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Tax Structure and Public Sector Growth

There is a popular belief that the more money a government takes in, the more it will spend. If this is true, then the rapid growth of (nominal) income five to ten years ago should have stimulated more spending by states with progressive tax systems than by states with proportional taxes. However, NBER Research Associates **Daniel Feenberg** and **Harvey Rosen** report in **Tax Structure and Public Sector Growth** (*NBER Working Paper No. 2020*) that among state governments the *form* of the tax structure does not exert an independent effect on public sector growth. Indeed, state governments do not automatically spend all the money generated by their tax systems.

Instead, Feenberg and Rosen find that the size of the state's public sector depends on the public's demand for government services—based on such factors as the income and age structure of the state's population. The fact that tax revenues may rise more with economic growth in some states than in others is of no particular significance. Governments tend to return such revenues to taxpayers by tax cuts.

To determine the effect of state tax revenues on government spending, Feenberg and Rosen look at the annual growth of real state per capita expenditures from 1978–83 and the personal income and sales tax systems for 49 states for the same years. (Alaska is excluded because of its unusual oil revenue situation.) They find no evidence that the tax structures that are more responsive to changes in income are associated with higher rates of public sector growth.

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The authors also find that limitations on taxes and spending enacted by some states had virtually no impact on the growth in states' real expenditures. These limitations may have been ineffective because they covered only 60 percent of state revenues or expenditures. Alternatively, sluggish growth between 1978 and 1983 may have kept some states below their statutory limit. Whatever the reason, Feenberg and Rosen do not conclude that these statutory limitations are irrelevant. Rather, they feel that the unimportance of tax structures to growth rates of government spending is not a consequence of states having ignored such limitations. DF

Debt and Financial Instability

Since 1980, there has been a rapid increase in the amount of debt owed by households, nonfinancial businesses, and federal, state, and local governments in the United States. Household debt has increased relative to household income, corporate debt has increased relative to firm assets and cash flow, and government debt has risen relative to total revenues.

According to NBER Research Associate **Benjamin M. Friedman,** this rise in debt increases the potential for financial instability in the event of a major recession. Friedman notes that the increase in indebtedness will cause few problems if we continue to enjoy sustained economic growth. However, a recession could easily lead to debtors' distress that would be especially serious because the economy is more highly leveraged than in the past. As a result, the Federal Reserve System may be less willing to seek or permit a serious recession. The main conclusion of Friedman's analysis, therefore, is that U.S. monetary policy is likely to be more expansionary than it would be in the absence of higher indebtedness relative to GNP. The ultimate effect of this easier monetary policy may be a return of more rapid price inflation.

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In **Increasing Indebtedness and Financial Stability in the United States** (*NBER Working Paper No. 2072*), Friedman calculates that the total debt of the U.S. nonfinancial sector grew from 1.38 times GNP in 1980 to 1.69 times GNP in 1985. This ratio of debt to GNP is well above the indebtedness recorded at any other time throughout this century, except during the Depression years 1931–5. Moreover, all major groups of nonfinancial borrowers have joined in this increase in indebtedness. Household debt has increased from 51 to 59 percent of GNP, business debt from 50 to 58 percent, state and local government debt from 10 to 13 percent, and federal government debt from 26 to 39 percent.

Most of this increased debt is owed to U.S. residents. Although foreign purchases of U.S. debt have been at record levels in recent years, by far the largest share of the debt is owed to U.S. holders. In fact the growth in assets of the household sector fully matched the growth of household debt between 1980 and 1985, so that the net worth of households was unchanged. However, Friedman observes that the households with increased assets may not be the ones with increased debt. Personal interest payments have increased from 2.5 percent of disposable income in 1953 to 7.6 percent in 1984. A serious recession could significantly raise the number of household bankruptcies, even though the total assets of households far exceed total debts.

Among nonfinancial corporations, the increase in debt between 1980 and 1985 has not been matched by an increase in assets. Corporate debt grew from 49 to 53 percent of GNP during this period, but corporate net worth fell from 91 percent to 79 percent. Almost all of this increase in corporate indebtedness has been caused by the recent wave of reorganizations, including mergers, acquisitions, leveraged buyouts, and stock buy-backs. The dramatic rise in stock prices has kept average corporate debt–equity ratios from rising. Nonetheless, the share of corporate earnings (before interest and taxes) required to meet corporate interest payments reached record levels during 1980–5, and the rate of business failures in 1985, even after three years of economic recovery, was almost triple the rate in the recession years 1970, 1975, and 1980.

Does Low Saving Lead to Low Investment?

If a country has a low rate of saving, will it also tend to have low investment, or can countries make up for their lack of saving by borrowing capital for new investments from abroad? A new study by NBER Research Associate **Jeffrey Frankel, Michael Dooley,** and **Donald Mathieson** (*NBER Working Paper No. 2043*) finds that saving and investment are indeed highly correlated. That is, countries that save a lot also tend to invest a lot. This occurs because the flows of capital from high saving countries to low savers do not fully offset the effect of low saving on a country's rate of investment.

Frankel, Dooley, and Mathieson estimate that there is a correlation between domestic saving and investment for all sorts of countries—both rich and poor, large and small, and net borrowers and lenders. They estimate the relationship between saving and investment for 14 developed countries and 50 developing countries for 1949–84 and report a higher correlation between saving and investment for developed countries than for developing countries. Further, they observe a higher correlation between saving and investment since 1973 than before that year. (Their results hold even when certain problems of causality that have concerned other economists are addressed.)

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These findings seem to be inconsistent with the apparent integration of financial markets around the world, especially in developed countries, which has grown rapidly since 1973. Capital seems to flow quite freely into countries where interest rates are high because the demand for investment funds there exceeds the supply of savings.

The explanation for this seeming inconsistency, according to the authors, may be that domestic financial markets are not well integrated with domestic investments in physical capital. International lenders may be willing to buy relatively liquid and low-risk government bonds in foreign countries, so that interest rates in financial markets tend to be equalized. But markets for physical capital may not be well integrated with domestic financial markets. As a result, large international differences in rates of return on investments in physical capital may continue to exist, and domestic saving may affect domestic investment even though international financial markets are highly integrated.

In an earlier study (*NBER Working Paper No. 1773*), Frankel reached a similar conclusion: that saving and investment have been highly correlated in U.S. history. There Frankel emphasized that U.S. goods markets are not completely integrated with goods markets in other countries. Therefore, even if nominal rates of return are equalized, real (that is, inflation-adjusted) rates are not. The bottom line of the two papers is the same: domestic saving may affect domestic investment even though international financial markets are becoming increasingly integrated.

Is There a Financing Hierarchy?

What determines the amount of dividends firms pay out to shareholders? The traditional answer is that managers attempt to smooth dividends over time, with the goal of reaching a target dividend payout ratio.

However, in **Dividend and Share Changes: Is There a Financing Hierarchy?** (*NBER Working Paper No. 2029*), **Robert McDonald** and **Naomi Soderstrom** reject smoothing as a description of dividend behavior. Instead, they find that dividend behavior is closely linked to the likelihood that a firm will issue new equity.

Firms that are unlikely to issue new equity increase dividends when their stock price rises and reduce dividends when their stock price falls. Thus for these firms, dividends are not smoothed.

On the other hand, for firms that *are* likely to issue equity, the dividend growth rate becomes sharply negative. This result is consistent with the idea that firm financing decisions follow a "financing hierarchy," in which firms use different methods of financing at different times, depending on factors such as the availability of internal funds and the existing debt-to-equity ratio. In particular, these findings support the notion that equity issues are a financing source of last resort. Equity issues are the most expensive form of finance for the firm, and dividend reductions may be preferred to equity issues as a source of funds.

Using data from 423 nonfinancial firms over a 14-year period, McDonald and Soderstrom attempt to determine the factors that make firms likely to issue or repurchase shares. They find that large firms, and firms with low dividends, a high debt-to-equity ratio, and low operating income are likelier to issue equity. They also verify the findings of previous studies that the stock price of firms that issue equity tends to have risen in the year preceding the equity issue.

The converse is not true for firms that repurchase shares, however. With one exception out of the more than 400 firms, these same factors are not statistically important in predicting whether a firm will repurchase shares.

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McDonald and Soderstrom also study the factors that lead firms to change dividends. They find that higher operating income and increases in the firm's stock price increase the probability that a firm will

raise dividends and decrease the probability that a firm will lower dividends. On the other hand, a higher debt-to-equity ratio makes a dividend increase less likely and a dividend decrease more likely. Large firms and firms with a higher dividend yield are more likely to change dividends than are firms with low dividends and a low dividend yield. The finding that firms with high dividend yields change dividends more often suggests that firms paying a high dividend are likelier to regard dividends as the marginal source of finance.

ML

"PPS" Leads to Shorter Stays for Psychiatric Patients

In order to stem the growth in hospital costs, Medicare's Prospective Payment System (PPS) allows hospitals a fixed sum per case, regardless of the actual cost of care. In addition to covering patients with physical problems, PPS applies to psychiatric patients who are treated in general hospitals (termed "scatterbed" patients if they are not in psychiatric units). Now, a new NBER study finds that PPS significantly reduces the length of stay in the hospital for such patients. In **The Impact of Medicare's Prospective Payment System on Psychiatric Patients Treated in Scatterbeds** (*Working Paper No. 2030*), NBER's **Richard Frank** and coauthors **Judith Lave, Carl Taube, Agnes Rupp,** and **Howard Goldman** find that the average length of stay for these psychiatric inpatients fell from (approximately) nine to seven days under PPS.

To reach their conclusions, the authors studied over 7000 cases of psychiatric scatterbed patients who were discharged from U.S. hospitals in fiscal 1984. They first discern that the diagnostic mix of cases (for example, psychotic, or with an organic illness) was quite similar before and after PPS was implemented. Therefore, any change in the average length of stay is not attributable to a different patient mix.

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Frank and his coauthors go on to estimate "a 365-day PPS impact for a typical hospital" relative to what would have occurred under the previous reimbursement system. That is, they calculate the changes that took place in the course of a year, because the hospitals' adjustment was not immediate, and it accelerated as the starting date for PPS approached and passed. They find that PPS led to a stronger response (measured by length of stay) on the part of hospitals than had been observed in previous studies of the impact of changes in Medicare and changes in New Jersey's system of prospective reimbursement. The authors caution, however, that "the strong response observed in this analysis makes it even more critical to distinguish between increased efficiency and undertreatment." Shorter hospital stays per se are not necessarily more efficient.

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