The Vickrey Lecture: From Edgeworth to Vickrey to Mirrlees

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William Vickrey's <u>Agenda for Progressive Taxation</u> is perhaps his best-known work. It stands roughly half way between Edgeworth and Mirrlees, both historically and intellectually. Edgeworth argued that the optimal tax (and transfer) system equalized incomes by taxing above-average incomes at 100 percent and transferring the proceeds to those below average. Mirrlees argued optimality in the presence of disincentive effects, which Edgeworth ignored, placing severe limits on high tax rates. Vickrey proposed 21 tax reforms to make a practical system of personal progressive taxation workable. The two most famous were cumulative lifetime averaging and decreasing power succession taxes. This paper reviews the proposals in light of subsequent intellectual and historical developments. Many of the issues Vickrey explored are relevant today whether the tax system is flat or progressive and whether the base is income or consumption.

I am honored to be here today to present the Vickrey Lecture. Usually the honoree discusses his or her own research. However, for reasons that will become self-evident, I have decided to discuss Bill Vickrey's work on progressive taxation.

I first met Bill Vickrey in 1971. I was attending the National Tax Association meetings in Kansas City to accept their first outstanding doctoral dissertation award. The day before that presentation, we attended a rodeo. Who should sit down next to me but Bill Vickrey.

Over the next quarter century, I saw Bill many times, usually at a meeting to discuss tax issues and invariably including Bill bellowing out that the answer was cumulative lifetime averaging. While I believe his views on progressivity were somewhat softening given the developments in optimal tax theory discussed below, one constant from our first meeting to the last was that beaming smile complemented by that hearty laugh. He is much missed and warmly remembered.

Bill Vickrey was a wonderfully creative economist whose work developed key insight into numerous areas of economics. From auction theory to pricing congestion to tax policy, Vickrey's contributions enhanced our understanding. It is well beyond the scope of my remarks today, and certainly not my comparative advantage, to reflect on his entire career. Instead, I want to focus on the one area of his major contributions that I know best: tax theory and policy. Indeed, he was perhaps best known for his extensive *Agenda for Progressive Taxation*, first published in 1947 and reprinted in 1972. For those of you not familiar with his work, Vickrey surveyed, analyzed, and proposed solutions for a large number of issues arising under progressive taxation.

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The two most novel ideas in the book, cumulative lifetime averaging and decreasing power succession taxes, are well known to public finance experts. The numerous other practical issues of taxation, some of which arise whether or not the tax is progressive, include the treatment of capital gains, life insurance, undistributed profits, tax-exempt interest, charitable deductions, equivalency scales for the size of the household, imputed income, and what we would today call a consumption tax but which Vickrey called a spending tax.

What I propose to do today is to go through Vickrey's 21 suggestions for tax reform and discuss where, at least in my opinion, the public finance profession stands on each of these issues and, briefly, where the tax code has come since Vickrey's time. Before doing so, I do want to spend a moment on the optimal degree of progression. This is standard fare in modern public finance, but, surprisingly, Vickrey spent very little time on it, hence, the title of this paper because, to the best of my knowledge, the first serious analysis of the optimal degree of progression was due to Edgeworth [1919].

Recall that Edgeworth, being the utilitarian that he was, thought tax policy should be used to maximize social welfare, the sum of individual utilities. Because the marginal utility of income was assumed to decline with income and to be interpersonally comparable, the Edgeworth formulation requires transferring income from someone with a high income, and, therefore, a low marginal utility of income, to someone with a low income, and, therefore, a high marginal utility income, until the marginal utilities of income are equalized. Thus, totally ignoring incentive effects, the Edgeworth solution to the optimal degree of progression was the tax and transfer system, which equalized incomes. Except in the unlikely case of everyone having the same pretax income, this implied a 100 percent rate of taxation for incomes above the average and using the proceeds to transfer income to those below the average, with everyone winding up with the average income post-tax. Remarkably, Edgeworth's writing on taxation is only referenced once by Vickrey, and that in a footnote in Appendix 7, 459 pages into the text. Perhaps this is not surprising since Vickrey [1972, p. iii] "...intended to cover the middle ground between discussions of the broad economic aspects and the theoretical basis of progressive taxation on the one hand, and...analysis of the finer distinctions made by the law on the other." Therefore, he skipped "...briefly over the philosophical and theoretical background of progressive taxation...to discuss point by point just what must be done to weld our progressive tax structure into a consistent workable system, reasonably free from undesirable repercussions and capable of producing substantial redistribution of income."

This constant theme of Vickrey's—not surprising in a book written in 1947—was the use of the tax system to achieve social policy, in particular to redistribute income from the wealthy to the nonwealthy. Whether a rigorous case can be made for doing so seemed to Vickrey to be somewhat self-evident. It is almost a quarter of a century later when Mirrlees [1971] presented a rigorous reexamination of the optimal tax problem. Mirrlees, forever joined with Vickrey by their sharing the Nobel Prize in 1996, attempted to derive optimum tax schedules under various assumptions, but notably rigorously adding to the Edgeworth formulation incentive effects, which created the interesting problem of trying to recapture information on pre-tax earning ability from post-tax realizations. There has been long and extensive literature following up Mirrlees' formulation, some of it analytical but most of it exploring various aspects of the several key ingredients in the Mirrlees formulation: the degree of egalitarianism expressed in the social welfare function; the elasticity of marginal utility; the nature and size of the incentive effects as expressed, for example, in the assumed preferences of individuals defined over consumption of goods and leisure; the size and nature of dispersion in earnings potential; the instruments available to the government and, more generally, the other aspects of fiscal policy; and the share of national income diverted to government provision of goods and services. Of course, one can come up with alternative assumptions about these issues which lead to more or less progressivity in the optimal tax structure. The general conclusion has not changed appreciably as stated by Mirrlees [1971, p. 207]: "I had expected the rigorous analysis of income taxation to provide an argument for high tax rates. It has not done so." Indeed, what had attracted much attention at the time was the fact that the marginal rate schedule was not monotonically increasing—it actually

declined over the upper range. Subsequently, the case was made for a zero rate at the top (at a level of income beyond the highest income, the zero rate has no revenue effects and, presumably, might have positive incentive effects).

There is one other important aspect of taxation that needs to be considered prior to delving into Vickrey's detailed proposals. Most of the analysis of desirable features of the tax code, including the optimal level of progressivity, ignored the spending side of the budget, or at least assumed sensible spending decisions were being made perhaps optimally by some other part of the government, or at least it was exogenous to the tax problem. Two important approaches in literature tie the spending and tax decisions together. One dating back to Wicksell [1958] and Lindahl [1958] seeks to arrive at optimal public spending decisions by appropriately assigning tax prices to achieve revelation of preferences in the optimal level of public spending. More recently, Friedman [1962] and Buchanan [1965] have emphasized the relationship of taxes and spending. Friedman argued for a flat-rate tax system. With everyone paying the same rate, he concluded, it would be harder to expand the size of government. Likewise, Buchanan emphasized the problems that can arise in separating taxing and spending decisions. These issues simply were not the fare that Vickrey set out to digest.

Finally, it is also worth noting the intellectual suggestion and practical implementation of negative taxation. While, to the best of my knowledge, first suggested by Rolph and Break [1961], the idea is generally traced to Friedman [1962] and Tobin [1966]. Most of the redistribution in the Mirrlees world comes about from per capita demo grants, not from a graduated rate structure. "An approximately linear income tax schedule is desirable; and in particular negative income tax proposals are strongly supported" [Mirrlees, 1971, p. 209]. Of course, while proposed in relatively pure forms by both candidates in the 1972 national election in the U.S., the negative income tax has had as its practical manifestation the refundable earned income credit, which originally was introduced to compensate low income people for their payroll taxes. Expanded several times, the refundable earned income tax credit is now received by tens of millions of Americans who have been removed from the tax rolls and who receive checks from the government. Thus, as a practical matter, the nature of transfer payments has greatly reduced the fraction of the population likely to be financing any expansion of government and, therefore, likely to pay attention to their tax burden as the price of government.

In 1947, these were not issues primarily on Vickrey's radar screen. He does propose a reestablishment of the earned income credit, but to establish some comparability between working wives and those who stay at home.

Indeed, what is striking about *Agenda for Progressive Taxation*, written in 1947, is not only the quality of the arguments and discussion of the issues—most of which remain today, whether or not I agree with the conclusion—but that the fiscal situation in 1947 was so different from today. In the early post-World War II period, less than one-fifth of the federal budget was spent on transfer payments, net of interest on national debt. The figure today exceeds one-half. Social Security was in its infancy and had yet to experience most of its expansion in coverage, tax rates, and benefit levels. There was no Medicare. There was no inflation indexing and, indeed, little discussion of inflation by Vickrey! However, most of Vickrey's 21 suggested tax reforms are still the subject of intense debate and discussion today. He grouped them not according to whether they primarily affected the rates or the unit or time period of account, but to what he described as urgent income tax reforms, simple income tax adjustments, and other adjustments, which presumably were neither urgent nor simple. What Vickrey was really after, as noted above, was an *internally* consistent progressive income tax. He was also aware of the problems associated with a deterioration of the tax base, namely that the rates would have to be higher on what remained to raise the same revenue. In fact, in language that is much more common today than then, Vickrey [1972 p. v] spoke of "...making the tax burden independent of choices made by the taxpayer. Indeed, if there is any theme running through this book, it may be perhaps best expressed by the term 'neutrality'."

While an entire chapter is devoted to the issue of income versus spendings taxation, with numerous quips about Fisher, the discussion quickly moved beyond neutrality between the taxation of consumption at different points in the

life cycle or between consumption and saving to issues that seem somewhat dated today, such as the early post-war concern with saving and full employment, sociopolitical effects, and practical simplicity and operation. Vickrey does stretch to argue that some combination of income, personal spending, and succession taxation or net worth taxation might be developed with a partial, indeed begrudging, nod toward Fisher. However, the issue of the appropriate tax base as between consumption and income, so dominant in the public finance literature in recent decades, is of somewhat less interest to Vickrey than is a practical system of personal progressive income taxation.

With these general thoughts in mind, let me now turn to a brief discussion of Vickrey's 21 partial tax reform proposals. Before doing so, Vickrey himself addressed the issue in the preface to the 1972 reprinting of *Agenda for Progressive Taxation* [p. 5] by noting:

> "It is always gratifying to an author when a demand arises for reprinting a book of his that has gone out of print. In this case, however, the gratification is considerably attenuated by the thought that after 23 years the extent to which the problems with which it dealt have been even partially resolved has been insufficient to generate a degree of obsolescence for the book that would have made its reprinting of historical interest only. Of the 21 specific proposals...only one was ever adopted in full."

From the standpoint of 1999 as opposed to 1972, Vickrey fares a little better, but not much. This had more to do with the economics, administration, and politics of tax codes, than anything else.

Vickrey's four urgent tax reform proposals are taxation of accrued capital gains, elimination of tax-exempt interest, taxation of life insurance buildup, and taxation of undistributed corporate profits. Discussed first is capital gains. Vickrey [1972, p. 381] viewed changes in the tax treatment of capital gains as the most important income tax reform:

> "Nothing short of full taxation of such gains, including those accrued at the death of the taxpayer, can be accepted as an adequate solution. Any less than this means a continuation of a wide open avenue of tax avoidance that completely frustrates any attempt at equitable progression of the tax burden and seriously interferes with the efficient functioning of the economy."

Like much of the rest of the tax code, the tax treatment of capital gains has had different episodes in the half century since Vickrey wrote *Agenda for Progressive Taxation*. We have had episodes when capital tax gains tax rates have been quite high (for example, the late 1970s); when overall tax rates were deemed low enough that realized gains could be taxed in full as ordinary income (1986 Tax Reform Act); and the current state where realized gains are taxed at preferential rates. Finally, recent discussions of reform of capital gains taxation are to reduce the rate, shorten the holding period, or eliminate the tax. The justification for the latter is in the context of moving to a general consumption tax.

Second in line was tax-exempt interest on government bonds—second, he said at the time, because the exemption had a smaller effect on the distribution of the tax burden than the special treatment accorded capital gains. Again, note that the consideration here is the distribution of the tax burden, a focus of much of the discussion of federal taxation in the early decades after World War II (see, for example, Pechman [1987]), as opposed to the more general concern with optimality and the possibility of negative taxes, as in Edgeworth [1919] and Mirrlees [1971]. Vickrey [1972, p. 383] argued that next in line was some method of including the income earned on life insurance policy reserves in individual income tax returns "...and particularly for the larger policies, reporting the amount of interest accrued each year."

His fourth essential urgent tax reform was to provide for "...the equitable treatment of the retained earnings of corporations" [1972, p. 383]. Vickrey argued for the adoption of a method of assessment which, via a comprehensive averaging procedure, would make the timing of the reporting of income a matter of indifference. If this would not work, he argued for an annual low-rate tax on accumulated undistributed corporate profits. The public finance prescription of integrating the corporate and personal tax has not gotten very far nor has Vickrey's undistributed profits tax. The rate of the corporate tax and other numerous features, especially credits and depreciation allowances, have changed

over time. Neither Vickrey's solution nor the general public finance entreaty to integrate the corporate and personal taxes have gotten very far as practical tax policy, although the latter has received renewed impetus with the comprehensive integrated flat tax proposals of recent years which do not tax business income in the personal tax (see Hall and Rabushka [1982]).

Another group of reforms Vickrey deemed as simple income tax adjustments. He thought long and hard about the unit of account and how differently situated families ought to be taxed, something that is immensely important in a progressive rate structure. He proposed a split bracket treatment of separate returns to deal with comparability between single and joint returns (I have dealt with this in the context of optimal tax treatment of the family [Boskin and Sheshinski, 1983]). He next proposed an earned income credit for working wives "...to account for (1) the sacrifice of leisure and additional living expenses of the gainfully occupied...(2) for the additional sacrifice of personal services involved when a wife takes a paying job, instead of doing the housework" [1972, p. 384]. Of course, such language, then the historic norm, seems quaint today. Vickrey also wanted to place restrictions on deductions. For example, tax deductions should be limited to business expenses and state and local income taxes. On these three items, Vickrey does pretty well, judging by current tax law. Marriage penalty issues have driven more and more debate on how to set various features of the tax code to be independent of marital status. The earned income credit, refundable, was discussed above. State and local sales taxes are no longer deductible, following the 1986 tax reform. Vickrey also proposed diverting the deduction for charitable contributions to a tax credit and replacing various other deductions. Vickrey would probably smile at the phase-out of itemized deductions for incomes above a certain level, introduced in the early 1990s. For a while, there was an above-the-line charitable deduction, and there is growing support to reinstitute it for those who do not itemize deductions.

The concern with the equitable distribution of the tax burden is perhaps most pronounced in Vickrey's call for more even surtax graduation. Vickrey wanted many tax brackets, and set them very finely at low levels. He already has 12 tax brackets by $10,000 of income! Here, of course, the tendency in recent decades has been to decrease the number of brackets, as a simplification device (although most of the complexity comes in defining, measuring, administering, and complying with the tax base, not the rates).

Vickrey has 13 more brackets ranging from $12,000 to $5 million. Indeed, the most widely discussed comprehensive reform, the so-called flat tax, would move to a single rate (actually two rates when you include zero).

Next, we turn to Vickrey's fundamental reforms involving basic changes, so-called other reform proposals deemed neither urgent nor simple. The first is averaging. Vickrey's famous proposal for comprehensive cumulative averaging would allow for interest. Of course, he would allow full carry-forward of net losses and carry-back losses as well as unused personal exemptions. He also had an interesting interim method, which I shall not discuss here. Vickrey's cumulative averaging proposal is probably his best known and most widely cited tax proposal. He originally developed it to achieve equity between fluctuating and stable incomes—a serious issue to many public financiers in the early decades after World War II, focusing on the equity of the tax system, especially the so-called horizontal equity. In his preface to the 1972 reprinting, Vickrey [p. 5] notes that:

> "...its main advantage over other forms of averaging lies not so much in the greater precision with which it deals with the problem of income fluctuations, but in facilitating a reversal of the trend to increased complexity in the income tax law...it is thus somewhat ironic that the proposal has frequently been dismissed out of hand as too complicated."

The issue of income averaging has hardly been mentioned in tax policy discussions since limited income averaging was abolished in 1986. Curiously, abolition of income averaging was listed among the tax simplifications of the 1986 Tax Reform Act. Vickrey, I am sure, would have thought this ironic since the then income averaging provisions only made the tax system more complicated for those who preferred to be so taxed because of the complexities of their circumstances.

Next, Vickrey called for *per capita* graduation—a way to deal with family size. He wanted to base the rate of tax on the per capita income of the family, not its total income, but with a wrinkle: the family head and a spouse would each count as one, the other members of the family would count as various fractions, depending on age. This early suggestion of the need to look at equivalence scales has been discussed some in tax policy but not recently. It has reemerged in a discussion of how and where to set poverty lines (for a general discussion of equivalence scales, see Deaton and Muelbauer [1980]).

Next came Vickrey's second most novel proposal, one for rationalizing succession taxation methods. His preference was to place succession taxes on a decreasing power basis, adjusting the income tax for separate taxation of income from inherited wealth. As an approximation, he suggested adopting a cumulative inheritance and gift tax graduated according to the difference in age between donor and recipient. The estate and gift taxes have seen their share of changes in recent decades. The debate now is over substantial reduction or elimination of estate taxes. Current estate taxes appear to raise very little in revenue (see Bernheim [1987]). Indeed, the concern with inherited wealth that is so evident in much public finance writing in the early decades after WWII seems to have largely dissipated. Vickrey next called for federal administration and collection of state and locally enacted income taxes—obviously, therefore, requiring a tax base close to the federal base. A few states have piggybacked in this manner, although with their own tax administration not with the federal government operating as collection agency.

Vickrey then considered, as mentioned above, the feasibility of changing to a spendings tax either as a supplementary tax in the middle income ranges or as a complete substitute for the income tax at all but the highest income ranges. He also proposed consideration of a net worth tax to relieve pressure on top ranges of income tax rates. Neither of these supplemental taxes has generated much practical enthusiasm (although the Meade [1978] committee came to a similar conclusion).

Finally, Vickrey proposed certain further refinements that would require a large additional auditing and administrative costs. First was the taxation of imputed income. He proposed including 4 to 6 percent of taxpayer's equity in owned homes, durable consumer goods, and the like in the tax base. There is no serious proposal to tax-imputed income currently under consideration. Finally, he proposed uniform and consistent rules for including compensation in kind such as food, lodging, and perquisites. This discussion of compensation in kind is interesting because the much bigger issue today of course is fringe benefits, not so much of the food and lodging type, but health insurance, pensions, and the like, which were just emerging in Vickrey's day, in response to high marginal rates, and, previously, wage controls in World War II.

Finally, Vickrey proposed amortization of training expenses out of subsequent income. The optimal tax treatment of human capital investments is a sizeable topic on which I did some early work (see Boskin [1977]). The subject is much richer than its brief discussion in Vickrey. By now, it should be clear that many of the issues Vickrey addressed are viewed differently today, not only by myself but by most economists, in part because the intellectual apparatus we have at our disposal is much richer than Vickrey had at his disposal. There was no modern optimal tax theory (although Edgeworth and Ramsey, among others, were available), no extensive human capital theory, and no long literature on inflation indexation.

I do go through these issues not to suggest that there has been only a little of what Vickrey would consider progress in implementing his agenda in recent years (although certainly more than he saw circa 1970). The problems he analyzed and solutions he proposed in the context of making a progressive-rate tax system work continue to be important today as issues in the design of a practical, low-rate or multiple-rate tax system, whether of income or consumption. His insights into the difficult tradeoffs in the debate over the choice of tax base, the unit and time period of account, and the rate structure are instructive even today. I think it is fair to say that the overwhelming consensus among public finance economists today is that personal taxation would be better focused on consumption than income for numerous reasons: that the degree of progression in the rate structure should be sharply limited for incentive reasons; that use of

negative taxes to redistribute income might be much more important at the lower end than the Vickrey case for progression in tax rates; and, finally, that negative taxation involves a difficult tradeoff because it reduces the fraction of voters who have something at stake in the debate over the expansion of the relative size of government spending.

I have noted above the tendency of the tax system to change often. Many have noted that there are ample political economy reasons for this tendency. However, as tax systems come and go for the foreseeable future, we can be sure we will be debating a large fraction of the issues that Vickrey laid out in *Agenda for Progressive Taxation* more than a half century ago. While I, and I believe most public finance economists, come to different conclusions than did Vickrey then, his writings on these subjects remain essential reading to this day.

References

Bernheim, B. Douglas. "Does the Estate Tax Raise Revenue," in Lawrence H. Summers, ed., *Tax Policy and the Economy*, Cambridge, MA: MIT Press, 1987, pp. 113-38.

Boskin, Michael. "Notes on the Tax Treatment of Human Capital," *Proceedings of the Treasury Conference on Tax Policy*, Washington, DC: U.S. Department of the Treasury, 1977.

Boskin, Michael; Sheshinski, Eytan. "Optimal Tax Treatment of the Family," *Journal of Public Economics*, 20, 3, April 1983, pp. 281-97.

Buchanan, James. *The Public Finances*, revised ed., Homewood, IL: R. D. Irwin, 1965.

Deaton, Angus; Muelbauer, John. *Economics and Consumer Behavior*, 1st ed., New York, NY: Cambridge University Press, 1980.

Edgeworth, Francis Y. "Methods of Graduating Taxes on Income and Capital," *Economic Journal*, 29, 1, March 1919, pp. 144-65.

Friedman, Milton. *Capitalism and Freedom*, 1st ed., Chicago, IL: University of Chicago Press, 1962.

Hall, Robert E.; Rabushka, Alvin. *The Flat Tax*, Stanford, CA: Hoover Institution Press, 1985.

Lindahl, E. "Just Taxation: A Positive Solution," in Richard A. Musgrave; Alan T. Peacock, eds., *Classics in the Theory of Public Finance*, New York, NY: Macmillan, 1958.

Meade, James E. *The Structure and Reform of Direct Taxation*, London, United Kingdom: Allen and Unwin, 1978.

Mirrlees, James. "An Exploration into the Theory of Optimal Income Taxation," *Review of Economic Studies*, 38, 2, April 1971, pp. 175-208.

Pechman, Joseph A. *Federal Tax Policy*, 5th ed., Washington, DC: Brookings Institution, 1987.

Rolph, Earl R.; Break, George F. *Public Finance*, New York, NY: Ronald Press, 1961.

Tobin, James. "The Case for an Income Guarantee," *The Public Interest*, 1, 4, Summer 1966.

Vickrey, William S. *Agenda for Progressive Taxation*, 1st ed., New York, NY: Ronald Press, 1947; reprinted, Clifton, NJ: A. M. Kelley, 1972.

Wicksell, Knut. "A New Principle of Just Taxation," in Richard A. Musgrave; Alan T. Peacock, eds., *Classics in the Theory of Public Finance*, New York, NY: Macmillan, 1958.