Fiscal policy is defined as the government's measures to guide and control spending and taxation. The traditional view is that fiscal policy performs three main functions: allocation, distribution, and stabilization. The allocation function is the process of dividing total resource use between private and social goods and choosing the mix of social goods. The distribution function is the process of adjusting the distribution of income or wealth to ensure conformance with what society considers fair. The stabilization function supports achieving the main macroeconomic objectives set by policymakers to ensure economic growth, price stability, and sustainable external accounts.

This chapter concerns itself essentially with the stabilization function of fiscal policy. It begins by using the traditional IS-LM aggregate supply/aggregate demand model to assess the short-run effects of fiscal policy on output, prices, and the current account of the balance of payments and to explore the interactions between fiscal policy and monetary and exchange rate policies. It then addresses issues specific to fiscal policy and macroeconomic management, including methods for measuring the fiscal balance, cyclical and structural deficits, the sustainability of the fiscal deficit, and policies for managing debt and fiscal surpluses. It concludes by exploring how the three primary instruments of fiscal policy—tax policy, expenditure policy, and overall budgetary policy—can affect a country's long-term growth.

1For an elaboration of the analysis contained in various sections of this chapter, see three particularly useful references: Dornbusch, Fischer, and Startz (1998) for the impact of fiscal policy on macroeconomic objectives; IMF, Fiscal Affairs Department (1995) for issues in fiscal policy and macroeconomic management; and Tanzi and Zee (1997) for the effect of fiscal policy on long-term growth.
Impact of Fiscal Policy on Macroeconomic Policy Objectives

Effects on Output

The impact of fiscal policy on output can be analyzed within the context of traditional IS-LM analysis. The IS curve depicts combinations of interest rates and output at which the goods market clears. It slopes downward because a decrease in the interest rate increases investment spending, thereby increasing aggregate demand and the level of output at which the goods market is in equilibrium. The LM curve depicts the combinations of interest rates and output at which the money market is in equilibrium. It has a positive slope because an increase in the interest rate reduces the demand for real balances, and the level of income must rise to keep the demand for real balances equal to the fixed supply. Accordingly, money market equilibrium implies that an increase in the interest rate is accompanied by an increase in the level of income.

Closed Economy

Let us first analyze the effects of a fiscal expansion on output in the context of a closed economy. The initial equilibrium position is denoted by point E in Figure 8.1. A debt-financed increase in government spending, for example, raises aggregate demand at each level of the interest rate and thus shifts the IS curve to the right, to IS'. At point E, an excess demand for goods now exists. Output rises, and with it the interest rate, because the income expansion raises money demand. The new equilibrium is at point E', and income increases by \((Y'_0 - Y_0)\). Note that the increase in income is dampened by the higher interest rate, which crowds out some private investment spending.

The main determinant of the extent to which crowding out takes place is the shape of the LM curve. If the LM curve is horizontal (that is, if the demand for money is very sensitive to the interest rate),
crowding out does not occur, and fiscal policy will have a large effect on output (the Keynesian case). But if the LM curve is vertical, complete crowding out occurs. In this case, an increase in fiscal spending has no effect on the equilibrium level of output and increases only the interest rate (the classical case).

In the analysis given above, increased government spending may lead to a reduction in private investment through the higher interest rate (that is, the crowding-out effect). However, other indirect effects can result in reduced private spending (Khan, 1987). For example, the excess demand for money generated by the higher government spending may cause households to spend less in order to accumulate cash and maintain portfolio equilibrium. Similarly, high, debt-financed government spending can reduce private spending if the private sector’s future tax liability increases because of the need to retire public debt (the Ricardian-equivalence proposition). Finally, private spending may also decline if increased government spending leads to a rise in domestic prices. These adverse effects on private spending can help to mitigate the effects of a fiscal expansion on output.
Open Economy

Let us now extend the analysis to an open economy. For this exercise, we introduce the BP curve, which depicts combinations of interest rates and output at which the balance of payments is in equilibrium. The balance of payments consists of the current account and the capital account. The current account depends on the level of income and the exchange rate, whereas the capital account depends on the domestic interest rate. The BP curve slopes upward. If output increases and interest rates remain constant, imports will increase, and the balance of payments will be in deficit. An increase in interest rates will trigger capital inflows and restore balance of payments equilibrium.

The slope of the BP curve depends on the interest elasticity of capital flows. The greater is this elasticity, the flatter is the BP curve, because a small increase in interest rates results in balance of payments equilibrium. The BP curve is horizontal for perfect capital mobility and vertical for completely immobile capital. The BP curve also shifts when the exchange rate changes. An exchange rate depreciation, for example, creates a balance of payments surplus and shifts the BP curve to the right.

Let us now use the IS-LM framework to analyze the effects of fiscal expansion on output in the context of perfect capital mobility (Figure 8.2). The equilibrium balance of payments schedule is denoted by the horizontal line $BP$, at which the domestic interest rate equals the foreign interest rate. First we consider the case of a country that follows a fixed exchange rate policy. A debt-financed increase in government spending shifts the IS curve upward and to the right, increasing both the interest rate and output. The higher interest rate sets off a capital inflow that leads to an appreciation of the exchange rate and to an expansion in the money supply that further increases income. As such, the LM curve shifts to the right, and equilibrium is restored when the money supply has increased enough to drive the interest rate back to the original level. The new equilibrium point is thus $E'$ in Figure 8.2. In this case, with an endogenous money supply, the interest rate is effectively fixed, and the Keynesian case of the maximum effect of a change in fiscal policy on output holds.

Now consider what happens when a country pursues a flexible exchange rate policy. As before, the increase in government spending shifts the IS schedule upward and to the right, increasing both output and the interest rate (Figure 8.3). The increase triggers capital inflows and a cur-

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3This formulation is often referred to as the Mundell-Fleming model (see Fleming, 1962; Mundell, 1962).
Figure 8.2. Fiscal Expansion Under a Fixed Exchange Rate and Perfect Capital Mobility

Currency appreciation, but here the government does not intervene in the foreign exchange market. The currency appreciation means that home goods become less competitive, and the composition of domestic demand shifts toward foreign goods and away from domestic goods. The IS schedule begins moving downward and to the left until the initial equilibrium point $E$ is restored. Thus, fiscal expansion has no effect on equilibrium output. As in the classical closed-economy case, full crowding out occurs—not because higher interest rates reduce private investment, but because exchange rate appreciation reduces net exports.

This analysis of the effects of fiscal expansion on output in an open economy is very sensitive to the assumption about the degree of capital mobility. To demonstrate this point, let us consider a case in which the authorities follow a flexible exchange rate policy, but capital is relatively (though not completely) immobile (Figure 8.4). The $BP$ curve is quite steep. A fiscal expansion shifts the $IS$ curve upward and to the right (to $IS'$). As income rises, imports increase, and the balance of payments situation deteriorates. In turn, the exchange rate depreciates, leading to a further upward shift in the $IS$ curve (to $IS''$) and a shift to
the right in the $BP$ curve (to $BP'$). The new equilibrium is then established at $E'$, where output is even higher than it was when driven by the initial fiscal expansion.

The contrasting results shown in Figures 8.3 and 8.4 can be summarized as follows. Fiscal expansion initially affects both trade flows and capital flows in the balance of payments by affecting income and the domestic interest rate, respectively. When capital is relatively immobile, the trade-flow component of the balance of payments dominates, and the consequent currency depreciation reinforces the initial expansion in output. When capital is mobile, the capital-flow component dominates, and the consequent currency appreciation offsets the initial expansionary effect on output.

**Multiplier and Accelerator Effects**

The fiscal policy multiplier shows how much an increase in government spending changes the equilibrium level of income. The multiplicative effect arises because the consumers who receive the income from the increase in government spending spend at least part of this in-
come, generating additional income. For the sake of simplicity, let us assume that the increase in government spending does not crowd out private investment. How much will income change with a change in government spending?

In this model, saving and imports are the two leakages from the disposable income stream. Thus, if the marginal propensity to save and the marginal propensity to import (out of disposable income) are denoted by \( s \) and \( m \), respectively, the value of the multiplier \( k \) is expressed as:

\[
k = \frac{1}{s + m}.
\]

An even more dynamic path for the income response to increased government spending occurs if the accelerator theory of investment holds. This theory depicts investment as a function not of the interest rate, but of previous changes in income. If investment is denoted by \( I \), income by \( Y \), and the time subscript by \( t \), the investment function can be defined as:

\[
I_t = a(Y_t - Y_{t-1})
\]

\( a \) is a parameter.\(^{4}\)

\(^4\)The appendix to this chapter describes how the multiplier was derived.
\[ l_t = a + b(Y_{t-1} - Y_{t-2}). \quad (8.2) \]

In this case, not only does an increase in government spending generate an increase in income as the multiplier effects operate, but the income increase generates further changes in investment. These changes in turn are subject to the multiplier, giving rise to new income changes, and so on. Empirical observation indicates, however, that the macroeconomic behavior of the economy is not explosive and that income changes tend to level off.

**Effects on Prices**

The impact of fiscal policy on prices can be illustrated with aggregate supply/aggregate demand analysis (Figure 8.5). The aggregate demand schedule (\( AD \)) shows the combinations of the price level and the level of output at which goods and assets markets are simultaneously in equilibrium. \( AD \) slopes downward because, for example, a decline in the price level increases the quantity of real money balances, which in turn reduces interest rates and increases investment and aggregate spending. The aggregate supply curve (\( AS \)) describes the relationship between the price level and the amount of output that firms wish to supply. It generally slopes upward because an increase in output tends to reduce unemployment, thus increasing wages and prices.

A debt-financed fiscal expansion shifts the \( AD \) curve to the right because spending is higher at each price level. If the \( AS \) curve slopes upward (the general case), then a rightward shift in the \( AD \) curve will increase both prices and output. In the extreme Keynesian case, when the \( AS \) curve is horizontal, firms are willing to supply whatever amount of goods is demanded at the existing price level. Thus, a fiscal expansion has no effect on prices, causing an increase only in output. At the other extreme (the classical case), when the \( AS \) curve is vertical at full-employment level \( Y^* \), a fiscal expansion causes an increase only in prices, leaving output unchanged.

**Effects on the Current Account Balance**

Let us first recall the accounting link between the fiscal balance and the current account balance. Deriving from the national income identity, we can write

\[ NX = (Ip - Sp) + (G - T). \quad (8.3) \]

Equation (8.3) shows the external current account balance (\( NX \)) as the counterpart of the sum of the private sector's investment-saving bal-
Figure 8.5. Effect of an Increase in Government Spending on Prices

\[ p > p' \]

\[ Y_0 \quad Y_0' \quad Y^* \]

Output, income

The preceding analysis shows that a debt-financed fiscal expansion tends to increase interest rates and crowd out some private investment, dampening the impact of the fiscal expansion on rising income.
If the monetary authorities want to prevent this effect, they can accommodate the fiscal expansion by increasing the monetary base. In the IS-LM analysis, both the IS and the LM curves shift to the right, keeping the interest rate at the original equilibrium level and maximizing the effect of the fiscal expansion on income. But this policy of accommodation, or monetization, creates a risk, because it fuels inflation. The money supply will have to continue to expand to finance the ongoing fiscal deficit (a continuous rightward shift in the LM schedule), increasing aggregate demand and putting pressure on prices. Eventually, the higher aggregate demand will raise the interest rate, and crowding out will once again occur. The objective of the policy (to prevent crowding out) will fail, and at the added cost of higher inflation.

Monetization of the fiscal deficit also has revenue implications for the government, as government spending is then financed with the creation of high-powered money rather than through explicit taxation. The revenue generated when the government creates money is often referred to as seigniorage. When the government finances a deficit by creating money, the public absorbs this additional money. People choose to increase their holdings of nominal money balances, either because their real incomes have grown, or because they want to offset the effects of inflation (the inflation tax). The amount of revenue from this tax equals the product of the inflation rate and the real monetary base.

Although the amount of revenue the government can raise from the inflation tax initially increases with inflation, it declines after inflation reaches a certain level, because people start reducing their real money holdings as these holdings become more expensive. Individuals hold less currency, and banks hold as few excess reserves as possible. Eventually, the real money base falls so much that it reduces the total amount of revenue the government receives from the inflation tax.

Fiscal policy itself may also be affected by monetary policy. Officials may pursue a tight monetary policy, perhaps to maintain a specific nominal exchange rate. At least in the short run, this policy may lead to high real interest rates that increase the cost of debt service to the government, adversely affecting the viability of the fiscal position.

**Interaction with Exchange Rate Policy**

On the basis of the traditional IS-LM analysis discussed above, the impact of fiscal policy on the exchange rate can be summarized as fol-
Fiscal policy and macroeconomic management follows: a fiscal expansion (holding the nominal money stock constant) results in higher interest rates. If capital is fully mobile, capital inflows begin and lead to an appreciation of the currency. If capital mobility is limited, the currency must depreciate to counteract the effect of the fiscal expansion on the current account.\(^5\)

Two main assumptions underlie this analysis. First, we assume that a debt-financed deficit can go on forever, though it clearly cannot. If public debt initially grows faster than GDP, the deficit must start declining at some stage. The result is either a reduction in noninterest spending by the government, higher taxes, or both. This effect is essentially the theory of the intertemporal budget constraint. In terms of the IS-LM diagram, it means a leftward shift in the IS schedule. The interest rate will then tend to fall, leading to capital outflows. Thus, the exchange rate (which initially appreciated as a result of the fiscal expansion) depreciates.

Second, we assume that the budget deficit is not monetized, an assumption that may not be realistic. If deficits persist, the ability of the government to reduce its expenditure and raise taxes (as indicated earlier) reaches a limit. Eventually, the deficit must be monetized, causing inflation. If inflation is higher at home than it is abroad, a nominal depreciation of the currency will have to be maintained to stabilize a given real exchange rate. Consequently, a fiscal expansion leads initially to appreciation and then to depreciation.

Exchange rate policy itself affects the fiscal stance. A nominal depreciation can have a significant positive or negative effect on the fiscal balance, depending on the structure of the budget. If, for example, foreign currency-based expenditures (such as interest payments on foreign debt) outweigh foreign currency-based revenues (such as customs duties), the net effect of a depreciation is to increase the fiscal deficit.

Fiscal policy is also likely to be necessary to support a policy that seeks to adjust the real exchange rate. For example, under a fixed exchange rate regime, a nominal devaluation will immediately increase the prices of tradable goods. However, if the prices of nontradables also rise by a similar amount, the real exchange rate will not change. Avoiding an increase in the prices of nontradables usually requires introducing measures to dampen aggregate demand, the most important of

\(^5\)Corden (1997) provides an in-depth analysis of the effects of fiscal expansion on the exchange rate.
which is often a reduction in the fiscal deficit. And by affecting aggregate demand and prices for nontradables, a tighter fiscal policy can help to achieve real exchange rate depreciation in the long run, even without a nominal devaluation.

**Issues in Fiscal Policy and Macroeconomic Management**

**Measurement of the Fiscal Balance**

Efforts to use the fiscal balance to assess the fiscal policy stance yield important questions about how the balance should be measured and what it covers. The most common measure of the fiscal balance is the *overall balance*, which is the difference between government revenue and expenditure. In principle, the government should be defined as broadly as possible, including not only the central government but also state and local authorities. But even with this encompassing definition of government, the overall balance may still provide an inadequate picture of the fiscal stance, for several reasons.

First, in many developing and transition economies, nonfinancial public enterprises that are government owned or controlled engage in activities that are significantly affected by nonmarket forces, often including the application of a soft budget constraint. The activities of these enterprises should be consolidated with the activities of the general government to form a broad measure of the fiscal operations of the nonfinancial public sector.

Second, central banks and other public financial institutions in many of these countries make financial transactions that serve the same role as taxes and subsidies (*quasi-fiscal* activities). The central bank plays a dual role as regulator of the exchange and financial systems and as banker to the government. Most of its quasi-fiscal activities stem from these roles, including multiple exchange rate arrangements, exchange rate guarantees, interest rate subsidies, rescue operations, and lending to the government at below-market rates. Clearly, these activities can have significant allocative and budgetary impacts and should be considered explicitly in an assessment of the fiscal stance.

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6The magnitude of the required nominal devaluation to achieve a given real exchange rate objective may also depend on how the fiscal deficit is reduced. Broadly speaking, the required nominal depreciation is larger if the fiscal deficit is reduced by increasing taxes than if it is reduced by lowering expenditure, and smaller if the expenditure cuts fall on traded goods rather than on nontraded goods (Khan and Lizondo, 1987).
fiscal stance. Any quantifiable quasi-fiscal activities should be added to the fiscal balance to provide a broader and more appropriate measure of the deficit.

Even when quasi-fiscal operations are included in the definition of the fiscal deficit, the annual fiscal balance may not provide a good indicator for assessing the viability of the fiscal stance. In particular, although the contingent liabilities of the government or of quasi-fiscal institutions may not involve costs in the present, they may require large fiscal outlays in the future. The magnitude, probability, and likely timing of these potential liabilities must be taken into account.

Measuring the fiscal balance also requires accounting for the timing of fiscal transactions. Normally, governments commit resources before they are actually disbursed on a cash basis. Some tax liabilities may also accrue for a considerable period before a taxpayer is required to make a payment, raising the question of whether the fiscal balance should be assessed on a commitment basis or only on the basis of cash transactions (the cash balance). A cash-based measure of the fiscal balance is advantageous because it emphasizes links with financial developments, particularly in the monetary accounts. In several countries, however, governments have chosen not to meet their commitment obligations, either because they lack liquidity or because they wish to meet targets for cash-based deficit reduction. A cash-based deficit then underestimates the extent of the government’s preemption of real resources. Indeed, when the arrears are to enterprises—which, in turn, borrow from the banking system—a cash-based deficit concept also underestimates the government’s contribution to the growth of monetary aggregates and demand.

**Structural and Cyclical Deficits**

Two important considerations in assessing the impact of the budgetary stance are the distinction between automatic and discretionary changes and the distinction between structural and cyclical deficits. Discretionary changes are changes in government expenditure (G) or tax revenue (T) that reflect parameter changes (that is, changes in expenditure programs or tax rates). Automatic changes are changes in G and T that result from the built-in flexibility of the fiscal system. For example, as incomes decline and the economy heads into a recession, tax revenue automatically declines, and government expenditure on unemployment compensation automatically increases.
The distinction between automatic and discretionary changes is illustrated in Figure 8.6. Government expenditure \((G)\) is measured on the vertical axis, and income is measured on the horizontal axis. The schedule \(TT\) shows tax revenue \(T\) as a function of income, reflecting a given tax rate \(t\). Let the initial income level be at \(Y_1\), where the budget is in balance \((G = OM)\). If private investment declines and fiscal parameters do not change, the equilibrium level of income declines to \(Y_2\), yielding a budget deficit \(AB\). The built-in reduction in revenue acts as a cushion, holding down the decline in income by permitting the deficit to accrue. This situation is typical when an economy goes into a recession and the budget shows a growing deficit or a declining surplus.

In the alternative scenario, the initial income is also at \(Y_1\), but government expenditure increases from \(OM\) to \(ON\). Equilibrium income rises to \(Y_3\), and a deficit equal to \(RD\) emerges. But the reasons for the deficit are different. Now it is driven by an expansionary fiscal policy rather than by a downturn.

Figure 8.6 also illustrates the distinction between two concepts of the deficit. The first is the deficit that prevails if income is at full employment, yielding a corresponding level of full-employment revenue.
second is the excess of the actual over the full-employment deficit and reflects current economic conditions. The former is referred to as the structural deficit and the latter as the cyclical deficit. Thus, if \( Y_f \) is full-employment income and \( Y_3 \) is the actual level of income and \( G = ON \), the actual deficit will be \( RD \), the structural deficit will be \( FH = KD \), and the cyclical deficit will be \( RK \).

The distinction between discretionary and cyclical changes can be used to derive measures that provide a more accurate indication of the budget impact than simple observation of movements in the actual budget balance. One such “fiscal impulse” measure attempts to assess the annual budget contribution—whether expansionary, neutral, or contractionary—to aggregate demand. A convenient way to derive this fiscal impulse indicator is to begin with the so-called cyclical effect of the budget (\( CEB \)), which entails taking the actual budget deficit for any year and subtracting from it a budget deficit deemed to be cyclically neutral for that year:

\[
CEB = (G - T) - (g_0 Y_p - t_0 Y),
\]

where \( G \) is government expenditure, \( g_0 \) is the base-year ratio of government expenditure \( G \) to potential GNP \( Y_p \), \( T \) is revenue, and \( t_0 \) is the base-year ratio of government revenue to actual GNP.

The cyclically neutral balance is stated in the last term on the right-hand side of equation (8.4). It is determined by applying the base-year ratio of government expenditure to current-year potential output, and the base-year ratio of budget revenue to current-year actual output. Taking first the differences in \( CEB \) and rearranging, one can derive the fiscal impulse (\( FI \)) indicator as:

\[
FI = (\Delta G - g_0 \Delta Y_P) - (\Delta T - t_0 \Delta y).
\]

A positive \( FI \) indicates that the budget has an expansionary impact on aggregate demand, whereas a negative \( FI \) indicates a contractionary impact.

Other indicators of fiscal impulse may closely approximate this indicator. With the so-called Dutch-budget impulse indicator, the impulse is derived using the preceding year’s budget balance as a base. However, all fiscal impulse indicators have been criticized on several grounds, including the assumptions on which they are based and the fact that they are not determined by models. Furthermore, the usefulness of these measures is diminished to the extent that countries, particularly developing countries, find it difficult to identify potential and trend output and, consequently, to distinguish between cyclical effects and the underlying causes of the fiscal deficit.
Sustainability of the Fiscal Deficit

In the short term, the sustainability of the fiscal deficit depends on whether it can be financed without generating inflation or requiring excessively high real interest rates. Over the medium term, sustainability depends on whether the deficit will increase, level off, or reduce the ratio of public debt to GDP.

The inflationary consequences of financing the budget deficit by creating money have already been noted. Here we examine the dynamics of the fiscal deficit and the public debt. First, one can distinguish between two components of the budget deficit: the primary (or noninterest) deficit, and interest payments on the public debt. The primary deficit is equal to noninterest expenditure minus revenue, and the total deficit is equal to the primary deficit plus interest payments. The distinction between interest and noninterest outlays highlights the role of public debt in the budget. Interest has to be paid when there is debt outstanding, but the overall budget will be in deficit unless the interest payments on the debt are more than matched by a primary surplus. Thus, if the budget has a primary deficit, the total budget deficit will keep growing as the deficit increases the debt, and interest payments will rise because the debt is growing.

The sustainability of the debt situation should be analyzed by relating the nominal debt level to nominal GDP. If the debt-to-GDP ratio is denoted by $d$, the real interest rate by $r$, the growth rate of real GDP by $\dot{y}$, and the ratio of the primary budget surplus to GDP by $z$, then the debt-to-GDP ratio will rise over time if

$$\Delta d = d(r - \dot{y}) - z > 0. \quad (8.6)$$

The evolution of the debt-to-GDP ratio thus depends on the relationships among the real interest rate, the growth rate of output, and the primary surplus. The higher the interest rate and the lower the growth rate of output, the more likely it is that the debt-to-GDP ratio will rise. A large primary surplus tends to make the debt-to-GDP ratio fall.

Debt-Management Policies

Public sector solvency requires that the public sector’s comprehensive net worth be positive. However, the necessity of preserving macroeconomic stability in a financially integrated environment may impose stricter conditions on the public sector’s balance sheet than simply maintaining a positive value of comprehensive net worth. The com-
osition of assets and liabilities may matter as well. In particular, a public sector that is solvent (that is, one that can credibly honor its obligations over a sufficiently long horizon) may nevertheless be vulnerable to short-run liquidity crises. If the perception is that the public sector is unlikely to honor its short-term obligations, then creditors will be reluctant to take on the government's short-term liabilities, and, in a vicious cycle, the government may then be unable to meet its short-run obligations. The likelihood of this run on the debt depends on the maturity and currency composition of the public sector's liabilities compared with its assets—that is, it depends on the government's debt management policies (see World Bank, 1997, pages 211-13).

In managing the composition of its debt, the government faces a difficult trade-off between enhancing its credibility and exposing itself to liquidity crises. The existence of long-term (fixed-interest) domestic currency-denominated (nominal) debt provides the government with some financing options it would not have if its debt were short term and denominated in foreign currency—namely, that it can effectively repudiate the long-term debt by inflating or devaluing, reducing the debt's real value. However, the prospect of the government exercising this option increases domestic nominal interest rates, making it expensive for the government to borrow in nominal terms over the long run. And even if the government never intends to behave in this fashion, the time-inconsistency problem may make it very difficult for the government to convince its creditors of its honorable intentions. To reduce its borrowing costs, the government may decide to borrow in foreign currency in the short term, incurring liquid foreign currency-denominated liabilities and opening itself up to runs on the debt.

The way out of this dilemma is to note when the problem of credibility arises in acute form—namely, when the government actually retains the discretion to act as creditors fear, when it lacks credibility on other grounds, and when its revenue needs are high and conventional taxation is highly distortionary. In other words, the existence of long-term nominal debt is only one factor in the government's decision to devalue or inflate. Creditors can rationally expect the government to forgo the option of inflating away the real value of their assets if it is institutionally unable to do so, if it is perceived as placing a high value on the credibility of its policy announcements, or if inflating creates few net benefits from the government's perspective. Thus, the government can avoid making its borrowing costs overly sensitive to the composition of its debt by creating institutions that limit its discretion (for
example, by increasing the independence of the central bank), by es-
establishing a reputation for nondiscretionary behavior, and by choosing
levels of expenditure and mobilizing sources of taxation that minimize
distortions. Under these circumstances, the government may retain the
option of borrowing in domestic currency in the long run, minimizing
the likelihood that macroeconomic stability will be impaired by runs
on government debt.

The Desirability and Management of Fiscal Surpluses

Should a country seek to run a surplus in its fiscal accounts? A sur-
plus may be desirable under some circumstances (see Chalk and
Hemming, 1998). First, as discussed earlier, a large primary surplus is
generally required to help reduce the debt-to-GDP ratio. In some cases,
the debt problem may be so severe that an overall budget surplus is re-
quired to ameliorate it. Indeed, a surplus itself may increase the sus-
tainability of government policies by giving economic agents a highly
visible signal of the government’s prudence.

Second, surpluses may be necessary to finance certain government
obligations. As part of its allocation function, the government provides
public goods, many of which involve “lumpy” investments. These
goods include physical infrastructure (for example, transportation and
telecommunications networks) and social infrastructure (for example,
schools and hospitals). To finance the provision of such infrastructure,
the government may borrow and run surpluses in the future to service
the costs of its borrowing. But if the government faces borrowing con-
straints, it may have to run surpluses in the present in order to pay for
future infrastructure provision.

Third, an optimizing government that favors tax smoothing may
need to run surpluses. Since the welfare costs of distortionary taxation
vary in proportion to the square of the tax rate, minimizing these costs
(the corollary of maximizing welfare) entails maintaining constant tax
rates over time. If expenditures increase during recessions and fall dur-
ing booms, and tax bases vary procyclically, the government will have
to run fiscal surpluses in booms and deficits in recessions to maintain
a constant tax rate over the cycle. Fiscal policy will thus be counter-
cyclical.

Fourth, the government’s stabilization function provides an even
stronger justification for countercyclical fiscal policy to respond to de-
mand deficiencies and supply shocks—and thus for running surpluses.
The stabilization function is also used to correct short-term macroeco-
nomics disequilibria (for example, balance of payments difficulties and high inflation). The tightening of fiscal policy, a measure that is often necessary and that is often implemented in conjunction with appropriate monetary and exchange rate policies for restoring macroeconomic stability, may require running a fiscal surplus.

Finally, transitory capital receipts may also justify a fiscal surplus. These receipts may be in the form of foreign grants, mineral resource revenues, or privatization proceeds, among other things. Similarly, windfall gains from temporarily high commodity prices that accrue to the budget through higher taxes and other levies on export profits may justify a fiscal surplus.

Countries that have achieved fiscal surpluses have managed them in different ways. Botswana has been running a budget surplus since 1983, reflecting buoyant revenue from diamond mining. Most of the accumulated surpluses have been deposited with the central bank and invested abroad. Botswana's foreign exchange reserves now stand at close to three years of imports, with the equivalent of six months of imports invested in short-term money market instruments and the remainder in the Pula Fund, which holds foreign equities and fixed-income securities.

In Chile, transfers from the state copper company have been the source of public sector surpluses, averaging 2 percent of GDP since 1988. Chile has used its surpluses in part to build up a stabilization fund for copper prices, to repay debt (whose stock is now negligible), to on-lend to the private sector (primarily for infrastructure development), and to build up foreign exchange reserves.

In 1990 Norway established the State Petroleum Fund (SPF) to insulate the budget from variations in oil prices and production and to mitigate the effects of “Dutch disease” by investing a large share of oil receipts abroad. In the longer term, the SPF is expected to cover rising pension and health care costs as the population ages.

In 1960 Kuwait established the Reserve Fund for Future Generations (RFFG), into which 10 percent of budget revenue (primarily from oil receipts) is currently paid. The main purpose of the RFFG is to protect public investment and social programs from the impact of a decline in world oil prices. However, Kuwait has also used the RFFG to support the budget, most notably to pay some of the reconstruction costs following the 1991 Iraqi invasion. The Kuwait Investment Authority formulates the fund’s investment strategy, and the portfolio includes domestic equities, real estate, and international financial assets.
Singapore recorded an average surplus of 12 percent of GDP from 1993 to 1997, including capital revenue from the sale of government financial assets. The accumulated assets will be used to finance the government's Edusave and Medisave Trust Funds for education and health care. Asset holdings totaled 161.8 percent of GDP in 1996-97, but little information is available on their composition.

Fiscal Policy Rules

Rising fiscal deficits in many industrial and developing economies, especially during the 1970s and 1980s, have sparked interest in the adoption of fiscal policy rules as a way to exercise fiscal restraint. Fiscal policy rules are measures that impose permanent constraints on fiscal policy—expressed as numerical ceilings or targets—based on summary indicators of overall fiscal performance. These indicators pertain primarily to balanced-budget rules, debt rules, and rules governing the monetary financing of deficits.

The primary rationale for fiscal policy rules is that they maintain macroeconomic stability, support other financial policies, ensure long-term sustainability, reduce negative spillovers, and maintain overall policy credibility. In principle, most of these objectives can be met with discretionary fiscal measures—if sought by a far-sighted electorate or financial market—that are captured in an annual budget or a medium-term adjustment plan. However, many fiscal consolidation programs undertaken to correct the persistent budget deficits of the past two decades have been less than successful. Their failure suggests that, although discretionary policies may be theoretically superior, well-designed fiscal policy rules may offer a useful second-best solution for countering political pressures on fiscal policymaking. Indeed, the strongest case for fiscal rules can be made on the grounds of political economy—namely, their usefulness in correcting the bias of democratically elected governments to run budget deficits that accumulate public debt at the expense of future generations. In technical terms, a major advantage of rules-based fiscal policy over discretionary policy is time consistency.

Probably the best-known fiscal policy rules are those requiring a balance between government revenue and expenditure. This balance can be specified as the overall balance, the current balance, or the operating balance that must be met each fiscal year. Alternatively, it can be defined over a longer period as a structural or cyclically adjusted balance.
According to the Maastricht Treaty, members of the European Union wishing to participate in Stage 3 of European Monetary Union (EMU, effective 1999) were required to maintain their general government deficit at a level not to exceed 3 percent of GDP by 1997, following a convergence plan under way since 1992. In addition, the EMU’s Stability and Growth Pact calls for a medium-term budgetary position that is close to balance or surplus, subject to the 3-percentage-point reference value for the deficit in any year. This requirement is intended to allow automatic stabilizers to operate (whenever appropriate) throughout the business cycle. Largely accrual-based recording standards have been issued for this purpose under the so-called excessive deficit procedure, and compliance with this requirement will be verified ex post, after the end of the calendar year.

In New Zealand, officials are required to ensure that once the government reaches a prudent public debt-to-GDP ratio, it maintains that ratio on average over a reasonable period by balancing public sector operating expenditures and revenues. The requirement allows for short-term cyclical deviations from the balanced-budget position, but it does not specify whether the deviations derive only from automatic stabilizers or from discretionary actions as well. Furthermore, officials are required to keep tax rates stable over time, so that the adjustment should take place on the expenditure side.

In Switzerland, officials have proposed a constitutional amendment that mandates balancing federal government finances over the business cycle. The balanced-budget amendment was to become effective in 2001, at which time officials should have achieved balance. The understanding is that lower levels of government will cooperate in this endeavor in order to halt the increase in the public debt-to-GDP ratio. In the United States, the balanced-budget amendment to the Constitution—proposed on several occasions (in 1982, 1995, and 1997) but thus far rejected—would require that the government balance the federal budget each fiscal year. The rule could be waived only with the approval of a three-fifths majority in each house of Congress or in case of armed conflict or a threat to national security. The rule thus would preclude an explicit role for automatic stabilizers and would omit concrete guidelines on how to meet the goal of a balanced budget.

Some of the oldest functioning fiscal rules prohibit or limit government borrowing. The borrowing constraint usually specifies the source of financing (central bank or all domestic sources) and the level of government (national or subnational) to which it applies. Most industrial and some developing economies prohibit the central bank from di-
rectly financing the general government and the rest of the nonfinancial public sector. Under the Maastricht Treaty, this rule went into effect at the beginning of Stage 2 of EMU. Normally, this rule gives central banks discretion over extending short-term advances to the government as evidence of central bank independence. The rule is somewhat less common in developing countries and economies in transition. Under a strict variant, Chile and Ecuador prohibit both direct and indirect access to central bank credit. Rather than prohibiting central bank financing outright, some developing and transition economies (in the CFA franc zone, Brazil, Egypt, Morocco, the Philippines, and the Slovak Republic) limit it to a proportion of government revenue from the preceding year (usually between 5 and 20 percent).

The Quality of Fiscal Adjustment and Structural Reform

The degree of fiscal adjustment required is not independent of the quality of the specific measures chosen to implement it. The quality of fiscal measures can significantly shape the process of macroeconomic adjustment, the rates of economic growth and capacity utilization, and the country's external account position. The character of a government's tax and expenditure policies can send important signals to economic agents. It can also have pervasive effects on the economy, influencing commodity and factor prices, saving and investment incentives, external capital flows, the level and structure of capital accumulation, the effectiveness of markets, the volume of transactions in the official sector, and patterns of consumption. Furthermore, in several countries, money-losing public enterprises loom large in the production of goods and services, and an improvement in their performance can affect both aggregate production and the fiscal balance.

An assessment of quality needs to focus on the sustainability and durability of the measures being considered to reduce the budget deficit and on the relative impact of alternative policy options on investment and production incentives, as well as on the external current account. Specifically, short-term deficit reduction achieved with measures that cannot be sustained or that may have adverse effects on growth over the medium term should be viewed critically. Temporary surtaxes, tax amnesties, sales of public assets, and other measures may give a country some short-term relief but will do nothing to reduce its underlying deficit. Similarly, postponing essential operations and maintenance spending or inevitable wage increases will be of only temporary value.
and may do more harm than good over the medium term. Countries should choose measures that are likely to be durable over the longer term, that do not diminish the efficiency of public sector operations, and that have the least costly effects on growth in the rest of the economy.

Indeed, over time specific fiscal instruments may induce a supply response in the economy significant enough to reduce the magnitude of the needed deficit reduction. For example, eliminating an export tax may generate an expansion in output and export earnings over the medium term, increasing revenues from other tax sources. Similarly, a policy to reduce employment in the public sector, especially in unprofitable public enterprises, may increase efficiency and lower costs in the medium term, even though fiscal deficits may increase in the short run as outlays for separation and unemployment benefits become necessary. Consequently, such measures should be implemented as part of a strategy to achieve medium-term fiscal viability.

In view of these considerations, the following structural tax reform measures can be viewed as supporting the objectives of macroeconomic adjustment, growth, and sustainable external accounts:

- removing distortions from the income tax system and lowering high marginal tax rates;
- strengthening the consumption tax base;
- integrating the structures of corporate taxation and personal income taxation over time, gradually eliminating double taxation;
- removing export taxes;
- reforming the tariff structure to reduce anti-export bias and replacing nonneutral tariffs with broad-based consumption taxes (accompanied by changes in the direct taxation rate on both imported and domestic goods) to meet revenue objectives; and
- substituting import tariffs for import quotas in the short run and reforming the tariff structure over the medium term to achieve a desirable pattern of effective protection.

On the expenditure side, the following policies can help to promote increased productivity and improved utilization of existing productive capacity:

- providing sufficient funds for infrastructure operations and maintenance;
- avoiding across-the-board budget cuts in materials, supplies, and services;
- encouraging productive government investment, particularly when combined with policies to correct distortions in relative factor and commodity prices;
addressing sources of low productivity in government;
• using more cost-effective expenditure policies to attain given political goals such as income distribution, external or internal security, and self-sufficiency;
• substituting explicit budget subsidies for tax exemptions (implicit tax expenditures), to highlight clearly the opportunity cost of government policy objectives and raise the consciousness of policymakers in setting national priorities; and
• reducing government consumption outlays.

Fiscal Policy and Long-Run Growth

In addition to its short-term effects, fiscal policy may have important effects on an economy’s long-run growth performance. Among the main economic factors that determine a country’s growth over the long term are the efficiency with which any existing stock of resources is utilized, the accumulation of productive resources over time, and technological progress. Each of these factors can be affected by the main instruments of fiscal policy: tax policy, expenditure policy, and overall budgetary policy.7

Tax Policy

Taxation and economic growth are linked in several ways. First, taxes have a distortionary effect on economic behavior, creating a net efficiency loss to the economy. Increases in the level of taxation therefore adversely affect long-run growth in output. Second, by affecting capital accumulation, the structure of taxation may have important implications for growth. For a given tax level, a relative shift from income to consumption taxation reduces the disincentive to save, thus boosting capital accumulation. Furthermore, a heavy reliance on trade taxes can prevent an economy from absorbing or developing new technologies, hampering its growth prospects by reducing the exposure of domestic industries to international markets and competition.

Third, tax policy may also have a significant positive impact on both resource accumulation and technological progress if it provides tax incentives that promote investment and research and development activities. Without these incentives, such activities will be below optimal

7This analysis is based on Tanzi and Zee (1997), who provide a comprehensive discussion and survey of the effects of fiscal policy on long-run growth.
levels. Fourth, uncertainty about the tax regime can have adverse effects on growth, since uncertainty injects volatility into the returns from investment projects, reducing or postponing investment and impeding growth.

Empirical evidence on the effects of various aspects of tax policy on growth has been mixed.\(^8\) Although the general indication is that the relationship between either total tax or income tax revenue and growth is negative, this relationship is not robust and is sensitive to model specification. The most severe difficulty in isolating the impact of taxation on growth is that growth may be affected by key nontax variables, such as public expenditure and budget policies, that are often not independent of tax policy. Overall, empirical evidence on the relationship between taxation and growth is relatively weak compared with the theoretical predictions.

**Expenditure Policy**

It was explained earlier how the crowding-out effect increases public expenditure at the expense of private investment and thus has an adverse impact on long-run output growth. However, public expenditure can also enhance growth by increasing private sector productivity (the *externality* or *public good effect*). In this case a high level of expenditure results in a high growth rate. Thus, the impact on growth depends on the relative strengths of the crowding-out and externality effects.

Traditionally, public investment in physical infrastructural activities has been associated with strong externality effects. Some public consumption expenditures, however, may also have a similar growth-promoting impact, such as spending on elementary education and vocational training to enhance human capital, on infrastructure operations and maintenance, and on targeted research and development activities.

As with taxation, empirical evidence on the growth effects of total public expenditure (as a ratio to GDP) are inconclusive. At a more disaggregated level, evidence shows a positive correlation between growth and public investment in infrastructure. Some studies have also shown that public expenditure on education has a positive impact on growth and that military spending has a significantly adverse impact.

\(^{8}\)For sources on the literature in this section, see Tanzi and Zee (1997).
The difficulties noted earlier of estimating the growth effects of taxation apply to public expenditure as well. Even if the correlation between growth and public expenditure (or a subset thereof) is found to be robust, the direction of causation underlying the correlation is still unclear. Increased income growth may well generate higher demands for some or all types of public expenditure. Thus, it is at least possible that the direction of causation runs from growth to public expenditure.

**Budget Policy**

Budget policy is another broad fiscal variable that can have implications for growth, in that the budget balance may have growth effects that are separate from those related to either taxation or public expenditure. For instance, budget imbalances may trigger a behavioral response from the private sector. Earlier the chapter referred to the Ricardian-equivalence proposition on the neutrality between debt and tax financing of government expenditure. If the private sector regards debt-financed budget deficits simply as delayed taxes, then it may choose to increase its own saving to neutralize the public dissaving, stabilizing the level of national saving. Alternatively, budget deficits may not induce a response in private sector saving, in which case national saving falls, hampering growth. Much research has focused on whether neutrality exists between debt and tax financing, but the empirical evidence has been inconclusive.

Budget imbalances that affect stability may also affect growth. If current budget policy is deemed to be unsustainable, expectations are that either the tax and expenditure regimes will change or that the government will resort to monetary financing. The former increases policy uncertainty and is likely to have an adverse impact on growth; the latter leads to inflation, which can also affect growth adversely. Although the relationship between inflation and growth is complex at the conceptual level, empirical evidence is growing to suggest that a significant negative correlation exists between high inflation and growth. Thus, there is a compelling case for believing that an expansionary budget policy that generates high rates of inflation will most likely retard growth.

**Appendix 8.1: The Open Economy IS-LM Model**

The open economy IS-LM model can be represented by the following three equations:
\[ Y = \bar{A} + cY - b_i + NX \]  
\[ M/P = kY - hi \]  
\[ NX = X - mY + vR, \]

where

- \( Y \) = income
- \( \bar{A} \) = autonomous spending (including government spending and autonomous private investment)
- \( c \) = the marginal propensity to consume
- \( i \) = the domestic interest rate
- \( b \) = the coefficient of interest-sensitive investment
- \( M/P \) = the demand for real money balances
- \( k \) = the income coefficient of demand for real balances
- \( h \) = the interest coefficient of demand for real balances
- \( NX \) = net exports
- \( X \) = a constant (representing all other influences)
- \( m \) = the marginal propensity to import
- \( R \) = the real exchange rate
- \( v \) = the coefficient for the real exchange rate.

Substituting the third equation into the first yields

**IS:** \[ Y = \bar{A} + cY - b_i + X - mY + vR ; \text{ and} \]  
**LM:** \[ M/P = kY - hi. \]  

The IS equation yields

\[ Y = \frac{A - b_i - X + vR}{1 - c + m} \text{ or } \frac{A - b_i - X + vR}{s + m}, \]

where \( s = 1 - c \) is the marginal propensity to save.

Equation (8.12) shows that an increase in government spending by \( \Delta G \) will increase \( \bar{A} \) by \( \Delta G \) and \( Y \) by \( \Delta G [1/(s + m)] \), where \( 1/(s + m) \) is the simple open-economy multiplier.

With perfect capital mobility, one has \( i = i_f \), where \( i_f \) is the foreign interest rate. Thus, the LM schedule can be expressed as

\[ \frac{M}{P} = kY - hi_f \]

\[ Y = \frac{1}{k} \left( \frac{M}{P} + h \cdot i_f \right). \]
The equilibrium level of income is determined by the domestic real money supply and the foreign interest rate. In this case, the exchange rate adjusts to clear the goods market.

Bibliography


