RIGOROUS GUIDELINES FOR APPLIED ANALYSIS: COMMENTS IN HONOR OF HARVEY ROSEN, RECIPIENT OF THE DANIEL M. HOLLAND MEDAL

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When Fred Giertz contacted me about organizing the session in honor of Harvey Rosen as this year's recipient of the Daniel M. Holland Medal, I was happy to oblige because Harvey is such an excellent choice for the Holland Medal. The Holland Medal recognizes "outstanding contributions to the study and practice of public finance." Before turning to my more detailed comments as a panelist, I want to provide a brief biographical note and overview of Harvey's contributions to the public finance community through government service, scholarship, and education. I will follow this biographical overview with some reflections on Harvey as a mentor and some highlights from his voluminous academic research.

BIOGRAPHICAL COMMENTS

Harvey earned his A.B. with High Honors from the University of Michigan in 1970. He studied at Harvard University in the early 1970s, working with Martin Feldstein and Richard Musgrave – both of whom are previous recipients of the Holland Medal. He received his doctorate from Harvard in 1974 and joined the faculty of Princeton University. With exception of two stints in government service and various academic leaves, Harvey has been a mainstay of the Princeton economics department since 1974. He is currently the John L. Weinberg Professor of Economics and Business Policy; he is also the codirector of Princeton's Center for Economic Policy Studies. Harvey is a research associate of the National Bureau of Economic Research and a Fellow of the Econometric Society.

Harvey has served in the U.S. government twice. From 1989-1991, he was Deputy Assistant Secretary (Tax Analysis) at the Department of Treasury. He served as a member of the President's Council of Economic Advisers (CEA) from 2003-2005 and as the Chairman of the CEA in 2005.

As an educator, Harvey has won wide praise as one of Princeton's best teachers at both the undergraduate and graduate level. As the author of a best selling public finance textbook (now in its 8th edition), he has reached a broad audience of undergraduate and public policy students. The textbook has been translated into six foreign languages and there is a Canadian edition as well. Thus, Harvey's teaching has reached global scale.

As a scholar, Harvey has published over 80 articles, many in the leading academic journals in economics. He has edited several volumes and served on numerous editorial boards. Harvey's research interests span numerous areas in public finance, including the effects of taxation on labor supply, housing demand, and entrepreneurship. His work includes several contributions to econometric methodology, such as vector autoregressions and hedonic price models. In terms of contributions to normative public economics, Harvey has written several seminal papers on taxation and human capital, taxation and uncertainty, and the measurement of excess burden. In the area of state and local public finance, Harvey has written on many important institutional features of state and local government budgeting. While this brief list of topics illustrates the breadth of Harvey's contributions, it omits several other areas in which he has made substantial contributions.

PERSONAL REFLECTIONS

My awareness of Harvey as a mentor preceded my arrival at Princeton for graduate school. In selecting a Ph.D. program, I had the good fortune of being able to ask Jim Poterba, my undergraduate thesis advisor, for advice about where to go to graduate school. Jim asked me if I thought public finance was likely to be one of my main interests. When I said "yes," Jim suggested that Princeton would be a great place for me. His specific reason was that the public finance group at Princeton included Harvey Rosen, David Bradford, Joe Stiglitz (though I think Jim realized that I was an unlikely candidate to work with Joe), and Jim Hines, who would join the Princeton faculty in the coming fall; he felt that Harvey and David would be exceptional mentors for a graduate student interested in applied public finance. In short, Jim's advice was excellent.

While I was unlucky in that I did not take a course from Harvey, he was an important part of my graduate education. I worked for him as a research assistant after my first year of graduate school and he was gracious enough to include me as a coauthor on a paper that was published in the *Review of Economics and Statistics*. Working for Harvey provided a first-rate tutorial in how to do economic research.

Harvey was instrumental in starting an informal discussion group at Princeton for faculty and students interested in public finance topics. We took turns presenting research ideas and discussing important current topics in the field. One of the things that I appreciated the most about these group meetings was the sense that graduate students were treated as colleagues. Through these conversations, the graduate students learned what we referred to as Harvey's rules for writing an economics paper – a list that Harvey never wrote down formally but that we felt represented how he approached writing papers.

The first rule was that to write a paper in economics you need an idea: preferably, an idea that can be communicated in a straightforward manner. This simple rule led to two important corollaries: (1) if you have two ideas, you *might* be able to write two papers; you should avoid cramming too many ideas into one paper; and (2) you probably cannot add together two half-baked ideas in order to get a single paper.

The second rule was to be clear about why your methods (theory, choice of data, and statistical approach) can answer your question: be clear about what economic theory can and cannot predict about the question. In addition to explaining why your methods provide a valid way of addressing your question, recognize the limitations of your approach.

The third rule was that a good idea and high-quality analysis only go so far: in other words, a good paper must be well written! Harvey's main advice on writing was to be concise. He suggested setting as a goal having one table from the paper that you want the reader to remember. Build the various elements of the paper to accentuate the message from that key table.

Typically, when I start writing a paper, I find myself going back to this simple checklist (though I am not sure that I have mastered the rules yet). Unfortunately, too few economists follow these basic rules for writing papers. Anyone familiar with Harvey's research knows that he teaches these rules by example. The clear writing and associated clear thinking in Harvey's papers contribute to why his work has been so influential. Harvey makes even quite difficult concepts seem straightforward. He also has a knack for showing that simple ideas can yield powerful results.

SCHOLARLY CONTRIBUTIONS

In preparing my comments for this session, I looked over some of Harvey's papers. I was already familiar with some of them from having used them in my research and taught them to students; others, however, I had never read. To provide a sense of Harvey's scholarly contributions to public finance, I want to summarize a few of these contributions. Space and time limitations prevent an exhaustive review of Harvey's research but a few examples will illustrate the impact of his research.

I want to start by focusing on one specific paper, "Applied Welfare Economics with Discrete Choice Models," coauthored with Kenneth Small and published in *Econometrica* in 1981. Many public policies affect discrete choices rather than continuous choices. Examples include housing tenure, labor force participation, occupation, transportation mode, and method of schooling. Equivalent and compensating variation are standard microeconomic tools for evaluating the efficiency of policy choices; however, before this paper, the derivation of these tools focused on decisions with continuous choices (e.g., the quantity of a good to purchase). Can these measures be modified to analyze the welfare effects of price changes in markets dominated by discrete choices? Rosen and Small provide conditions under which standard methods can be modified to apply to such cases.

While the result of the paper is an important theoretical contribution to applied welfare economics, my focus is on a single sentence in the paper – the last sentence of the introduction: "Throughout, the emphasis is on providing rigorous guidelines for carrying out applied work." This sentence epitomizes Harvey's research. I should add, however, that much of Harvey's research would be characterized by a related sentence: throughout, the emphasis is on carrying out applied work subject to rigorous guidelines. Not only has Harvey provided guidelines for good applied work, he has conducted a wide array of applied studies, both using economic theory and empirical work.

To illustrate this point, I highlight three specific areas of Harvey's research: (1) taxes and labor supply; (2) taxes and housing; and (3) taxes and uncertainty.

Taxes and Labor Supply

Harvey's dissertation and a strand of his early research dealt with the effects of taxation on labor supply. In the early 1970s, the common view was that taxes had relatively little impact on labor supply decisions. Given the growth in the labor force participation of women during the post-World War II era, the issue of how taxes affected their labor supply is an important issue in tax policy. However, several complications in women's labor market decisions create difficulties for estimating the responsiveness of their labor supply to the after-tax wage. First, since the U.S. income tax system is based on household income rather than individual income, the effect of taxes on the labor market incentives of married women depends critically on the labor income of their husband and the capital income of the overall household. Second, since part-time work was relatively common for married women, the hourly wage rate received by married women may depend on the total number of hours worked.

Harvey's empirical work (see Rosen 1976a and 1976b) on taxes and the labor supply of married women deals with both of these complications. Both adjusting for the impact of joint filing on tax incentives and allowing wage rates and hours to be determined jointly affect the estimated effects of taxes on labor supply. In both papers, Harvey finds quite strong and robust evidence that taxes affect labor supply choices. The implication of this research is that married women's labor supply decisions seem to react to taxation as predicted by economic theory.

The insights from this research have important implications for designing a tax system. For example, the responsiveness of married women's labor supply affects the efficiency of basing taxes on household versus individual income. What should be the filing unit for the tax system and what are the implications for the marriage neutrality of the tax system? Harvey explored these issues in several papers published in the *National Tax Journal* (see Rosen, 1977 and 1987; and Feenberg and Rosen, 1995). A recurring theme of this research is that understanding the behavioral consequences of the taxation of the family is important for designing a well-functioning income tax.

Taxes and Housing

A second major strand of Harvey's research deals with the effects of taxation on owner-occupied housing. In a series of papers (Rosen 1979a and 1979b, Rosen and Rosen, 1980, Holtz-Eakin, Rosen, and Rosen, 1984), Harvey and coauthors examine the effect of the tax system on tenure choice and the demand for owner-occupied housing. Housing is one of the most important items in household budgets. It also receives preferential tax treatment relative to the benchmark of an ideal income tax since imputed rent is not included in the tax base and mortgage interest payments are tax deductible. Furthermore, compared to most business fixed investment in the United States, housing does not face the corporate income tax.

Overall, using both cross-sectional and time-series econometric methods, this work provides some of the classic estimates of the responsiveness of tenure choices and the quantity of housing demanded to tax-induced changes in housing prices. The estimated effects suggest that households respond along both margins of housing demand. First, the tax code induces households to own rather than rent their homes. Second, the price elasticity of housing is estimated to be roughly -1.0 so that the amount of housing demanded also responds to the price incentives built into the tax code.

Changing the tax treatment of housing is a standard item for discussion whenever income tax reform appears on the political agenda. The sorts of methods and estimates in Harvey's work serve as important benchmarks for considering these reforms. Of course, since changing the tax treatment of owner-occupied housing appears to be a "third-rail" of tax reform politics, it is unclear when reforms might actually come to fruition.

Taxes and Uncertainty

Issues of how to incorporate uncertainty into tax analysis is a common theme in much of Harvey's research. Ideas of considering uncertainty appear in his work on labor supply, occupational choice, compensation, housing, and entrepreneurship. I want to highlight the results from a trio of papers written with Jonathan Eaton (Eaton and Rosen, 1980a, 1980b, and 1980c). These papers deal with the effects of taxation on human capital formation when the returns to investments in human capital are uncertain. One of the main themes of the research is that the insurance aspects of proportional taxation can have beneficial effects on the economy when the risks associated with labor market returns cannot be diversified through markets. Progressive taxation can have an ambiguous effect on these investments. Moreover, the results suggest that a tax on labor income can be socially optimal relative to a lump-sum tax when the risk on the labor income cannot be diversified through other means. The basic intuition is that the distortion created by taxing variable labor supply can be more than offset by the insurance benefits of risk spreading through the tax system that occurs with a labor income tax. This result stands in stark contrast to the standard view that lump-sum taxes are optimal since they are non-distortionary. It also reminds us that the theory of the second best makes public finance an extraordinarily complicated field.

CONCLUSIONS

Due to time and space constraints, this brief summary of some of Harvey's research has necessarily been selective. Harvey has also made numerous contributions in areas such as state and local public finance, labor markets, health insurance, and entrepreneurship. Moreover, I would be remiss not to highlight the versatility of his contributions. His list of publications includes a remarkable mix of theoretical, empirical, and methodological contributions that have advanced public finance scholarship.

In closing, I want to return to a personal reflection about Harvey's public service. At various times I have sought Harvey's advice about serving as an economist in a political environment. His advice was simple: (1) provide good, coherent economic analysis; (2) try to get a seat at the policy-making table for this economic analysis; and (3) realize that sometimes other forces (e.g., politics) will win out. His wisdom on this question seems to capture why he has been well-respected as a policy advisor.

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