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Taxation and Household Portfolio Behavior

James M. Poterba*

The personal income tax has a critical effect on the rate of return that households earn on their investments. Taxes reduce the rate of return, and they do so to different degrees for different assets. Assets that generate mostly capital gains, for example, historically have faced lower tax burdens than those that generate either interest or dividend income. Assets that are held in tax-deferred retirement savings accounts, such as Individual Retirement Accounts or 401(k) plans, face lower tax burdens than assets that are held outside such accounts.

Much of my recent research has explored the impact of income tax rules on household portfolio behavior. Investigating whether households recognize the incentives that are built into the income tax code, and then studying whether they change their behavior in response to these incentives, is one of the perennial research missions of empirical public economics. Investigating these issues in the portfolio choice setting is particularly attractive because the tax rules are reasonably clear and subject to frequent change. Many of the behavioral changes that one might expect in response to capital income taxes, such as selling assets with accrued losses or holding tax-exempt rather than taxable bonds, are also easier to implement than the behavioral changes that might be associated with tax incentives for labor supply or homeownership.

Households may choose to invest in a wide array of financial assets, and there are often asset-specific tax rules that determine the relationship between pretax and aftertax returns. Part of my research has focused on taxpayer response to specific tax rules on partic-

ular classes of assets, while another part has explored more broadly how the structure of household portfolios, and the allocation of portfolio assets between taxable and tax-deferred accounts, is affected by taxation.

Capital Gains Taxation and Investor Behavior

The capital gains tax is one of the most widely-studied components of the U.S. tax code. Because gains are taxed only when they are realized, investors have some control over their tax burden. By delaying the sale of an asset that has increased in value, investors can defer their capital gains tax and thereby reduce the present discounted value of their tax liability. Conversely, by realizing a loss as soon as it accrues, an investor can benefit immediately from any tax relief that may be provided on loss realizations. A critical issue in the design of the capital gains tax is the extent to which capital gains taxation distorts trading behavior by taxable investors.

Zoran Ivkovich, Scott Weisbenner, and I have investigated capital gains lock-in using data on individual brokerage account transactions. We compare the trading decisions of individuals who own both taxable and tax-deferred accounts. Since the capital gains tax affects gains and losses realized in the taxable account, but not those in tax-deferred accounts such as IRAs and Keogh plans, we can test whether taxes affect trading behavior. We find pronounced differences in trading between the two accounts. While there is a high degree of turnover in both accounts in the first few months after a stock is purchased, we find that by six months after purchase, realization probabilities for gains in the taxable account are sub-

stantially below those for tax-deferred accounts. We also find that losses are more likely to be realized if they occur in a taxable account rather than a tax-deferred account.

“Basis step-up at death” is an aspect of the current capital gains tax that figures prominently in the estate planning and asset trading decisions of many investors, particularly those at advanced ages. The tax on capital gains that accrue during an investor’s lifetime, but are never realized, are not taxed if the assets are bequeathed to another individual. The tax basis in such assets is “stepped up” to the market value at the time of death. Current proposals for estate tax reform call for reducing the basis-step up provision of the capital gains tax with a carry-over basis rule that would make the recipient of a bequest taxable on the appreciated value of inherited assets. Weisbenner and I compare the current estate tax burden with the capital gains tax burden under this alternative tax regime.² We find that the shift to a carry-over basis would substantially reduce the total tax burden on assets that generate capital gains. I also have studied whether taxpayers whose wealth consists largely of appreciated assets are less likely to make inter vivos transfers than taxpayers with similar wealth but smaller accrued gains.³ My findings suggest that households recognize the potential value of basis step-up, and that they defer gifts and leave larger bequests when the tax benefits are substantial.

Researchers in both public finance and financial economics have studied whether tax rules have a pronounced effect on asset pricing and the pretax returns on various financial assets. In an example of such research, Weisbenner and I explored whether realization of capital losses at the end of each calendar year contributes to

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the widely documented “January effect” in stock market returns.⁴ On average, stocks that have performed poorly in a given calendar year have earned above-average returns in the first few days of the next year. This is often attributed to prices rebounding from selling pressure associated with year-end tax loss harvesting. We tested this hypothesis by analyzing whether changes in the short-term capital gains tax holding period affected the relationship between monthly returns in the previous two calendar years and subsequent January returns. Our findings confirm the importance of tax considerations in year-end trading and in subsequent returns. When the holding period for long-term capital gains begins after six months, returns in the second half of the calendar year have a particularly important impact on January returns. This is consistent with investors in such stocks being particularly eager to realize such losses before year-end, and thereby to claim their associated income tax relief. Loss realizations are more valuable when the losses are short-term than when they are long-term. We interpret our evidence linking changes in the tax law appear with changes in the relationship between past and future returns as showing that the tax law has an important effect on loss realization decisions and in turn on market returns.

Taxation and Mutual Fund Investment

Mutual funds were one of the most rapidly growing asset classes of the 1990s. They are also governed by special tax rules. Under the terms of the Investment Company Act of 1940, funds must “pass through” their capital gain realizations to their investors. A buy-and-hold mutual fund investor therefore can face capital gains tax liabilities if a mutual fund manager sells appreciated assets, even if the fund investor does not sell his shares. There are substantial differences across mutual funds in the turnover rate for underlying assets, and consequently in the tax burdens that are passed through to investors. Daniel Bergstresser and I investigated whether mutual funds that

imposed smaller tax burdens on their shareholders, conditional on their pretax returns, attracted larger flows of new investment than comparable funds with similar pretax but lower aftertax returns.⁵ Our results, based on a large sample of equity mutual funds between 1993 and 2001, suggest a clear relationship between tax burdens and inflows. Because our analysis focused on the aggregate flows into different mutual funds, our findings only show that some investors appear to be sensitive to taxes. They cannot calibrate the fraction of taxable investors who are tax-conscious, nor distinguish tax-conscious from tax-oblivious investors.

A related project on mutual funds with John Shoven examined the tax treatment of a new class of mutual fund known as exchange-traded funds (ETFs).⁶ These funds use a strategy known as “redemption in kind” to avoid making large taxable distributions to taxable buy-and-hold investors. We compared the aftertax returns on one of the largest ETFs, the SPDR fund that holds the stocks in the Standard and Poor’s 500 Index, with the aftertax returns on large index funds. We found that the aftertax returns differed by very little for the two types of funds. The tax advantage associated with the ETFs was roughly offset by a higher pretax return for the traditional index fund during our sample period. Our results suggest that going forward, ETFs that hold broad and diversified baskets of equity securities are likely to generate returns and tax burdens that are similar to those on low-cost equity index funds.

Taxation and Asset Selection

My research on capital gains taxation and on mutual funds focuses on a specific investment option or financial asset class, but the income tax system has more systematic effects on household financial behavior. I summarize these potential effects, and the empirical evidence on their magnitudes, in two overview papers.⁷ Andrew Samwick and I also develop new empirical evidence on how the tax code affects the structure of household portfolios, and in

particular the likelihood that a household will own a particular asset.⁸ We use data from the 1998 Survey of Consumer Finances, and we focus on the decision to invest in broad asset categories such as taxable equity, taxable bonds, tax-exempt bonds, and equity mutual funds. Our findings suggest that income tax rates are significant determinants of household portfolio decisions. Those with higher marginal tax rates are more likely to hold tax-exempt assets, either by investing in tax-exempt bonds or by channeling a high fraction of assets into tax-deferred accounts.

Investment in Tax-Deferred Accounts

One of the most striking financial market developments of the last two decades is the rapid rise in the value of assets held in tax-deferred retirement saving accounts, such as IRAs and 401(k) plans.⁹ Steven Venti, David Wise, and I have studied the saving and investment decisions of households who contribute to tax-deferred accounts such as 401(k) plans. Our findings suggest that most of the assets accumulated in these accounts represents a net increment to household wealth, and that these plans, which owe their existence to specific provisions of the income tax laws, will play a central role in providing retirement income for future cohorts of retirees.

The rise of tax-deferred retirement saving accounts, such as 401(k)s and IRAs, has transformed the set of choices confronting taxable investors. For example, rather than simply deciding how much of a portfolio to invest in stocks and how much to invest in bonds, many investors now must decide whether to hold their bonds in a taxable or a tax-deferred account. The choice of where to hold a given asset is known as the “asset location” problem. Some insights on this problem can be drawn from previous research on the optimal investment behavior of corporations with defined benefit pension plans. Conventional wisdom in that setting is that firms should hold heavily taxed assets such

as corporate bonds in their pension accounts, and hold their lightly taxed assets such as equities in their taxable portfolio.

Bergstresser and I have examined the asset location decisions of households in the 2001 Survey of Consumer Finances.¹⁰ We find that many households face substantively important asset location choices. In 2001, eleven million households had at least \$25,000 in both a tax-deferred account and in a taxable investment account. For these households, the choice of whether to hold a given asset in a taxable or a tax-deferred account is potentially an important determinant of long-term wealth accumulation. Roughly two thirds of the households with financial assets in both taxable and tax-deferred accounts hold portfolios that are tax efficient, in the sense that their heavily taxed assets are located in their tax-deferred account. Most of the other third could reduce their taxes by relocating heavily taxed fixed income assets to their tax-deferred account. For more than half of the households that hold apparently tax-inefficient portfolios, however, a shift of less than \$10,000 in financial assets would eliminate the tax inefficiency.

One potentially important aspect of the asset location problem, which makes this problem even more complicated for taxable investors, is that the set of investment options in tax-deferred accounts may be restricted by design features of 401(k) plans and other retirement vehicles. When the options in tax-deferred accounts are limited to mutual funds, and when investors can choose to invest in tax-exempt bonds, the standard wisdom that bonds are heavily taxed assets may be overturned. Clemens Sialm, Shoven, and I show that the tax burden on many assets is greater when they are held through a mutual fund than when they are held directly, primarily because some mutual fund managers trade assets frequently and thereby trigger capital gains tax liability on appreciated securities.¹¹ We compute the returns earned by taxable investors in a sample of equity mutual funds that were con-

tinuously available between 1962 and 1998. We compare the aftertax wealth that they would have accumulated if they held their equity funds in their tax-deferred accounts and if they held them in their taxable account. The results suggest that investors who are not holding index funds, but who invest through actively managed equity funds, may improve their aftertax return by holding equity mutual funds in their tax-deferred account rather than in a taxable account. We also show that optimal asset allocation can be sensitive to the availability of assets such as tax-exempt bonds, which may offer a higher aftertax return than taxable bonds held through the tax-deferred account.

Summary

Taken together, the studies just described suggest that current income tax rules have an important effect on household investment decisions and portfolio management behavior. Documenting these behavioral effects is the first step in a longer-term research program that aims to develop measures of the efficiency cost of such taxes, and to use such evidence to inform the design of tax policy.

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² J. M. Poterba and S. J. Weisbenner, "Taxing Estates or Unrealized Capital Gains at Death," NBER Working Paper No. 7811, July 2000, and in W. Gale and J. Slemrod, eds., *Rethinking Estate and Gift Taxation*, Washington: Brookings Institution, 2001, pp. 422-49.

³ J. M. Poterba, "Estate and Gift Taxes and Incentives for Inter Vivos Giving in the United States," NBER Working Paper No. 6842, December 1998, and *Journal of Public Economics*, 79 (January 2001), pp. 237-64.

⁴ J. M. Poterba and S. J. Weisbenner, "Capital Gains Tax Rules, Tax Loss Trading, and Turn-of-the-Year Returns," NBER Working Paper No. 6616, June 1998, and *Journal of Finance*, 56

(February 2001), pp. 353-68.

⁵ D. Bergstresser and J. M. Poterba, "Do After-Tax Returns Affect Mutual Fund Inflows?" NBER Working Paper No. 9268, October 2002, and *Journal of Financial Economics*, 63 (March 2002), pp. 381-414.

⁶ J. M. Poterba and J. B. Shoven, "Exchange Traded Funds: A New Investment Option for Taxable Investors," NBER Working Paper No. 8781, February 2002, and *American Economic Review*, 92 (May 2002), pp. 422-7.

⁷ J. M. Poterba, "Taxation, Risk-Taking, and Portfolio Behavior," NBER Working Paper No. 8340, June 2001, and in A. Auerbach and M. Feldstein, eds., *Handbook of Public Economics: Volume 3*, Amsterdam: North Holland, 2002, pp. 1109-71. J. M. Poterba, "Taxation and Portfolio Structure: Issues and Implications," NBER Working Paper No. 8223, April 2001, and in L. Guiso, M. Haliassos, and T. Jappelli, eds., *Household Portfolios*, Cambridge, MA: MIT Press, 2001, pp. 103-42.

⁸ J. M. Poterba and A. Samwick, "Taxation and Household Portfolio Composition: Evidence from Tax Reforms in the 1980s and 1990s," NBER Working Paper No. 7392, October 1999, and *Journal of Public Economics*, 87 (January 2003), pp. 5-39.

⁹ J. M. Poterba, S. F. Venti, and D. A. Wise, "The Transition to Personal Accounts and Increasing Retirement Wealth: Macro and Micro Evidence," NBER Working Paper No. 8610, November 2001, and in D. Wise, ed., *Perspectives on the Economics of Aging*, Chicago: University of Chicago Press, forthcoming.

¹⁰ D. Bergstresser and J. M. Poterba, "Asset Allocation and Asset Location: Household Evidence from the Survey of Consumer Finances," NBER Working Paper No. 9268, October 2002, and *Journal of Public Economics*, forthcoming.

¹¹ J. M. Poterba, J. B. Shoven, and C. Sialm, "Asset Location for Retirement Savers," NBER Working Paper No. 7991, November 2000, and in W. Gale, J. B. Shoven, and M. Warshawsky, eds., *Public Policies and Private Pensions*, Washington: Brookings Institution, 2004, pp. 290-331.