A NOTE ON TAXATION
AS SOCIAL INSURANCE
FOR UNCERTAIN LABOR INCOME

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Abstract

Various authors, notably Eaton and Rosen (1980a) and Varian (1980), have proposed that income taxation may be justified to some extent on the ground that it serves as social insurance against uncertainties in labor income. They assume that private insurance is unavailable, primarily because of moral hazard, and demonstrate that some taxation is efficient because the benefits of mitigating risk exceed incentive costs. This note suggests that private insurance should be considered explicitly in examining this question. Moral hazard problems limiting private insurance coverage are not alleviated by government insurance. Moreover, in the presence of moral hazard, government insurance, through labor income taxation or otherwise, may be an inefficient policy because private insurance decisions are distorted. More traditional justifications for redistributive taxation are unaffected by this argument.

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In related articles, Eaton and Rosen (1980a, 1980b, 1980c)[1] and Varian (1980) have suggested that some redistributive income taxation may be efficient because it acts as a form of social insurance against uncertainty in labor income.[2] They each begin by assuming that market insurance against such uncertainty is not available. As a result, even though a labor income tax distorts labor supply, some degree of taxation is beneficial because it reduces risk. Eaton and Rosen emphasize that, as a result of uncertainty, some income taxation would be desirable even if lump-sum taxation were feasible, because the latter does not constitute insurance against uncertain labor income. Moreover, all of these authors emphasize that their contribution lies in offering an efficiency rationale that is independent of distributional norms traditionally invoked to justify income taxation. These articles are cited in discussions of how taxation should account for risk. E.g., Sandmo (1985).

This note suggests that a better understanding of the issue can be obtained by considering more explicitly what we know about market insurance and principal-agent models. First, the results on uncertain labor income can be recognized as involving familiar principles. The income tax in these

[1] The discussion below focuses on Eaton and Rosen (1980a), which is almost exclusively devoted to the issue examined here; their other articles on the subject contain parallel justifications and findings.

[2] Related work includes Kanbur (1981); he assumes the unavailability of insurance without offering any reason and suggests in a footnote that introducing it would not alter the essential character of the model, which seems doubtful in light of the discussion here. Studies of social insurance for retirement that might result from the inability to work or might be voluntary, such as those by Diamond and Mirrlees (1978) and Diamond, Helms, and Mirrlees (1980), also examine optimal schemes of taxation and compensation in the presence of moral hazard without considering private insurance.

papers is equivalent to an insurance policy against a risk,[3] and others [e.g., Arrow (1971), Holmström (1979), Shavell (1979)] had already derived the relevant properties with regard to effects on behavior and optimal schemes. Thus, for example, the conclusions in these articles that a 100 percent earnings tax would be desirable if labor supply were exogenous (i.e., if there were no moral hazard), and that, more generally, the optimal tax rate should lie strictly between zero and 100 percent are not surprising and do not depend on the particulars of the authors' models.[4]

Second, and more important, the assumption that market insurance is unavailable demands further explanation. Eaton and Rosen justify their assumption entirely on the ground that "moral hazard associated with insurance in general [is] especially pervasive in the insurance of the returns to human capital. . . . In such a situation the market is unlikely to provide insurance." Sandmo's (1985) survey also cites moral hazard as the culprit, and Varian offers moral hazard as one of his reasons. Yet the moral hazard problem hardly vanishes when one considers what is in effect a government insurance policy. After all, the tax authority is no more able to observe effort than an insurance company. While their models show that some government insurance cum taxation is optimal, one could simply interpret this as demonstrating that their assumption is false: some level of private insurance should be expected to exist despite moral hazard.

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[3] For example, in the linear case of Varian's model, the precisely corresponding insurance scheme can be described simply. Individuals purchase insurance against their income being lower than the highest possible realization. The coinsurance rate is one minus the tax rate, and the premium is the percentage of coverage multiplied by the difference between the highest possible income and the mean income.

[4] Eaton and Rosen indicate in a footnote and in a concluding remark that their result parallels, although is not identical to, results in the insurance literature. Varian in his concluding remark indicates that mathematical properties of his model can be generalized to principal-agent problems. (It should be noted that developments in the insurance and principal-agent literature were just becoming well-known at the time these articles appeared.) Both cite Mirrlees (1974), who, after analyzing a model of government redistribution to address risk-bearing, notes that he has presented the problem "as one of government policy, but with the coincidence between private and government ends postulated, the solution may instead be interpreted as a prediction of the kind of insurance system that would arise in the society considered."

The problem with the implicit double standard -- the existence of moral hazard allows one to ignore private insurance yet is the core of the analysis of government insurance -- is, unfortunately, more damaging to the authors' conclusions than might appear. If moral hazard is the only market imperfection in the insurance market, it is inefficient for the government to offer insurance through the tax system. The reason is that the existence of the tax system does not prevent individuals from making separate private insurance arrangements. (In fact, contrary to the authors' assumptions, many do, as the large disability insurance industry demonstrates.[5])

When individuals receive insurance from one source, such as the government, where there is no charge in the premium to reflect other purchases of insurance, private insurance decisions are distorted. See Kaplow (1991). This is easiest to see by considering the case in which government insurance coverage is precisely at the level that would have been selected by an individual in a private arrangement in the absence of government provision. Clearly, given the existence of this level of government insurance, the individual will purchase a strictly positive amount of private coverage. At the margin, a slight increase in coverage will yield strictly positive benefits in mitigating risk while the marginal cost from moral hazard *to the individual* will be zero. There is, to be sure, a strictly positive marginal cost due to moral hazard when one begins from a situation with positive aggregate coverage and increases it slightly. Yet, at the point where private insurance is zero, all this marginal cost is borne by the government, so individuals' private insurance decisions ignore it entirely. Individuals will continue purchasing additional coverage until the *private* marginal cost due to moral hazard just equals the marginal benefit of further mitigating risk. Note that this analysis implies that even if government coverage exceeds what

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[5] This raises the question of why insurance against such risks is purchased but not insurance against sectoral changes in income. One reason is that disability insurance may be less subject to moral hazard than other sources. Another is that government unemployment insurance may provide substantial protection against many risks. Still, one might expect to observe additional private arrangements. For example, employees may sell short securities of their employer (or, if one wishes to avoid incentive problems, in competitors of their employer); observed behavior (e.g., pension fund investment) seems to be to the contrary.

would have been optimal private coverage, individuals would still purchase additional coverage (unless government coverage is complete). Also, if government coverage is less than what individuals would have purchased, the basic distortion still applies. When they reach the point of total coverage (private plus government) that just equals what they would have obtained in the absence of government insurance, they will not be at a private optimum. So long as government coverage is positive, some of the marginal cost due to moral hazard is externalized.

To summarize, the case for government insurance against uncertain labor income through taxation, as currently presented in the literature, is unpersuasive not only because equivalent private insurance is, in principle, available, making government provision unnecessary, but also because government insurance creates a distortion that necessarily lowers welfare. Thus, in considering whether there is any case for taxation as insurance in this context, other market imperfections must be addressed.[6]

Some suggest that the government is more capable than the market at spreading risks, perhaps due to returns to scale. Yet the reason is not apparent. If risk is nonsystematic, private arrangements, taking advantage of extensive reinsurance markets and securities markets, should be adequate. If risk is systematic, as much risk in labor income may be, it is not clear how the government can address it. If it absorbs systematic risk, this must be passed back to taxpayers through other tax changes, debt policy, or in the flow of government services. See Bulow and Summers (1984), Gordon (1985). Whatever level of systematic risk the government might optimally absorb[7] could be borne by the government independent of whether it insured labor income, and the benefit to the economy would depend only on the aggregate risk that could be so borne.

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[6] Varian lists all the reasons discussed here in a sentence, but does not explore their applicability or how they might affect his analysis of government insurance through the tax system.

[7] For example, if some public goods had approximately constant returns to scale in some range in terms of the utility they produced, within that range the government should act in an approximately risk-neutral manner.

Adverse selection may in some instances justify government action when moral hazard alone would not.[8] For example, an insurance company may know the probability of reduced earnings due to a recession as well as most employees, but it would not know their likelihood of being fired due to low skill. An adverse selection justification based on differences in earnings ability, however, is rather close to standard arguments for redistribution based on vertical equity norms. After all, it is the compulsory insurance through the tax system that would prevent low-risk individuals -- i.e., high-ability types -- from refusing to participate. The pooling thus achieved entails redistribution from those who know they would earn more income to those who know they would earn less. This, in essence, is the conventional justification for a lump-sum tax based on ability, where the debate turns on how well ability can be measured directly versus whether one must rely on an income tax because income can be observed more readily. See Mirrlees (1971), Stern (1982). This motivation can be viewed as insurance along the social contract lines of Harsanyi (1953) or Rawls (1971), in that if individuals could have purchased insurance before their abilities were known to themselves, they would have. The authors who have examined uncertainty in labor income, in contrast, have as their explicit objective that some redistributive labor income taxation can be justified independently of familiar redistributive considerations.

Finally,[9] transaction costs may impede private insurance. If, as Varian's simulations suggest, the optimal level of insurance against uncertain labor income were only a few percent, it may be that the costs of administering an insurance policy would be prohibitive. Of course, the costs of administering an income tax system just to redistribute a few percent of labor income would

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[8] Unfortunately, only modest attention has been given to optimal intervention in insurance markets in the presence of adverse selection. Some examples in Eaton and Rosen (1980c) might be used to explore this; they do not.

[9] There are other possible explanations for the fact that individuals do not insure against uncertainty in labor income (outside the disability context). For example, individuals may underestimate risk. If this were the case, compulsory insurance may be optimal, although premiums should reflect any private insurance (or, equivalently, private insurance should be taxed at an appropriate level), particularly if not all individuals underestimate risk but all are subject to the tax/insurance scheme.

be prohibitive as well, but if an income tax already existed for other purposes, there may be no incremental cost in structuring it to take account of the benefit from absorbing risk.[10] Moreover, the above-described problem of distortion with private insurance would not arise, because supplemental private coverage would be prohibitively costly. (Of course, the existence of substantial private disability insurance indicates that, at least for some risks, transaction costs are not prohibitive, in which case there is reason to worry about distortion in the private insurance markets.[11]) Note that it is difficult to infer from the current lack of insurance coverage for much uncertainty in labor income that insurance markets are not functioning properly. As insurance markets have become more organized and less expensive to operate over the course of this century, levels of income taxation have become significant. If the amount of insurance the tax system currently provides substantially exceeds what individuals would otherwise have acquired, transaction cost considerations may be sufficient to explain why slight additional increments of private coverage are not obtained.

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[10] Administrative costs for private insurance might be low if payments could be based on tax returns. Also, if the income tax exists for other redistributive purposes (or, related, purposes of measuring ability to pay in financing public projects), the structure already accounts for income variations to some extent, so it is not clear what adjustment to otherwise optimal tax rates would be warranted in light of uncertainty in labor income.

[11] One could levy a corrective tax on such coverage.

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