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Preface

The Economic Issues series was inaugurated in September 1996. Its aim is to make accessible to a broad readership of nonspecialists some of the economic research being produced in the International Monetary Fund on topical issues. The raw material of the series is drawn mainly from IMF Working Papers, technical papers produced by Fund staff members and visiting scholars, as well as from policy-related research papers. This material is refined for the general readership by editing and partial redrafting.

The following paper draws on material originally contained in IMF Working Paper 96/59, “An Empirical Analysis of Fiscal Adjustments,” by C. John McDermott and Robert F. Wescott of the Fund’s Research Department. It has been prepared by David D. Driscoll of the Fund’s External Relations Department. Readers interested in the original Working Paper may purchase a copy from IMF Publication Services.

Fiscal Reforms That Work

Budget deficits (the yearly excess of government expenditures over revenues) and government debt (the deficits accumulated over the years) have soared in many industrial countries over the past 20 years, and almost all these countries are now faced with the challenge of bringing them back to earth. The present very serious problem of budget deficits and public debt has come about mainly because the growth in government spending has exceeded the growth of goods and services and has left growth in revenues trailing far behind. While the average ratio of tax revenue to GDP in industrial countries increased from 28 percent in 1960 to 44 percent in 1994 (the value of 44 percent of everything produced in one year in these countries went to taxes and fees), the corresponding ratio for government expenditures rose from 28 percent to 50 percent (the government spent the equivalent of half the value of all goods and services produced in a year). Given the high levels to which taxes have risen and the danger of stifling growth by raising taxes further, to say nothing of the political consequences of trying to do so, it is reasonable to suppose that reducing government spending offers the best means, if not the only means, of eliminating these fiscal imbalances.

Reducing government spending is not so easy. According to traditional Keynesian theory, if you manage to reduce the government deficit, you run into another problem: the country might slide into recession. Why is this? Budget deficits, despite their evil reputation,

are not in fact all bad. The good news is that they indicate the government is buying goods and services, is paying wages to its employees, and is making transfers of money to its needy citizens. In doing so, it is putting money into the economy and raising the level of economic activity. If it suddenly puts the brakes on, even in pursuit of a well-intentioned attempt to balance the budget, it will leave many suppliers with blank pages in their order books, throw people out of work, and cut off the flow of a lot of money into the economy.



Neoclassical Hypothesis

Nevertheless, in opposition to this received wisdom, so-called “neoclassical” economic models suggest that budget reduction might lead to lower interest rates, currency depreciation, and “positive expectational effects” that might offset or even swamp the traditional undesirable Keynesian effects of budget reduction (unemployment, economic slowdown). According to the neoclassical hypothesis, a smaller budget deficit could lower interest rates by reducing the perceived risk that a government might depreciate its public debt through high inflation in the future (in other words, pay off its debt with cheaper, inflated money). In countries suffering from extremely large fiscal imbalances, where fiscal action is viewed as indispensable to restoring government solvency, budget reduction could also reduce the default risk premium in interest rates. (In these countries interest rates on government debt are usually very high to compensate investors for the risk that the government might default on its debts. Other interest rates tend to rise to the same level as interest on government debt.) Moreover, budget reduction could signal lower future tax burdens both for individuals, which could lead to an increase in expected lifetime disposable income, in turn

boosting consumption, and for corporations, which, expecting lower corporate tax burdens in the future, could increase their investment spending. The outcome would be a resurgence in economic output.

The neoclassical hypothesis suggests that determined action to reduce the budget deficit (“fiscal consolidation,” in economic terms) would give the public at large confidence that the government is finally getting its house in order and will be borrowing less in the future, thereby lowering interest rates throughout the economy. This would spur businessmen and investors into economic activity not only in the long run, but also during the immediate period of fiscal consolidation. If this view is correct, and politicians can be convinced that reducing the budget deficit would not impose a severe penalty on economic growth, there would be less political inclination to delay reforms needed in deficit countries.

During the 1980s Denmark and Ireland, which had been running large fiscal deficits, both embarked on programs of fiscal consolidation involving sharp cuts in government spending. To the surprise of many observers, private consumption did not decline as much as normal economic relationships would have predicted. In other words, people continued to spend almost as much on consumer items, buying cars and houses and taking vacations, as they did before the government cut the flow of cash into the economy. The business and financial community also seemed to be impressed by the apparent determination of the government to stop wasting tax money. Businessmen and investors began to spend more on renovating plants, updating equipment, and investing for future growth. All this seemed to confirm the hypothesis that the large fiscal cut-backs had led the public to believe that tax burdens would be lightened and had engendered confidence in the economic future.

Nice hypothesis, but is it valid? This paper puts the hypothesis to the test by looking at the dynamics between deficit reduction and economic growth. It uses the experience of fiscal consolidation in industrial countries over 1970–95 to examine the interplay between fiscal change and economic performance and to see if the theory of positive expectations has any substance. This exercise involves some theory, but draws a few very practical conclusions about the

choice of fiscal reforms, which some see as essential if global economic growth is to be sustained.



Empirical Framework

Every taxpayer is aware that government authorities are constantly making small changes in the tax code, but these minor changes can hardly be regarded as fiscal consolidation. To begin the analysis it is therefore necessary to define what is meant by fiscal consolidation and establish rules that can be used to identify episodes of consolidation. The analysis looked at the structural primary balance rather than the actual or recorded fiscal balance (that is, the fiscal deficit or, in good years, the fiscal surplus). The structural primary balance is the recorded fiscal balance minus two components: (1) interest payments, which cannot be directly reduced in the short run by fiscal policy, and (2) that part of the recorded balance that results from the phase of the business cycle (for example, the amount the government pays out in unemployment benefits during a recession, or the amount of windfall tax revenue during boom times). To capture the broadest possible country coverage and the longest possible historical perspective, the study looked at data for 20 industrial countries during 1970–95.



Fiscal Consolidation

An episode of fiscal consolidation is defined as one that meets two criteria: (1) the ratio of the structural primary balance to potential GDP at full employment (this ratio is called the “fiscal impulse”) improved—that is, the deficit fell—by at least 1.5 percentage points over a two-year period, and (2) the ratio did not deteriorate in either of the two years. (This technical definition means simply that over the two-year period, after accounting for interest payments and the effects of the business cycle, the deficit fell because the government spent less or taxed more.) No fewer than 74 episodes were found to meet this two-year criterion for fiscal consolidation in the 20 countries during 1970–95.

But merely undertaking fiscal consolidation does not, in itself, count as a success. How many of these 74 episodes can be regarded as truly successful? Although it is hard to give a precise definition of success in consolidating an overextended fiscal position, a reasonable indication might be if the ratio of public debt to GDP starts to decline and continues to do so. A reduction of at least 3 percentage points in the ratio of gross public debt to GDP by the end of the third year after the fiscal tightening began is a workable criterion for judging success in this regard. According to this measure, of the 74 episodes of fiscal consolidation, 48 were not successful, 14 were successful, and 12 could not be classified because of insufficient data.

So far so good: debt declined significantly in 14 episodes. The next step in the analysis is to determine how these countries’

Episodes of Successful Fiscal Consolidation

Country	Year
Australia	1987, 1988
Belgium	1987
Denmark	1984, 1985, 1986
Ireland	1987, 1988, 1989
Japan	1987
New Zealand	1992
Norway	1986
Sweden	1987
United States	1977

economies performed during the two-year period of fiscal consolidation as well as in the year before (to control for the effects of the business cycle) and the year after it. Did the economy grow during these four years? The data show that in all 14 cases economic growth and job creation did in fact increase on average throughout the four-year period. The unemployment rate declined. Both short- and long-term real interest rates fell, and currencies appreciated in real effective terms (that is, adjusted for inflation, the value of the currency of the reforming country rose in terms of the currencies of its trading partners). The answer then is yes, the economy did grow. In the 48 unsuccessful cases, however, real GDP on average went down and the unemployment rate went up. Thus, satisfactory economic performance tended to go hand in hand with successful fiscal consolidation. Moreover, this economic growth came more from growth in investment, which usually has more desirable long-term consequences, than from growth in consumption, whose benefits are sometimes short-lived.



Reasons for Success

What factors contributed to, or were necessary for, the success of fiscal contractions in these 14 cases? First, the size of the fiscal consolidation seems to be of some importance. The average size of the two-year fiscal contraction was fully 4.0 percent of GDP in the successful cases, compared with 3.2 percent of GDP in the 48 unsuccessful cases. As important, however—especially given the not unimpressive scale of fiscal consolidation in the unsuccessful cases—was the fact that in many of the successful cases the fiscal consolidation was undertaken as part of a broader reform program that may have enhanced the overall credibility of the government's commitment to the consolidation.

Second, real short-term interest rates tended to decline in the successful consolidation cases, but to increase in the unsuccessful cases. The larger fiscal action in the successful cases may have restored financial market confidence and allowed monetary authorities to ease monetary conditions. Real long-term interest rates decreased in both successful and unsuccessful cases, but perhaps for different reasons—because of improved financial confidence in the successful cases where policy initiatives were more vigorous, but because of weaker economic growth in the unsuccessful cases.

Third, the composition of the fiscal consolidation also appears to have been important. The episodes of fiscal consolidation for which sufficient data exist were divided into two categories: those in which the deficit was cut mainly (at least 60 percent) through revenue increases, and those in which it was reduced mainly (at least 60 percent) through expenditure cuts. Of the 17 cases in which most of the adjustment took the form of expenditure reductions, just under half were successful, while among the 37 cases where the consolidation was achieved mainly by raising taxes, less than one out of six had successful outcomes. The message is reinforced by the fact that the average structurally adjusted expenditure cut in the successful episodes was 3.7 percent of GDP, while in the unsuccessful cases it was only 2.1 percent. Government employment, the government wage bill, and government consumption were cut in the successful cases, but remained constant or increased in the unsuccessful ones. Social security payments and transfers were kept in check in the successful episodes, but expanded as a share of GDP in the unsuccessful cases.

A few factors that other researchers have claimed to be important for predicting the success or failure of fiscal consolidation did not appear significant. The pace of economic growth in the year before the fiscal contraction seemed unrelated to the success of the reforms (as opposed to economic growth during the consolidation). In fact a larger share of fiscal contractions launched in the face of sub-par growth, as opposed to above-average growth, ended up succeeding. One interpretation is that a sense of poor economic performance might have been necessary to convince governments to make tough choices. Finally, movements of the real exchange rate

appear not to have made much difference to the success of consolidation efforts.



Cause or Effect?

Given the complex interactions between economic growth and changes in public debt ratios, it is difficult to distinguish between the contribution of growth to successful fiscal consolidations and the contribution of successful consolidations in boosting growth. One way to analyze this relationship, however, is to examine fiscal adjustments during different phases (recession or expansion) of the business cycle. None of the seven efforts at fiscal consolidation during 1980–81, a period of global recession and spiking interest rates, was successful in lowering debt ratios, in part because of the economic headwinds. Even in 1984–89, a period of solid growth in industrial countries and of flat or declining world interest rates, only 12 of the 30 cases of fiscal consolidation were successful. Thus, even in periods of favorable economic conditions, most efforts to reduce ratios of debt to GDP failed. Although good timing in relation to the world business cycle helps, it does not guarantee success.

To explore further the relationship between economic growth and movements in the debt-to-GDP ratio, episodes have been analyzed in which the debt ratio declined even though there was only minor or no fiscal consolidation. Since 1971, there have been 21 episodes in which the ratio of debt to GDP fell by over 3 percentage points over a two-year period despite the lack of sharp fiscal consolidation. Seven occurred during the early 1970s when inflation was accelerating rapidly, nominal GDP was growing, and interest rates were plunging—that is, the debt ratio was reduced by an inflation surprise. Other episodes resulted largely from privatization programs. On balance, aside from some special cases, rapid GDP growth alone

seems not to have caused the ratio of debt to GDP to decline noticeably. In most cases, a substantial fiscal consolidation effort seems to be a necessary condition for a successful debt-reduction outcome.



Statistical Robustness

The idea that the size, composition, and timing of the fiscal reform make a difference for successful debt reduction and thus for growth was also examined through the use of formal statistical techniques, which can indicate the mathematical probability of success of the reform. Figure 1 shows that, regardless of the size of the fiscal impulse (that is, as noted above, the change in the ratio of the structural primary balance to potential GDP), the probability of a successful consolidation increases dramatically if the consolidation is conducted mostly through expenditure cuts. Even with a fiscal impulse of 7 percent over a two-year period (quite a substantial

Figure 1. Probability of Successful Fiscal Consolidation: Expenditure Cuts Versus Revenue Increases

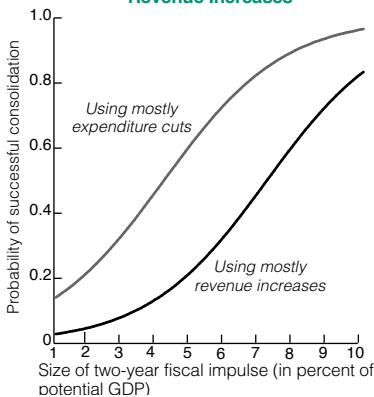
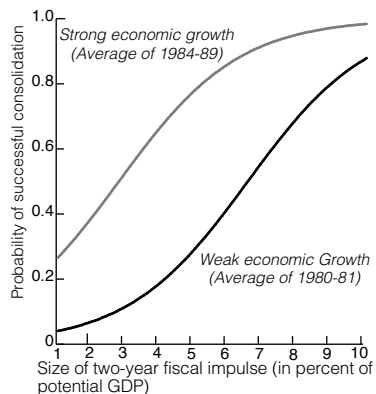


Figure 2. Probability of Successful Fiscal Consolidation: Strong Versus Weak Global Economic Growth Environment



effort), the probability of a consolidation based on a tax increase being successful is only about one out of two. On the other hand, a consolidation based on cuts in expenditure needs just a 4 percent impulse (that is, considerably less effort) over the two years to have at least a 50 percent chance of success.

A significant nonpolicy factor (nonpolicy since the government can do nothing about it) in determining the probability of success of a consolidation is the stage of the global business cycle at which the consolidation is undertaken. Figure 2 shows the difference in the probability of success of consolidation when the world economy is growing and when it is stagnant. The curve showing the probability of success when world economic growth is weak is calculated under the assumption that growth is 0.8 percent a year—the average growth rate of the industrial countries over the recessionary period 1980–82. The curve showing the probability of success when world economic growth is strong is calculated with a growth assumption of 3.7 percent a year—the average growth rate of the industrial countries over the vigorous 1984–89 period. For a two-year fiscal impulse of 4.0 percent (the average for successful cases), the probability of conducting a successful consolidation during the strong growth period was about 0.5 greater than during the weak growth period. In short, strong global economic growth helps to achieve a successful consolidation, and weak global growth reduces the chances that consolidation will cut the debt-to-GDP ratio.



Real World Confirmation

Several notable cases of fiscal consolidation that appear to have had non-Keynesian effects have been widely documented and serve to provide confirmation for the analytical indication presented in this paper. New Zealand is a recent success case that seems to confirm the message of this paper: industrial countries with serious

deficit and debt problems should pursue a strict fiscal consolidation strategy, with focus on expenditure cuts. If policies are credible, interest rates can decline, economic growth can be maintained, and the public debt can be reduced. New Zealand's fiscal position shifted from a deficit of 5 percent of GDP in 1992 to a surplus of 3 percent of GDP in 1995, reflecting above all else structural measures that strengthened expenditure control. While revenue remained stable, expenditure as a share of GDP dropped by 10 percentage points over these years. Interest rates declined significantly. Despite the fiscal contraction, GDP growth revived—from *minus* 2.5 percent in 1992 to *plus* 5.4 percent in 1995—while the unemployment rate was cut in half. Meanwhile the ratio of public debt to GDP dropped to 38 percent from 52 percent.

There are other examples. In the early 1980s, the Danish primary budget deficit hit 6.5 percent of GDP and public debt was growing rapidly. In response, the government began a sharp fiscal consolidation in 1992, and in the four years that followed, the structural primary deficit (as a share of GDP) fell by 10 percentage points. Despite this fiscal stabilization, the economy expanded and the ratio of consumption to GDP rose by several percentage points. Ireland in the early 1980s was in an even worse fiscal position, with a primary budget deficit as large as 8.5 percent of GDP and gross public debt roughly 80 percent of GDP. Ireland made a first attempt at fiscal consolidation in 1982, and by 1984, the structural primary budget deficit was reduced by 7 percent of GDP, largely via increased taxes. This fiscal contraction, however, had the more standard Keynesian effect, with output falling. A second attempt at fiscal consolidation was started in 1987, this time relying on large cuts in government consumption. The fiscal adjustment was very sharp, with the structural budget deficit falling by another 7 percent of GDP between 1987 and 1989. The result was an expansionary boost to output and nearly a 20 percent reduction in the ratio of gross public debt to GDP.



What Is Being Suggested?

The analysis presented here suggests that a policy of tight fiscal consolidation does not need to cause a recession. Sharp fiscal contractions can reduce interest rates and boost investment spending. Expectations of lower future tax liabilities can encourage consumption and investment. Consolidation that concentrates on the expenditure side, and especially on reducing transfers and government wages, is more likely than tax increases to succeed in lowering the public debt ratio. It also appears that the greater the size of the fiscal consolidation, the more likely it is to reduce the debt ratio, perhaps because the fiscal consolidation is viewed as more credible and more likely to unlock positive expectations.

Evidence suggests that fiscal consolidation undertaken in an environment of disappointing economic growth and high interest rates, such as during the 1980–82 global recession, will probably fail. The size of the reform and its composition seem to be the dominant determinants of its outcome. Moreover, while particularly bad periods ought to be avoided, it is not necessary to wait for some favorable world growth phase before initiating fiscal consolidation.

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