

The NBER Digest

NATIONAL BUREAU OF
ECONOMIC RESEARCH, INC.

May 1981

Does the Max Tax Work?

The Tax Reform Act of 1969 included a provision designed to set 50 percent as the maximum marginal tax rate on personal service income. According to NBER Research Analyst **Lawrence B. Lindsey**, the provision is not working. In *Working Paper No. 613, Is the Maximum Tax on Earned Income Effective?*, Lindsey explains why the provision doesn't work and considers some alternatives.

What is wrong with the max tax provision? The first problem, Lindsey explains, is the stacking order involved. Investment income is "stacked" on top of "earned" income for tax calculation purposes, and the tax rate on total income is applied to investment income above the 50 percent bracket. The actual rate applied to personal service income becomes dependent on the level of total income, and the provision fails. If investment income were stacked first, the provision could be effective, according to Lindsey: "By stacking earned income on top of unearned income, tax rates on both sources are independent of total income received."

The second reason for the failure of the max tax provision is the way that deductions and exemptions are allocated between wages and investment income. Only a portion of an additional dollar earned, based on the share of earned income in total income, is actually treated as earned income for tax purposes. "A further implication of this method of computation," Lindsey continues, "is that investment income can benefit from the maximum tax provision... The tax relief accorded unearned income by the maximum tax provision rises with the share of earned income in total income and the share of deductions in total income." If all deductions were allocated against a single source of income, the provision would be effective, but the cost in lost revenue would be high: \$1.274 billion if deductions were applied to earned income, and even

more if deductions were applied to investment income.

Lindsey shows that under the present law there are only two conditions under which the marginal tax rate on earned income above the 50 percent bracket can actually be reduced to 50 percent: (1) if the taxpayer has so little investment income that it does not cause a change in brackets—then the tax rate on earned income equals the tax rate on total income; (2) if the taxpayer is already in the highest bracket, so that investment income cannot cause a change in brackets. Lindsey points out that only one in seven of the taxpayers with a marginal rate of 50 percent or more fit into either of these categories.

"...only 7.5 percent of the 2.15 million taxpayers who should be covered by the max tax provision have their marginal rate on earned income reduced to 50 percent."

Lindsey then uses the NBER TAXSIM model and Treasury Department data for 1977, updated to 1980, to simulate the extent of failure of the existing max tax provision. He finds that only 7.5 percent of the 2.15 million taxpayers who should be covered by the max tax provision have their marginal rate on earned income reduced to 50 percent. Moreover, as earned income rises, the marginal rate on investment income actually falls from 70 to 66.2 percent. In other words, the maximum tax provision is ineffective with regard to earned income *and* inadvertently reduces tax rates on investment income.

International Effects on the U.S. Capital Market

It used to be thought that U.S. capital markets, by far the largest in the world, were for all practical purposes immune from foreign influences. That is no longer the case. The increasing interdependence of national economies, the new wealth of the members of the Organization of Petroleum Exporting Countries (OPEC), and the increased international flow of capital now have a significant effect on U.S. capital markets. International capital holdings, concludes NBER Research Associate **David G. Hartman** in *Working Paper No. 581, International Effects on the U.S. Capital Market*, "would seem to be neither so large that they dominate the U.S. capital market, nor so small that they can be ignored in models of the U.S. capital market."

Indeed, Hartman finds significant international effects on the long-term, new issue corporate bond rate in the United States. For example, his research shows that if American firms had not been making so many direct investments abroad, the yield on corporate bonds in the United States might have been as much as 98 basis points lower in 1979.

Hartman offers considerable evidence to show that "international capital transactions are sizable relative to the U.S. market." Foreign holdings of U.S. government debt, for example, grew from a level of just over \$10 billion at the beginning of 1970 to almost \$138 billion by the end of 1978. OPEC money was a particularly large factor. This growth, says Hartman, indicates the perceived desirability of U.S. government obligations as a relatively safe store of value. It also indicates the role of the U.S. dollar as an official reserve currency.

Some additions to foreign holdings are explained by the desire of foreign central banks to obtain U.S. dollars in an attempt to maintain or change the value of their currencies. Hartman concludes: "The foreign presence in the U.S. government bond market appears, from casual observation, to be sufficiently large that the possibility of a significant effect on the economy cannot be ruled out. Not only do foreign holdings make up a sizable fraction of the government debt outstanding, but also net foreign purchases on a year-to-year basis are large and volatile enough to drive a considerable wedge between the federal budget deficit and the domestic deficit finance required."

For instance, in 1971 a federal deficit of \$22 billion was offset by even greater U.S. government borrowing from foreign sources. In 1975, the record federal deficit of more than \$70 billion was almost 90 percent financed at home. By contrast, the \$74 billion combined deficit for the years 1977 and 1978 was almost 80 percent financed by foreigners. Then, early in 1979, for-

foreign governments, in attempting to stabilize their exchange rates against a rising dollar, sold almost \$18 billion of U.S. government obligations.

Foreign investments in the United States and U.S. investments abroad have also grown so rapidly as to become significant. U.S. firms invested a total of \$174.5 billion abroad by the end of 1979. Such direct investments, where the U.S. parent company has control of the foreign enterprise, have long represented the most sizable American outflow of long-term capital. From the beginning of 1970 until the end of 1979, U.S. direct investment abroad grew from a level of 7 percent to 14.2 percent of total U.S. corporate equity.

In the same period, foreign direct investment in the United States more than tripled as a percentage of total U.S. corporate equity: from 1.3 percent to 4.2 percent. At the end of 1979, foreign direct investment in the United States stood at \$46.7 billion. Commenting on the concern of some Americans with the rapid growth in foreign control over U.S. production, Hartman says: "Viewed in relation to U.S. capital employed abroad, the level of foreign direct investment in the United States does not seem so alarming."

"...international effects on the long-term, new issue corporate bond rate in the United States are highly significant."

Foreigners also held some \$60.1 billion of private U.S. securities at the end of 1979. U.S. holdings of foreign securities at the same date only slightly exceeded this amount at \$61.7 billion. However, the composition of the assets held differs markedly. Nearly 80 percent of the U.S. holdings are foreign bonds. Combining portfolio and direct investment, U.S. equity (corporate stock) investment abroad is far greater than foreign equity investment in this country. U.S. portfolio holdings of foreign equity stood at about \$13.8 billion at the end of 1979. That is about equal in value to 1.1 percent of U.S. firms' total equity outstanding. The average rate of growth in U.S. dollar ownership of foreign stock since 1965 has been about 5 percent per year, most of this growth resulting from increases in the dollar value of foreign stocks held rather than in net new purchases. In 1979, U.S. investors made unprecedented purchases in foreign stocks. Nonetheless, for the present, U.S. holdings of foreign stocks "seem inconsequential compared to the size of the U.S. equity market," estimates Hartman.

Foreign holdings of U.S. stocks apparently are of greater potential importance, Hartman notes. Such holdings were less than \$9 billion in 1960. They rose to \$39.1 billion by 1972, have fluctuated considerably since, and stood at about \$49.9 billion at the end of

1979. That represents about 4 percent of total U.S. stock outstanding. Foreign net purchases vary considerably from year to year. They amounted to \$0.539 billion in 1974, \$4.667 billion in 1975, and \$2.753 billion in 1976. This volatility in sales and purchases, Hartman suggests, could be "one reason for believing that foreign holdings of less than 5 percent of the equity market could have a significant impact..."

U.S. holdings of foreign bonds, on the other hand, reached about \$48 billion at the end of 1979, up from just over \$3 billion twenty years earlier. This growth has accelerated greatly in the past five years. Specifically, U.S. holdings of foreign bonds grew at annual rates of about 5 percent from 1965 through 1969, 11 percent from 1970 through 1973, and 18 percent from 1974 through 1979.

Hartman notes that the greatest acceleration in U.S. purchases coincided with the end of the interest equalization tax in early 1974—an excise tax that started out ranging from 1 to 15 percent depending on time to maturity. This tax was imposed by President Kennedy to improve the U.S. balance-of-payments position.

The level of U.S. holdings of foreign bonds stood, at the end of 1979, at nearly 12 percent of the value of U.S. private domestic bonds outstanding. Net purchases of foreign bonds were nearly 17 percent as large in the 1976-79 period as net new issues of U.S. corporate bonds. "In summary," writes Hartman, "transactions in foreign bonds would seem to neither dominate the U.S. market nor be sufficiently small that their effects could be safely ignored."

As for foreign investment in U.S. private bonds, this is only about a quarter as large as either U.S. holdings of foreign private bonds or foreign holdings of U.S. stock. Recently, however, OPEC nations have stepped up their purchases of bonds privately placed by U.S. corporations and other corporate bonds. Such purchases amounted to over \$3.7 billion in 1977, more than 10 percent of U.S. firms' net issues. So, although foreign purchases do not dominate the market, they are not inconsequential, Hartman says.

In the final section of his paper, Hartman takes an econometric look at the impact of changes in international asset holdings on the U.S. capital markets. He estimates, for instance, that if foreigners had not added to their portfolios of government bonds after the end of 1977, corporate bond yields would have risen 13 basis points by the first quarter of 1978. If any further foreign portfolio purchases of U.S. stock had been blocked at the end of 1977, the yield on corporate bonds would have risen a little. Although Hartman considers this work preliminary, he concludes that "international effects on the long-term, new issue corporate bond rate in the U.S. are highly significant. Since this interest rate is often seen as crucial in domestic investment decisions, we have reason to believe that investment in the United States is significantly influenced by capital movements." DF

Firms' Patents and R and D

"Perhaps the most serious task facing empirical work in the area of 'technological change' and 'invention and innovation' is the construction and interpretation of measures (indices) of advances in knowledge," write NBER Research Associate **Zvi Griliches** and Faculty Research Fellow **Ariel Pakes** in a recent Bureau study, *Working Paper No. 561*. One means of measuring the production of knowledge is by examining patents, an easily accessible and direct indicator of the number of inventions made by a firm. In **Patents and R and D at the Firm Level: A First Look**, the first report from a more extensive Bureau study of inventive activity and its consequences, Griliches and Pakes analyze the relationship between the number of patents applied for and the level of R and D expenditures at 121 large corporations between 1968 and 1975.

"...there is a statistically significant relationship between a firm's R and D expenditures and the number of patents it applies for and receives."

They find that there is "a statistically significant relationship between a firm's R and D expenditures and the number of patents it applies for and receives." Patents respond quickly to changes in R and D funding despite the fact that past R and D expenditures have a small but persistent effect on them. Further analysis shows that patents are a good indicator of differences in the levels of research activity among firms, although patents are not as good at indicating such differences over time. Griliches and Pakes conclude that: "It is clear that something systematic and related to knowledge-producing activities is being measured by patents and that they are, therefore, very much worthy of further study."

Wage and Employment Determination

A well-known model of trade union behavior, usually associated with W. Fellner (1947) and A. M. Cartter

(1959), asserts that unions seek to optimize both wages and employment given the constraints presented by firms' demands for labor. NBER Research Associate **John H. Pencavel** and **James N. Dertouzos** of the Rand Corporation test the validity of that model in **Wage and Employment Determination under Trade Unionism: The International Typographical Union**, *Working Paper No. 570*.

“...the union did not attempt to maximize either employment alone or wage rates alone, but rather had a more general objective that involved both wages and employment.”

In the model's first empirical application, the authors use data on the International Typographical Union

(ITU) from the period 1946–65. At that time, certain drastic changes in the composition of newspapers had not yet taken place, and there were no ITU strikes in those years. The ITU has about 100 local chapters that negotiate contracts directly with local printing establishments. Union members are active in decision making, and the ITU is frequently described as the most democratic trade union in the United States.

Dertouzos and Pencavel find the predictions of the model to be reasonable: the union did not attempt to maximize either employment alone or wage rates alone, but rather had a more general objective that involved both wages and employment. The model does, however, have two serious shortcomings: (1) it does not take account of provisions for job security often found in labor contracts and (2) it cannot predict the long-term responses of unions or firms. These two areas will provide the direction for future research, the authors state.

NBER

The National Bureau of Economic Research is a private, non-profit research organization founded in 1920 and devoted to objective quantitative analysis of the American economy. Its officers are:

Chairman—*Eli Shapiro*

Vice Chairman—*Franklin A. Lindsay*

Treasurer—*Charles A. Walworth*

President and Chief Executive Officer—*Martin Feldstein*

Vice President—*Charles E. McLure, Jr.*

Director of Finance and Administration—*Sam Parker*

Contributions to the National Bureau are tax deductible. Inquiries concerning contributions may be addressed to Lawrence B. McFaddin, Director of Development, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138.

The NBER Digest summarizes selected Working Papers recently produced as a part of the NBER research program by researchers

associated with the National Bureau. Working Papers are intended to make results of NBER research available to other economists in preliminary form to encourage discussion and suggestions for revision before final publication. For similar reasons the Digest is issued solely for informational purposes and to stimulate discussion prior to final publication. It has not been reviewed by the Board of Directors of NBER. Preparation of the Digest is under the supervision of Donna Zerwitz. The article indicated by DF was prepared with the assistance of David Francis.

Individual copies of the NBER Working Papers summarized here (and others) are available free of charge to Corporate Associates and other supporters of the National Bureau. For all others, there is a charge of \$1.50 per paper requested. Prepayment is required for all orders under \$10.00. For further information, please contact: Working Papers, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138. Abstracts of all current National Bureau Working Papers appear in the NBER Reporter.