by natural resource discoveries. In the latter case, the impact on real GDP (and hence on real gross domestic income) ought to be significant, because the potential volume of production and thus also exports is expanded. In contrast, terms of trade shocks may alter the composition of output to the extent that resources may be reallocated or reemployed in response to (perhaps short-lived) changes in export prices. Yet the impact on the total real value of output (GDP) may be minimal, because the change in prices causes a steady movement along the production frontier rather than an expansion of it. As a result, an increase in gross domestic income, but little increase in real GDP, would be expected.

The comparison in the previous section of Cameroon's two boom episodes during the 1970s is consistent with the conjecture that commodity price booms (as opposed to booms caused by increases in productive capacity) often have only modest effects on real output. In the face of price or terms of trade shocks, therefore, stabilization policies should focus on the consequences of booms on inflation and external balances rather than on output and employment. In the case of booms caused by resource discoveries, the opposite is true, with more emphasis warranted on the output and employment effects.

- The central bank's foreign reserves usually surge at the outset of a boom. Unless the monetary authority is equipped with effective mechanisms for sterilizing the monetary impact, this inflow will cause the domestic monetary base and the broader monetary aggregates to rise sharply. The export boom should induce the usual spending effect, even if heavy monetization of the foreign exchange inflows does not occur. If the real output (supply) response to this surge in aggregate demand is small, then the primary impact of the increase in aggregate demand is increased inflation. (Any increase in real money demand is likely to be modest in cases in which the real output growth is low and the inflation rate rises.) The inflationary impact of the boom can be exacerbated by the stance of the monetary authority. Attempts to maintain a fixed nominal exchange rate,
particularly when coupled with foreign exchange controls that force exporters to convert proceeds into local currency soon after transactions, generally lead to higher inflation relative to countries where upward adjustment of the nominal exchange rate is allowed. The boom's impact on the structure of demand (that is, on consumption and investment and private and public expenditures) depends on initial distribution of windfall gains. National practices vary. Countries that export mineral products tend toward public ownership of booming resources—as in Indonesia, Mexico, and Nigeria, where oil, the primary export sector, is controlled by public enterprises. With agricultural commodities, private ownership is more common, although governments often have a hand in setting producer prices. This type of government involvement affects how much of the increase in export earnings remains in the hands of producers and how much is taxed and redistributed. In Colombia the powerful coffee lobby insisted that export gains during the 1976–80 boom and the 1985–86 miniboom remain in the coffee sector. Through agreements between the National Coffee Federation and the central bank and government, however, mechanisms were devised to facilitate financial intermediation of the windfall from coffee exporters toward priority investment projects elsewhere in the economy. In contrast, the coffee windfalls in Kenya and Tanzania were distributed between producers and government.

In Kenya, the coffee boom amounted to a terms of trade gain of K£339m [m=million; 1975 prices] in the 1976–79 period, equivalent to 32 percent of 1975 gross domestic product (GDP). While in Tanzania the price increase was largely taxed away, in Kenya the producer price of coffee rose almost as much as the world price so that coffee producers, predominantly smallholders, were the initial beneficiaries of the boom (Bevan, Collier, and Gunning 1987, p. 491).

Even in countries where the government is not the direct recipient of boom income, its revenues from import tariffs and income and sales taxes will generally rise as private spending increases. Government policy can have a profound impact on the ultimate distribution of the windfall, even when the boom income accrues initially to the private sector. Bevan, Collier, and Gunning emphasize this point in their study of Kenya:

On theoretical grounds we would expect the use made by private agents of a temporary windfall to be strongly influenced by the presence of government controls on assets and international trade. Our investigation of the Kenyan coffee boom has lent support to the theoretical analysis and has indicated that such considerations may be quantitatively important. Kenyans
indeed appear to have attempted to save a high proportion of their windfall incomes (around 60 percent), but their asset choices were so restricted that this drove up the relative price of nontradable capital goods. Similarly, as their attempts to increase consumption were constrained by import controls, there were short-run redistributions in favor of domestic producers of import-substitutes. In the longer run, the skewed sectoral allocation of windfall investment produced further powerful redistributions.

Conventional wisdom would imply that most of the benefits would accrue to coffee and tea growers since the Kenyan government chose to pass the rise in world prices on to farmers. Yet our model indicates that the effects of the boom depend critically not just on producer pricing, but also on trade policy and investment allocation. The distortions created by these policies cause a very large part of the total gain to end up in urban rather than rural hands (1987, p. 510).

In each of the country experiences reviewed in this article, the budgetary consequences of the boom and the policy response of the public sector played an important role. As Tanzi noted, “the automatic impact of external shocks [such as changes in the terms of trade, major import prices, or the cost or availability of foreign capital] on the fiscal variables is likely to be much more important in developing countries than in industrial countries. At the same time the ability of developing countries to neutralize these effects, if they wished to do so, is much more limited” (1986, p. 88).

It is important to remember that changes in a government’s tax revenues and expenditures occur directly and automatically and do not necessarily represent discretionary policy responses to external shocks. Among the reasons Tanzi gives for the link between the budget deficits or surpluses and current account deficits or surpluses in developing countries is the high proportion of foreign trade taxes in government revenue. He estimates that “more than 50 percent of the tax revenue of developing countries may be directly related to the foreign sector” (1986, p. 89). Tanzi is saying that endogenous changes occur in the budget in response to exogenous shocks and that, rather than acting like automatic stabilizers, these changes may worsen the disequilibrium initiated elsewhere in the economy.

Tanzi’s analysis of the impact of higher export prices on government revenues and expenditures of developing countries during the 1970s distinguishes three types of response.

- A small group considered the increase a temporary windfall that would marginally affect the government’s (and the country’s) permanent income. These countries used the extra reve-
nue to pay off foreign debt or to accumulate foreign assets (either foreign exchange or real assets). When foreign earnings declined, these assets were liquidated and used to maintain the level of domestic spending. This response is an application of the permanent income hypothesis of consumption.

- A larger group accumulated capital at home by expanding public investment—a sensible course, Tanzi argues, provided that (a) the return on investment is as high as could be received from foreign assets, (b) the additional investment spending is limited to windfall income, and (c) this spending can be phased out when the windfall income disappears. Because of poor management and political influences, however, these criteria were not always met.

- The largest group raised public spending by increasing public employment, the size of transfers, and investment. When foreign earnings declined, these countries were tied to patterns and levels of spending that were difficult to change. Foreign loans were used to maintain the level of spending that could no longer be met from ordinary revenue. When the loans were no longer available, these countries were faced with huge foreign debts, in addition to spending levels that were out of control.

Shocks that reduce government revenue can pose even more problems. Countries are often unable to make up the revenue losses in the short run. In theory, the loss of foreign trade taxes can be compensated for by increasing income taxes or taxing domestically produced products. It takes time, however, to introduce and collect income taxes, and their scope in developing countries is limited. Therefore, countries have been forced to rely on inferior revenue sources, such as inflationary finance, regressive excises, or the building up of arrears (Tanzi 1986, pp. 90–91).

Tanzi’s discussion favors the first and second strategies of the three just described, without specifying when each is preferred, whereas Cuddington (1986, 1987, 1988a, 1988b) suggests that, based on the permanent income theory of consumption, the first strategy is better for countries that do not (a) impose foreign exchange controls on capital inflows and outflows or (b) face borrowing from external creditors. The bulk of the temporary windfall should take the form of increased holdings of foreign assets or a reduction in foreign liabilities, or both. Small amounts of revenue should be allocated to increase domestic capital formation while the boom is occurring.

Yet if the country has binding capital controls or faces credit rationing, the shadow domestic interest rate and the marginal productivity of domestic investment may be considerably greater than the world interest rate. In these cases, it is optimal to allocate much
of the windfall saving to domestic rather than foreign investment. Timing, however, is important. If the absorptive capacity of the economy is limited, the optimal strategy may be initially to invest the windfall saving in foreign assets and then gradually to undertake domestic capital formation, recognizing its impact on aggregate demand and absorptive capacity.

The problems in controlling public expenditure associated with booms have long been recognized. For example, Corden comments, "It might be argued that the true Dutch Disease in the Netherlands was not the adverse effects of real appreciation but rather the use of Booming Sector revenues for social service levels which are not sustainable, but which it has been politically difficult to reduce" (1984, p. 359). In a study of booms in Sub-Saharan Africa, Rajaram (1985) reaches similar conclusions. At the end of the booms, when foreign exchange earnings and government revenue declined, the typical policy response was to continue boom spending levels. This meant large budget deficits, monetary expansion, and rising inflation.

Some generalizations can be drawn from the experiences of the developing countries studied here. During booms, the ratios of both government spending and revenue to GDP typically rise, with the expenditure to GDP ratio growing faster than the revenue to GDP ratio. In spite of the extra revenue secured during booms, increases in government spending quickly outstrip the gain. Therefore, booms are accompanied (with a slight lag) by a rise in the fiscal deficit—just the opposite of what would be expected based on the permanent income consumption strategy discussed above. As the boom subsides, government revenue collapses, but spending remains at pre-boom levels (or even increases), setting in motion long-term fiscal problems.

In sum, lack of fiscal control is a major problem in booming economies. It can significantly reduce or even negate the economic gains realized from commodity export booms.

The booming world commodity markets of the 1970s and the postwar lows for real commodity prices in the mid-1980s have created complex economic management problems for commodity exporters. Although potentially beneficial, export booms can cause major internal and external economic imbalances. Many countries have responded to booms in ways that have not been optimal.

Coping with the commodity busts of the 1980s has become more difficult because of earlier boom mismanagement, which left many developing countries with overextended and inefficient investment.
programs, excessive foreign debt, and large structural fiscal deficits. As a result, fiscal and exchange rate policies have been unable to play a stabilizing role in the 1980s, as per capita income growth and employment slowed and, in many cases, turned negative.

Concern about poor management of booms is based on evidence from the past twenty or thirty years, not just the 1970s. Many developing countries overconsumed during boom periods and experienced liquidity crises when the booms ended. In many cases, foreign reserves were not much larger, or were even smaller, after the boom than before (see Davis 1983). Regulated price structures, and particularly exchange rates, were often allowed to deviate substantially from free market levels, discouraging efficient resource allocation and compounding the problems of adjustment to subsequent drops in export prices. Countries that managed booms well were typically those that (a) did not allow fiscal variables, exchange rates, agricultural producer prices, and wages to get badly out of line, (b) avoided indulging in wasteful and inefficient investment or investment that involved burdensome recurrent (such as ongoing maintenance) costs, (c) limited increases in government spending to levels consistent with long-term trends in revenue collection, and (d) maintained prudent external borrowing and foreign exchange reserve policies.

Abstract

This article surveys the experiences of commodity-exporting countries faced with resource discoveries and widely fluctuating world prices. Favorable developments of the commodity export market often prove to be a mixed blessing, as poor boom management leads to major internal and external economic imbalances. Many developing countries overconsume during boom periods. More often than not, the unsustainable increases in spending are initiated by the public sector. When the boom ends, tardiness in decreasing government spending and in increasing revenues from nonbooming sectors creates fiscal deficits and monetary control problems.

In the 1970s many booming economies allowed regulated price structures, and particularly exchange rates, to deviate substantially from free market levels, discouraging efficient resource allocation and greatly compounding the problems of adjustment to subsequent drops in export prices. Countries that managed booms well were typically those that (a) did not allow fiscal variables, exchange rates, agricultural producer prices, and wages to get badly out of line, (b) avoided indulging in wasteful and inefficient investment or investment that involved burdensome recurrent costs, (c) limited increases in government spending to levels consistent with long-term trends in revenue collection, and (d) maintained prudent external borrowing and foreign exchange reserve policies.

Notes

This article is based on section IV of Cuddington (1988a), which was prepared as a background paper for World Bank (1988). It also draws heavily on my previous work on coffee boom management in the Colombian economy.

1. See Corden 1984 or Neary and van Wijnbergen 1985 for excellent overviews of the theory.
2. In this article, "tradable goods" should be understood to mean tradables other than the booming sector's output. In many applications, the term includes nontraditional exports and import-competing sectors of the domestic economy.

Tradable goods are goods that are freely available at prevailing world prices plus any domestic tariff levy. Goods that are sheltered by quotas behave like nontradables because their domestic prices rise as a result of the additional spending induced by the boom.

3. The real product wage in terms of tradables rises, but the real product wage in nontradables falls (as the marginal productivity of labor declines). In the presence of real wage stickiness, this sectoral reallocation of labor may be accompanied by a transitional increase in unemployment. See Neary and van Wijnbergen 1985 for a detailed discussion of the implications of real wage rigidity.

4. In practice, it is difficult to determine whether shocks are permanent or temporary until long after they have occurred. For a detailed discussion of this issue, see Cuddington 1988a, section III.

5. The net effect of the boom on nontradables output and employment, in contrast, becomes ambiguous once the resource movement effect is introduced.

6. Svensson and Razin 1983 show that this must be the case in a model with optimal intertemporal saving behavior by households, but where decisions by firms and all government activities are ignored.

7. The generalizations are drawn from the examination of data on a broader range of countries. Data are drawn from a study of Colombian management of coffee export booms in 1976–80 and 1985–86, as well as comparisons of changes in key macro variables before, during, and after booms in Cameroon (oil, coffee), the Dominican Republic (sugar), Ghana (cocoa), Indonesia (oil), Jamaica (bauxite), Mexico (oil), Nigeria (oil), Papua New Guinea (copper), and Zambia (copper). The underlying data for each of the countries on which the generalizations are based are provided in appendix E of Cuddington 1988a.

8. See Larreccq (undated) for a detailed analysis of the much more varied experiences of commodity exporters in West Africa.


10. For the measure of world inflation used here, see International Monetary Fund (various years), line 64x.

11. Colombia had a crawling peg exchange rate system at the time. As a member of the Communauté Financière Africaine zone, Cameroon had a fixed nominal exchange rate, and yet it managed to avoid real exchange rate appreciation.

12. This concept of the real exchange rate differs from that in the conceptual model in the previous section, but the two measures move in the same direction unless the price of the booming commodity enters the domestic price index used in the calculation with a very large weight. This is seldom an issue in practice.

13. This statement implies that the growth in money demand caused by the boom-induced increase in national income typically falls short of the growth in money supply caused by the inflow of foreign exchange earnings.

14. This is a dominant theme in writings on the monetary approach to the balance of payments. See Frenkel and Johnson 1976.

15. See Cuddington 1986 for a more detailed analysis of the link between foreign reserve inflows and the domestic money supply during Colombia's coffee export boom.

16. Although open market operations were used sparingly during Colombia's 1976–80 boom (changes in reserve requirements being the main monetary policy instrument), they were used extensively during the 1985–86 miniboom. Because the market for government securities was still relatively small, policymakers were concerned that the feasibility of open market operations would be inhibited by interest rate ceilings if interest rates continued to rise as sterilization occurred.

17. The ratio of reserve money (that is, the monetary base) to M1 rose sharply from 0.61 in 1974 to 0.93 in 1981. The reserve money to M2 ratio also increased—from 0.47 in 1974 to 0.67 in 1979—as reserve requirements were increased in response to the surge in foreign reserve inflows.
18. See Cuddington and Urzúa (forthcoming a) for an econometric analysis of Colombia’s fiscal response to temporary surges in real GDP.

19. Davis 1983 (p. 129) suggests that this experience was atypical among the countries that benefited from the 1975–78 rise in beverage prices. In most of these countries, current expenditure growth was reasonably restrained while capital spending increased sharply.

20. The revenues from Cameroon’s new oil export capability, however, were greatly enhanced by the sharp rise in world petroleum prices in 1979–80.


22. In the national income accounts, real gross domestic income equals real GDP plus the terms of trade effect (when positive). Adding net factor income from abroad to gross domestic income yields gross national income.

23. See Krueger 1984 for a recent survey.


25. It might be argued that the evidence on the relative stability of real GDP in the face of commodity booms shows how successful stabilization policy has been. Movements of monetary and fiscal policy variables do not, however, exhibit strong countercyclical changes, so this hypothesis must be rejected.


References


