

Deconstructing the New Efficiency Rationale

Chris William Sanchirico

Follow this and additional works at: <http://scholarship.law.cornell.edu/clr>

 Part of the [Law Commons](#)

Recommended Citation

Chris William Sanchirico, *Deconstructing the New Efficiency Rationale*, 86 Cornell L. Rev. 1003 (2001)
Available at: <http://scholarship.law.cornell.edu/clr/vol86/iss5/1>

This Article is brought to you for free and open access by the Journals at Scholarship@Cornell Law: A Digital Repository. It has been accepted for inclusion in Cornell Law Review by an authorized administrator of Scholarship@Cornell Law: A Digital Repository. For more information, please contact jmp8@cornell.edu.

DECONSTRUCTING THE NEW EFFICIENCY RATIONALE

Chris William Sanchirico†

INTRODUCTION	1005
I. THE DOUBLE-DISTORTION ARGUMENT FOR PURE EFFICIENCY	1014
A. The Double-Distortion Argument Explained	1014
B. Efficiency as a Non Sequitur	1016
C. The Fallacy of Distortion Counting	1017
II. THE OPTIMAL-TAX ARGUMENT FOR EQUITY-INFORMED LEGAL RULES	1018
A. The Optimal Choice of Taxes and Rules as a Signaling Problem	1019
B. The Optimal-Tax Argument for Equity-Informed Legal Rules	1021
C. The Optimality of Conditioning Legal Rules on Parties' Incomes	1027
III. OBJECTIONS, POTENTIAL AND ACTUAL	1031
A. The Fuzzy Rhetoric of "Redistributing Income"	1031

† Associate Professor of Law, University of Virginia School of Law. A.B., Princeton University; J.D., Yale Law School; Ph.D. (Economics), Yale University. I am indebted to Barry Adler, Scott Altman, Jennifer Arlen, Kyle Bagwell, Jagdish Bhagwati, Howard Chang, Andrew Daughety, Aaron Edlin, Luigi Alberto Franzoni, William Gentry, Tom Griffith, Christine Jolls, Marcel Kahan, Daniel Klerman, Paul Mahoney, Richard McAdams, Edward McCaffery, Geoffrey Miller, Ronald Miller, Alex Pfaff, Mitchell Polinsky, Jennifer Reinganum, Susan Rose-Ackerman, Alan Schwartz, Steven Shavell, Daniel Shaviro, Matthew Spitzer, Jeff Strnad, Eric Talley, the workshop participants at the American Law and Economics Association's annual meeting, Fordham University School of Law, George Mason University School of Law, Georgetown University Law Center, Northwestern University Kellogg Graduate School of Management, Northwestern University School of Law, Stanford Law School, UCLA School of Law, University of Southern California Law School, University of Toronto Faculty of Law, University of Virginia School of Law, and the University of Virginia Department of Economics for their helpful questions and comments. Special thanks to Louis Kaplow for his detailed comments on an earlier version. Part of this Article was written while I was an Assistant Professor of Economics at Columbia University and a Visiting Assistant Professor at the University of Southern California Law School. I am grateful to the University of Virginia Law School Foundation and the Columbia University Center for Law and Economic Studies for their generous support throughout this project. I thank Jonathan Magid at Columbia College for his outstanding research assistance. I am especially grateful to Benjamin Cohen at University of Virginia School of Law for his diligent library work, his careful editing and his perceptive questions and comments. The Article is dedicated to the memory of Kelvin Lancaster, John Bates Clark Professor of Economics at Columbia University and originator (with R.G. Lipsey) of the "general theory of second best," who passed away while this Article was being written.

B.	The Perverse-Outcomes Bugbear.....	1034
C.	The "Cross-Effects" Red Herring.....	1036
D.	Inside the Matryoshka Doll: The "Within-Income-Group Differences" Fallacy	1039
E.	The Importance of Importance	1041
F.	The Importance of Importance with "Fixed Costs" ..	1043
G.	Bargaining Around Redistributive Rule Changes	1046
IV.	DATA, ERROR, AND APPROXIMATION	1048
A.	Determining the Proper Redistributive Adjustment	1048
B.	The Two "Haphazardness" Objections	1051
1.	<i>Random Redistribution and Horizontal Equity</i>	1051
2.	<i>Error in the Perfect Policy</i>	1055
V.	DECONSTRUCTING THE FORMAL "PROOFS" OF PURE EFFICIENCY	1056
A.	The Absence of Legal Heterogeneity in the Kaplow and Shavell Model.....	1057
1.	<i>The Three Potentially Heterogeneous Points of Impact</i>	1058
a.	<i>The Individual as Victim: Impacts A and B</i>	1059
b.	<i>The Individual as Injurer: Impact C</i>	1059
2.	<i>Four Homogenizing Assumptions</i>	1060
a.	<i>The Individual as Victim: Homogenizing Impacts A and B</i>	1060
b.	<i>The Individual as Injurer: Homogenizing Impact C</i>	1061
3.	<i>Summary</i>	1063
B.	Return of the "Income Tax Only" Conditions.....	1064
1.	<i>An Intuitive Explanation of Income-Tax-Only Results</i>	1065
2.	<i>Income-Tax-Only Results and the Kaplow and Shavell Model</i>	1068
	CONCLUSION	1069
	TECHNICAL APPENDIX	1071
A.	Where Kaplow and Shavell's Tax Substitution Argument Falters with Legal Heterogeneity	1071
B.	Mathematical Analysis	1080
1.	<i>The Absence of Legal Heterogeneity in the Kaplow and Shavell Model: Mathematical Reprise</i>	1080
2.	<i>A Generalization of Sanchirico's Equity-Regarding Result to Any Kind of Legal Heterogeneity</i>	1081
3.	<i>Where Kaplow and Shavell's Tax Substitution Argument Falters with Legal Heterogeneity: Mathematical Reprise</i>	1084

One of the most important developments in law and economics over the last decade has been the emergence and rapid acceptance of a new type of justification for the field's long-time practice of evaluating legal rules solely on the basis of the efficiency criterion. This Article challenges these new arguments. It contends that these arguments are alternatively logically flawed or reliant on untenable assumptions. The Article concludes that law and economics's exclusive focus on efficiency continues to lack justification even within the limited purview of modern economic reasoning.

INTRODUCTION

For as long as law and economics has played a formative role in legal scholarship, its principal mode of analysis has been to evaluate legal rules according to the sole criterion of "efficiency"; that is, to judge rules by the simple sum of the costs and benefits that they impose on the population without regard to how those costs and benefits are distributed among different individuals.¹

¹ For a review of the various efficiency concepts used by law-and-economics scholars, see Jules L. Coleman, *Efficiency, Utility, and Wealth Maximization*, 8 HOFSTRA L. REV. 509 (1980). Although pure efficiency analysis is the dominant mode of analysis in law and economics, not all scholarship in the field has ignored distributional considerations. See, e.g., Bruce Ackerman, *Regulating Slum Housing Markets on Behalf of the Poor: Of Housing Codes, Housing Subsidies and Income Redistribution Policy*, 80 YALE L.J. 1093 (1971); Jennifer H. Arlen, *Should Defendants' Wealth Matter?*, 21 J. LEGAL STUD. 413 (1992); Guido Calabresi, *The Pointlessness of Pareto: Carrying Coase Further*, 100 YALE L.J. 1211 (1991); Anthony T. Kronman, *Contract Law and Distributive Justice*, 89 YALE L.J. 472 (1980); Thomas J. Miceli & Kathleen Segerson, *Defining Efficient Care: The Role of Income Distribution*, 24 J. LEGAL STUD. 189 (1995); A. Mitchell Polinsky, *Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies*, 32 STAN. L. REV. 1075 (1980).

A recent and prominent exchange in the law review literature has, on close inspection, only tangential bearing on the central issue of whether legal rules should be informed by distributional considerations. Howard F. Chang, *A Liberal Theory of Social Welfare: Fairness, Utility, and the Pareto Principle*, 110 YALE L.J. 173 (2000) [hereinafter Chang, *Liberal Theory*]; Howard F. Chang, *The Possibility of a Fair Paretian*, 110 YALE L.J. 251 (2000) [hereinafter Chang, *Fair Paretian*]; Louis Kaplow & Steven Shavell, *Fairness Versus Welfare*, 114 HARV. L. REV. 961 (2001) [hereinafter Kaplow & Shavell, *Welfare*]; Louis Kaplow & Steven Shavell, *Notions of Fairness Versus the Pareto Principle: On the Role of Logical Consistency*, 110 YALE L.J. 237 (2000) [hereinafter Kaplow & Shavell, *Notions of Fairness*]. Louis Kaplow and Steven Shavell argue that policy choices should be made solely on the basis of how various alternatives affect individual well-being, and not on the basis of other criteria, which they group under the heading of "fairness." See Kaplow & Shavell, *Welfare*, *supra*. Kaplow and Shavell are careful to note that this position accommodates making policy choices on the basis of how policies affect the *distribution* of individual welfare. See Kaplow & Shavell, *Welfare*, *supra*. Yet, a close reading of their work indicates that—for the very reasons criticized in the present article—Kaplow and Shavell still envision no role for distributional considerations in evaluating legal rules. See Kaplow & Shavell, *Welfare*, *supra*. Howard F. Chang's critique of Kaplow and Shavell does not address their reasons for excluding legal rules from redistributive policy, but rather addresses the issues of whether all kinds of individual preferences should be respected in calculating social welfare and whether it really is technically impossible, as Kaplow and Shavell claim, to construct a social-welfare function that respects Pareto optimality and also values non-welfarist principles like "fairness." See Chang, *Liberal Theory*, *supra*; Chang, *Fair Paretian*, *supra*.

Justifying this exclusive focus on efficiency has always required adopting at least one of two beliefs: that the distribution of economic well-being has no part in what defines the just society, or that the state possesses the knowledge and ability to effect the sort of perfectly corrective transfers that could costlessly and precisely undo any undesired distributional effects of a legal rule.²

Some of the most influential early proponents of the law-and-economics approach adopted one or the other of these beliefs as their rationale for focusing on efficiency. Over time, however, the consensus in law and economics has shifted away from both premises. Although disagreements remain about how much weight to place on “equity”³ as a social value, few scholars today would argue that the proper weight truly is zero. At the same time, the ascendancy of “information economics”⁴ has bred skepticism about the feasibility of perfectly corrective transfers. Scholars now understand that rearranging the costs and benefits of a legal rule requires information about the rule’s impact on each individual. This information is often known only to the individual herself and is thus difficult to obtain, given an individual’s natural incentive to overstate her costs and downplay her benefits in order to improve her treatment under the corrective transfer.⁵

² Why does the ability to precisely and costlessly effect such corrective transfers justify setting legal rules solely on the basis of efficiency? Suppose, to take an extreme example, that the state demands perfect equality, but that, given perfect equality, it prefers that the equal amount allocated to each individual be greater rather than smaller. Imagine that the state has the ability to costlessly “re-slice the pie” however it pleases. Further, consider a world in which legal rules are inefficient, but there is perfect equality. Then, the state should change legal rules so that they are efficient—i.e., so that they maximize the size of the pie—even if that initially produces inequality. After changing legal rules, the state can always re-slice the larger pie to restore the system to perfect equality. The end result is still perfect equality, but each individual now has greater wealth. For a fuller explanation of this point, see A. MITCHELL POLINSKY, *AN INTRODUCTION TO LAW AND ECONOMICS* 7-9 (2d ed. 1989).

³ “Equity” in this context refers to “equality of economic well-being.” To value equity is to prefer social outcomes with less economic inequality to those with more, all else the same. Following the literature it critiques, this Article will focus on equality of *outcomes* rather than equality of opportunities or “starting points.” Yet, as Part II suggests, much of this Article’s analysis also applies to equality of opportunity. Indeed, the analysis applies to any policy goal posited as an alternative to efficiency.

⁴ The Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel, 1996, was awarded to James A. Mirrlees and William Vickrey “for their fundamental contributions to the economic theory of incentives under asymmetric information.” Press Release, The Royal Swedish Academy of Sciences, The Sveriges Riksbank (Bank of Sweden) Prize in Economic Sciences in Memory of Alfred Nobel (Oct. 8, 1996), <http://www.nobel.se/economics/laureates/1996/press.html> (last modified Feb. 5, 2001). For a review of the literature, see DAVID M. KREPS, *A COURSE IN MICROECONOMIC THEORY* 577-660 (1990).

⁵ In the economics literature, transfers tailored to each individual’s true and complete underlying situation are called “lump-sum transfers.” The *ex post* “re-slicing” described above requires fashioning such lump-sum transfers. See *supra* note 2 and accompanying text. Were they feasible, such transfers could be used not only to correct

Yet even as support within law and economics for both of these premises has eroded, the field's focus has, if anything, tightened around the efficiency criterion. This continued acceptance of efficiency, but not its premises, has produced a dissonance within law and economics that, depending on how closely one chooses to listen, can be piercing to the ear. And perhaps the resulting discomfort explains the recent emergence and rapid acceptance of a new justification for efficiency, a "new efficiency rationale," that claims to allow the scholar to be both concerned about equity and skeptical of the feasibility of corrective transfers while still remaining focused solely on efficiency in evaluating private law rules.

The new rationale sets out to accomplish this feat by shunting distributional concerns across disciplinary boundaries from private law to tax. While conditionally conceding the importance of equity as a political-philosophical value, proponents of the new rationale insist that the legal sphere is not the proper place to pursue distributional objectives. Efforts to decrease economic inequality, they argue, should be corralled into the tax code, while legal rules should be left in a pristinely efficient state, unsullied by distributive justice.⁶

Perhaps due to its timeliness and potential convenience, the new rationale has been almost immune from the sort of close scrutiny that such a foundational principle deserves. Indeed, until very recently there was essentially no critical appraisal of the new rationale on its own terms, as an exercise in law-and-economics reasoning.⁷

the undesirable distributional consequences of other policies, but also to effect redistribution *de novo*. Yet, as Mirrlees notes, "[i]t is generally agreed by economists that the lump-sum transfers necessary to [accomplish perfectly corrective transfers] are scarcely ever feasible. There is no way of obtaining the information about individuals that is required except in a society of individuals who are truthful regardless of selfish considerations." J.A. Mirrlees, *The Theory of Optimal Taxation*, in 3 HANDBOOK OF MATHEMATICAL ECONOMICS 1197, 1197-98 (Kenneth J. Arrow & Michael D. Intriligator eds., 1986) (footnote omitted).

⁶ See, e.g., Louis Kaplow & Steven Shavell, *Why the Legal System is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667, 677 (1994) ("[I]t is appropriate for economic analysis of legal rules to focus on efficiency and to ignore the distribution of income . . ."); see also sources cited *infra* note 132.

⁷ For a behavioral critique, see, for example, Christine Jolls, *Behavioral Economic Analysis of Redistributive Legal Rules*, 51 VAND. L. REV. 1653, 1656 (1998). Jolls points to psychological evidence that, despite economic theory, "uncertain events—such as incurring tort liability—are often processed very differently from certain events," and that redistributing income via tort rules might be less distortionary than redistributing income by tax if individuals do not take full account of the effect on tort rules of their earning more. *Id.* For a practical and political critique of the new rationale, see Scott Shapiro & Edward F. McClenen, *Law-and-Economics from a Philosophical Perspective*, in 2 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 460, 463 (Peter Newman ed., 1998). The authors argue: "One clear problem with [the new rationale] is that it . . . presupposes that other state agencies will engage in a rather aggressive form of wealth redistribution. Absent some radical restructuring of current political systems, however, this proposal must reside within what is sometimes called 'ideal' political theory." *Id.*

A recent exchange between this author and some of the chief proponents of the new rationale⁸ may signal a change in this regard. But although this exchange has helped to put the topic on the table, it leaves many important issues unresolved. This Article picks up where that initial parley left off. It refines, clarifies, and makes accessible to the general reader the arguments that arose in that more technical exchange. It responds to new defenses raised in favor of the new rationale in that discussion. It also steps beyond the boundaries of existing discourse to consider other important issues that must be addressed before this debate can be settled to the satisfaction of the broader community of lawyers and legal scholars.

Part I summarizes and critiques the “double-distortion argument,” which forms the backbone of the new rationale. The double-distortion argument rests on the idea that conditioning the application of legal rules on parties’ incomes will affect their decisions in the labor market in much the same way as directly taxing their earnings.⁹ Increasing an individual’s expected damages bill when she earns more affects her incentive to earn in the same way as does increasing her tax bill. Thus, effecting redistribution by conditioning legal rules on income distorts not only the behavior that the legal rule is meant to regulate (e.g., precautionary behavior, if the rule is in tort), but also labor-leisure choice. Redistributing income by taxing income directly, however, requires suffering only the single distortion to labor market decisions.¹⁰ As one distortion is better than two, the argument continues, only the income tax should be employed in pursuit of redistributive goals, and it is thus appropriate for the economic analysis of legal rules to focus on efficiency.¹¹

Yet whether or not the double-distortion argument is valid on its own terms, the conclusion that legal rules should always be set solely on the basis of efficiency is a non sequitur. Here it is important to distinguish between two logically separate questions: (1) Should legal rules be set purely on the basis of efficiency or should they also be informed by considerations of economic equity? and (2) Should the application of legal rules in each case be made conditional on the

⁸ Chris William Sanchirico, *Taxes Versus Legal Rules as Instruments for Equity: A More Equitable Approach*, 29 J. LEGAL STUD. 797 (2000). Sanchirico’s article was first circulated in November 1997 and appeared on the Social Science Research Network on December 25, 1997. See SOCIAL SCIENCE ELECTRONIC PUBLISHING, SOCIAL SCIENCE RESEARCH NETWORK, at <http://www.ssrn.com> (last visited June 2, 2001); Louis Kaplow & Steven Shavell, *Should Legal Rules Favor the Poor? Clarifying the Role of Legal Rules and the Income Tax in Redistributing Income*, 29 J. LEGAL STUD. 821 (2000) (responding to Sanchirico).

⁹ See Kaplow & Shavell, *supra* note 6, at 677.

¹⁰ See *id.* at 667-69.

¹¹ See *id.*

relative incomes of the affected parties?¹² These questions are truly distinct. A legal rule has a redistributive impact whenever it affects different individuals differently. And differential effects exist even when application of the rule in each case does not turn on the taxable attributes of the particular parties involved.

The double-distortion argument applies only to the second of these two separate questions. The equity-informed legal rule discussed above in explicating the double-distortion argument distorts labor-leisure choice (thereby producing a second distortion) only because each individual understands that any application of the legal rule to her will turn on her particular level of income. Without this sort of "specific income conditioning" there is no second distortion.

Moreover, even as an argument against specific income conditioning per se, the double-distortion argument is suspect. The sort of distortion counting that the argument employs ignores the fact that distortions may well counteract one another. As the "theory of second best"¹³ makes clear, it is no more appropriate to sum up distortions in measuring efficiency cost than it is to sum individual asset variability in measuring portfolio risk.¹⁴

Part II presents an alternative perspective on redistributive policy, one opposed to the tax-centric view of the new rationale, but, perhaps ironically, fundamental to the field of optimal taxation,¹⁵ which purportedly grounds the new rationale. From this perspective, income, wealth, consumption, contractual activity, property owned, harm caused, harm suffered, and the like, are all imperfect signals of the underlying immutable characteristics of individuals (sometimes called "preferences" and "endowments") upon which the state would ideally base its redistributive policy if only it had such information at its disposal.¹⁶ Such signals are "imperfect" because they are determined in part by individual choice. Attempts to redistribute based on these imperfect signals thus inspire distortionary behavioral adjustments. The necessity of relying on such imperfect signals to redistribute produces in turn a tradeoff between equity and efficiency; transfers from well-off to less well-off must be made with the proverbial leaky bucket.

¹² As in the literature it critiques, this Article will focus on "income conditioning." The analysis applies as well to making legal rules contingent on any other potentially taxable attribute.

¹³ See *infra* note 35.

¹⁴ See *id.*

¹⁵ The literature on optimal taxation is large. One of the best discussions is found in Nicholas Stern, *The Theory of Optimal Commodity and Income Taxation: An Introduction*, in *THE THEORY OF TAXATION FOR DEVELOPING COUNTRIES* 22 (David Newberry & Nicholas Stern eds., 1987).

¹⁶ See *supra* note 5.

Under this alternative view, no particular imperfect signal (such as income) is favored a priori. Indeed, it makes little sense to talk about one signal being "more efficient" than another, because a signal's efficiency—much like the productivity of labor and capital in firm production—can only be expected to vary with how much the signal is used both in an absolute sense and relative to other signals. Thus, contrary to the impression given by double-distortion reasoning, the bare logic of the situation does not dictate sole use of the income tax in pursuit of redistributive goals.

Indeed, under standard assumptions, the framework actually leads to a strikingly different conclusion. While the double-distortion argument suggests that legal rules should *never* be informed by redistributive objectives, the imperfect-signals framework just described implies the more-than-opposite proposition that legal rules should *always* (i.e., not just sometimes) be redistributively informed.

The reason has to do with the definition of "efficiency." The fact that an efficient legal rule maximizes the size of the pie means—by the usual argument that margins are zero at a maximum—that there will be no marginal efficiency losses associated with moving off of the perfectly efficient point. There will, however, be nonzero marginal *equity* effects because, of course, the perfectly efficient point does not also maximize equality. Indeed, moving off of the perfectly efficient point in the right direction will positively reduce inequality on the margin.

The presence of marginal equity gains and the absence of marginal efficiency losses means that perfect transfers are possible on the pure efficiency margin. In other words, at the perfectly efficient point the marginal bucketful will not leak. Thus, the general point that the redistributive efficiency of a policy instrument depends upon how much it is being employed has a very specific implication when we consider the point at which the instrument is not being used at all. At that point it is momentarily a perfect redistributive instrument, and over some range around that point it remains nearly perfect.

If, therefore, we currently conduct no redistribution through the legal system, the legal system is initially available as a perfect means of transfer. If, in addition, we already have a substantial redistributive income tax in place, that tool's redistributive efficacy is under strain, and every dollar transferred by that means exacts potentially significant efficiency costs. Consequently, it will always improve social welfare to pull the well-rested legal system off the bench to relieve the fatigued income tax of some of its redistributive burden.

Given the optimality of some redistributive adjustment to legal rules, what form should it take? Should redistributive adjustments be made across the board, based on population-wide correlations (so

that *every* defendant pays damages equal to 110% of harm, for instance) or should such adjustments be made by conditioning case outcomes on the income or wealth of the specific parties that stand before the court? This issue relates directly to the second question identified above in the discussion of double-distortion reasoning. There it was noted that any argument against specific income conditioning based on double-distortion logic is suspect given the hazards of distortion counting. Part II confirms this suspicion by demonstrating that specific conditioning on the observable economic attributes of the particular parties before the court is actually welfare-improving. In general, making application of taxes and rules "cross-dependent" enables the state to more finely tailor use of the imperfect signals upon which it is obliged to build its redistributive policy.

Part III responds to Louis Kaplow and Steven Shavell's recent defense of the new rationale and addresses several other potential objections regarding the main argument for equity-informed legal rules. This Part first attempts to sort out some possible confusion regarding different uses of the phrase "redistributing income." Despite its frequent use of this phrase,¹⁷ the new rationale is not actually an argument about how best to equalize the distribution of income *per se*. Nor does it concern the issue of how transfers should be made (e.g., in cash as opposed to in kind). Rather, it is an argument about how transfers should be *determined* given the object of mitigating inequality in overall well-being.

Part III next considers some confusion that has arisen concerning the direction in which legal rules should be adjusted for equity purposes. The full analysis in Part II, which was summarized above, indicates that relative to efficient standards, legal rules should be adjusted in a manner that tends to favor the less well-off. In determining who the less well-off are, well-being should be measured across all spheres of economic activity and not just the regulatory ambit of the legal rule that is being adjusted. For example, if the poor are less well-off overall, but happen to be more well-off within the system governing boating accidents, then tort rules for boating accidents should be adjusted to help the poor, even though this is actually disequalizing within the narrow sphere of boating torts. Nevertheless, in their recent defense of the new rationale,¹⁸ Kaplow and Shavell assert that the sort of equity adjustment that is described in Part II may have the perverse effect of hurting those who are less well-off overall just because they happen to be relatively advantaged within the sphere governed by the legal rule. This assertion is incorrect.

¹⁷ See, e.g., Kaplow & Shavell, *supra* note 6 (using this phrase in its title).

¹⁸ See Kaplow & Shavell, *supra* note 8, at 822.

Part III also clarifies certain other aspects of the equity role for legal rules. First, even if legal rules were a relatively unimportant source of overall inequality, as some claim, this does not imply that legal rules should be set purely on the basis of efficiency. Nor is the implication restored if there are substantial "fixed costs" associated with using any given instrument for redistributive purposes. Second, the fact that in certain circumstances rule changes can be "bargained around" does not defeat the optimality of adjusting legal rules for equity purposes. Third, on a more technical level, it is incorrect to suppose that the equity role for legal rules exists only by virtue of cross-effects with labor-leisure choice, or only insofar as there exist within-income-group differences among individuals. The argument for equity adjustments remains vital even in a world in which each individual's various choice problems are entirely separable, and even in a world in which individuals at each level of income are also identical in every other respect. Thus, the equity role for legal rules is not limited to mitigating inequalities that derive from labor market differences. Nor is it limited to mitigating only those inequalities that the income tax cannot reach.

Part IV conducts a critical analysis of several additional arguments—arguments unrelated to optimal taxation or double-distortion logic—that have been put forth as reasons why legal rules should play no role in redistributive policy. Some commentators argue that determining the proper adjustment to legal rules would present serious information problems for policymakers.¹⁹ But as compared to what? Determining the proper redistributive adjustments to taxes is also fraught with theoretical ambiguity and requires substantial empirical determination.²⁰ Indeed, the data required to structure an approximately optimal redistributive tax is the same in form as that required to structure an approximately optimal redistributive legal rule: one needs data on both redistributive impact (the correlation between incidence and well-being) and distortionary cost (the elasticity of relevant choices with respect to the policy change).

One might argue that such data is more readily available for the income tax. But the appropriate test at this level of discourse should be whether the data *could* be collected, not whether it currently exists: there will always be more data on the policy currently in place. In any event, insurance companies have consistently gathered precisely the

¹⁹ See *id.* at 822-23 (arguing that the tax alternative is simple and more precise).

²⁰ See, e.g., Michael J. Graetz, *Distributional Tables, Tax Legislation, and the Illusion of Precision*, in *DISTRIBUTIONAL ANALYSIS OF TAX POLICY* 15, 18-19 (David F. Bradford ed., 1995) ("The current practice of fashioning tax legislation to achieve a particular result in a distribution table creates the illusion of precision when such precision is impossible.").

sort of data necessary for optimal adjustments in important areas of the private law.

In addition, opponents to redistributing by legal rule often cite the supposed haphazardness with which adjustments to tort rules, for example, would accomplish redistribution.²¹ This Article identifies and critiques two forms of the “haphazardness objection.” One form is the assertion that legal-rule redistribution would be keyed to the random event of litigation and would focus on individuals who happened to find themselves in a dispute over an accident. This view focuses too narrowly on accident law, overestimates the certainty and scope of feasible forms of taxation, and also *underestimates* the ability of insurance to transform the uncertain and narrow contingency into the definitive and broad-based premium. Moreover, the horizontal-equity arguments that lie behind this first manifestation of the haphazardness objection are plagued by several debilitating ambiguities. The notion that like be treated alike begs the question of who to consider “alike” and whether to measure “treatment” *ex ante* or *ex post* the event that triggers redistribution.

The second form of the haphazardness objection points to the fact that the proper adjustment to legal rules, which is inevitably based on imperfect population-wide correlations, will on occasion redistribute in the wrong direction. Once again, this objection implicitly ascribes to taxation a perfection that a moment’s review of the tax code belies. The income tax is as haphazard in this respect as legal rules: some individuals with low income and thus low taxes spend from sizeable inheritances; others with high income and high taxes work twelve-hour days having incurred substantial investment costs to develop the skills that keep their wages high.

In any event, arguments against redistributive adjustments that will be right on average but wrong occasionally assume that the status quo—which will by hypothesis be *wrong* on average and *right* occasionally—deserves special standing. The possibility of error is an inevitable characteristic of all policy choices, including the one that we arbitrarily consider the baseline against which all other choices are “adjustments.”

Even if the reader accepts the arguments for equity-informed legal rules that this Article lays out in Parts II-IV, an unanswered question remains. The literature contains rigorous mathematical proofs concluding that policymakers should employ only income taxes for redistributive purposes. How can one reconcile these seemingly airtight proofs with the assertion made in Part II that policymakers should always include legal rules in redistributive policy? The an-

²¹ See Kaplow & Shavell, *supra* note 8, at 832.

swer, not surprisingly, lies in the often implicit assumptions upon which these proofs are based. Part V identifies those assumptions and, by doing so, demonstrates that these applications of mathematical logic are both far less remarkable and far less relevant than has been supposed.²²

I

THE DOUBLE-DISTORTION ARGUMENT FOR PURE EFFICIENCY

Verbal manifestations of the new rationale are built upon a line of reasoning called the "double-distortion argument."²³ The purpose of this Part is to explain this reasoning and then describe its flaws.

Indeed, the double-distortion argument is, appropriately, doubly flawed. First, even if double-distortion reasoning were valid on its own terms, it would not support the broad conclusion that legal rules should be set solely on the basis of the efficiency criterion. Second, double-distortion reasoning is in fact *not* valid on its own terms and so fails to support even the narrower conclusion that legal rules should be independent of parties' incomes.

A. The Double-Distortion Argument Explained

Imagine the following redistributionally motivated modification to the level of damages under strict liability: when a court finds that a defendant was the proximate cause of an accident it must order the defendant to pay compensatory damages plus ten percent of the amount by which her income exceeds the plaintiff's. Thus, if a defendant who earns \$100,000 a year is found liable to a plaintiff who earns only \$20,000, the defendant must pay the plaintiff for the harm she caused, plus \$8,000. And if, in this example, the plaintiff's and defendant's earnings were reversed, the defendant would pay compensatory damages *less* \$8,000.²⁴ Either way, the rule accomplishes a transfer from rich to poor.

But the redistribution this rule accomplishes comes at the cost of a reduction in total well-being; in other words, it is inefficient. There are two sources of this inefficiency. The first concerns precautionary activity. If we wanted to encourage potential injurers to take precautionary measures so as to maximize total well-being, we should charge them for the harm they cause to others. In choosing their level of

²² The Technical Appendix provides formal proofs for the main assertions of this Article. When the Technical Appendix is relevant to verbal argument in the main text, this is indicated by footnote.

²³ Part V examines the formal, mathematical manifestations of the new rationale. Parts III and IV examine other arguments for not redistributing by legal rule.

²⁴ To avoid "negative damages" the rule could be amended so that defendant would be required to pay the greater of zero or the damages calculated using the rule as it stands.

precaution, they would then balance their private cost of precautionary effort against the benefits of reducing accidents to themselves *and* to society. This is precisely the calculus of the fictional, purely efficiency-focused "social planner," who chooses legal rules according to aggregate costs and benefits. The fictional planner, like the injurer under this rule, would balance aggregate precautionary effort (which happens to reside solely with the injurer in this simple setting) and aggregate accident costs.²⁵

But under the legal rule this subpart considers, the level of damages paid by tortfeasors does not necessarily equal the harm that they cause. Defendants with high incomes relative to the rest of the population will tend to be pitted against plaintiffs whose income is lower than theirs. Under this rule, therefore, these defendants will tend to have to pay a positive premium over and above the harm to the plaintiff whenever they cause an accident. By symmetrical reasoning, low-income individuals can expect to pay less than the harm they cause.

As a result, potential tortfeasors will *not* generally choose their level of precaution in a manner that balances aggregate costs and benefits. High-income individuals will likely react by adopting a level of precaution whose direct cost to them exceeds the benefit to society in terms of reduced accident costs. Inversely, low-income individuals will likely take less precaution than warranted by total social costs and benefits.

The second source of inefficiency concerns the choice of how much to work. Absent any externalities, an individual would be choosing her level of work effort to maximize total social well-being if she balanced the value of her leisure time against the social value of what she would produce if working. But under the double-distortion modification of strict liability, when an individual decides whether to work an extra hour, she considers not only the value of her leisure time and the value of her product (via her wage), but also the effect that the amount she earns will have on damages should she find herself a defendant in a tort action. Working an extra hour increases her likely damages premium and decreases the damage premium she is likely to receive.²⁶ Thus, the price of the redistribution accomplished by this

²⁵ This discussion makes the simplifying assumption that only the injurer's choice of care matters. If the victim's care choice were also considered, then strict liability would not be efficient even if damages were set equal to the harm caused. For a clear discussion of efficient tort rules, see POLINSKY, *supra* note 2, at 39-52.

²⁶ In general, wealth effects will also cause distortions. The literature supporting the new rationale typically rules out these distortions, relying on the assumption that individual utility functions are separable. If utility functions are separable, precaution choice is independent of income level (except to the extent that damages depend on income). For a further discussion of the separability assumption, see *infra* Part V.A.2(b). Note that the existence of distortions due to wealth effects favors neither redistributive venue.

modification of strict liability is a double-distortion. It distorts not only precautionary effort, but also work effort.

In contrast, so the double-distortion argument continues, if one effected the same redistribution by *income tax* instead of legal rule, just the single distortion to work effort would result. Because individuals would still not keep all of what they earn, they would fail to balance the full social benefits of their work effort against the value of their time. But at least redistribution by income tax would not *also* distort their choice of precautionary effort.

B. Efficiency as a Non Sequitur²⁷

Suppose that we accept double-distortion reasoning as valid. What does it imply? According to this reasoning, the legal rule is a poorer tool for redistribution than the income tax because the legal rule distorts not only precautionary choice, but also labor-leisure choice. The source of the later distortion is the fact that damages are tied to income earned: earning more means having to pay more in damages should one cause an injury, whereas earning less means having to pay less in damages. Without this functional dependence the damages rule would be irrelevant to labor-leisure choice.²⁸ If damages are x when the individual earns a lot and still x when she earns a little, then damages have no effect on her choice of how hard to work, whatever the value of x . The double-distortion argument is really, then, simply an argument against redistributing by conditioning the application of legal rules on the income of the parties.²⁹

The conclusion appended to the double-distortion argument, however, is that legal rules should be set according to the sole criterion of efficiency.³⁰ Yet, an argument against income conditioning is not necessarily an argument for efficiency. The fact that a rule is independent of income does not mean that it is efficient. If, for instance, one abolished the tort system altogether, letting the cost of accidents lie where they fall, our effective tort rules would *not* be conditioned on income—but neither would they be efficient.

In particular, redistributionally motivated deviations from efficiency that are not tied to income³¹ are simply not subject to double-

²⁷ The arguments in this subpart are made in Sanchirico, *supra* note 8, at 799-800.

²⁸ *But see supra* note 26.

²⁹ Part I.C argues that the double-distortion argument is not valid even in this limited capacity.

³⁰ *See* Kaplow & Shavell, *supra* note 6, at 677.

³¹ A separate issue is whether the *efficient* (more precisely, sum-of-utilities-maximizing) rule is wealth dependent. *See* Kenneth S. Abraham & John C. Jeffries, Jr., *Punitive Damages and the Rule of Law: The Role of Defendant's Wealth*, 18 J. LEGAL STUD. 415, 417-18 (1989) (arguing that efficient deterrence requires that damages be independent of wealth); Arlen, *supra* note 1 (arguing that Abraham and Jeffries's results do not apply when individuals are

distortion reasoning. For instance, our concern for equity may cause us to increase damages by \$1,000 above harm caused.³² This change certainly “distorts” precautionary behavior. But it does not cause a second distortion to work effort.³³

Thus, a logical chasm runs between the double-distortion argument’s intermediate conclusion that legal rules should not be conditioned on income and its *ultimate* conclusion that legal rules should be set solely on the basis of efficiency. In terms of the sort of distortion-counting that the double-distortion argument invites, income-independent legal rules are on the same footing as *harm-independent* income taxes: both “distort” the activity to which they are directed, but neither has primary behavioral consequences beyond its immediate realm.³⁴

C. The Fallacy of Distortion Counting

Given that the double-distortion argument does not reach income-independent changes in legal rules, is it at least valid as an argument against conditioning legal rules on the income of the parties involved? The answer here is also “no.” The double-distortion argument employs a form of “distortion counting” that was discredited long ago. The “theory of second best,” initiated in economics by Richard Lipsey and Kelvin Lancaster, teaches that eliminating some distortions is not necessarily welfare-improving in a world in which *other* distortions remain (perhaps because policy changes simply cannot eliminate them).³⁵ Distortions may counteract one another, and eliminating some of them may exacerbate the negative impact of those that remain.³⁶

risk averse); Miceli & Segerson, *supra* note 1 (qualifying Arlen’s analysis). The issue at hand concerns income (or wealth) dependence for the purpose of equalizing the distribution of well-being.

³² See *infra* Part II.B.

³³ This basic conclusion is not limited to such simple adjustments. Imagine a “damages schedule” that associates each level and type of harm caused with a dollar amount of damages owed. In form, this would resemble a tax schedule, which associates each level of earned income with a dollar amount of tax: The left column of each table contains the observable characteristic of the individual—harm for the damages table, income for the tax table—and the right lists the payment, to the party or the state, or to some combination of both. Just as the tax schedule does not distort precautionary effort, the damages schedule would not distort work effort.

³⁴ But see *supra* note 26.

³⁵ See R.G. Lipsey & Kelvin Lancaster, *The General Theory of Second Best*, 24 REV. ECON. STUD. 11, 11-12 (1956-57). For application of this principle to the law, see, for example, Richard S. Markovits, *Monopoly and the Allocative Inefficiency of First-Best-Allocatively-Efficient Tort Law in Our Worse-than-Second-Best World: The Whys and Some Therefores*, 46 CASE W. RES. L. REV. 313 (1996).

³⁶ See Lipsey & Lancaster, *supra* note 35, at 11-12.

In other words, the welfare detriments of multiple distortions combine, not like simple numbers, but like the market risk of multiple assets. Two risky assets may form a portfolio with less risk than that of either asset taken alone. The assets may hedge each other: their risk profiles may counteract one another. Similarly, two distortions may counteract each other's deleterious effect on efficiency.

Thus, the bare fact that using legal rules instead of the income tax to redistribute causes an additional distortion to tort-related behavior does not necessarily mean that tort-law redistribution is inferior from an efficiency point of view. The additional distortion to tort behavior could easily have a mitigating effect on the shared distortion to labor-leisure choice.

II

THE OPTIMAL-TAX ARGUMENT FOR EQUITY-INFORMED LEGAL RULES³⁷

The new efficiency rationale sends mixed signals about the income tax. On the one hand, it is careful to note that the income tax is not a corrective "lump-sum transfer":³⁸ one cannot deploy the income tax after-the-fact to costlessly clean up any undesired distributional effects of an efficiency-enhancing legal rule. The new efficiency rationale clearly accepts that the income tax is also subject to distortionary effects. Indeed, the new rationale's use of the income tax in lieu of the mythical lump sum transfer is part of what makes it "new."

On the other hand, the new efficiency rationale encourages us to think of the income tax as somehow unique: as a redistributive tool that, although flawed, stands apart from the other blunt and collaterally destructive redistributive instruments.³⁹ In some ways, this is an appealing construction. The income tax has been and remains the celebrity of redistributive instruments, and it may be difficult to resist confusing the fact of its prominence in actual distributional policy with the idea that this must or should be so.

But a closer look demonstrates that the income tax is on the same footing as the lot of other redistributive tools. And it is perhaps ironic that the "optimal taxation" framework,⁴⁰ pioneered by Nobel prize-winning economist James Mirrlees and now used by proponents of the new efficiency rationale to demonstrate the unique position of the

³⁷ See the Technical Appendix § B.2 for a formal proof of the main assertions in this Part.

³⁸ See *supra* note 5.

³⁹ Kaplow & Shavell, *supra* note 8, at 822-23.

⁴⁰ See, e.g., Mirrlees, *supra* note 5; Stern, *supra* note 15, at 27-46; Jeff Strnad, The Progressivity Puzzle: The Key Role of Personal Attributes 8-32 (July 1991) (unpublished manuscript, on file with author) (detailing the foundations of the optimal tax program).

income tax,⁴¹ is precisely the framework in which to see that this is so.⁴²

Before substantiating this claim, it is important to clarify the purpose of the enterprise. No claim is being made that the optimal-tax analysis provided in this Part proves definitively that policymakers should always set legal rules with equity in mind. The purely economic arguments in this Part do not address all relevant considerations.⁴³ What is claimed—definitively—is this: The kind of analysis provided here, which forms the most prominent argument for pure efficiency in law, not only fails to support the claim that legal rules should never be redistributive, but leads to the more than opposite conclusion that redistributive goals should *always* inform legal rules.

A. The Optimal Choice of Taxes and Rules as a Signaling Problem⁴⁴

The foundational logic of the optimal-tax literature rests on the practical inapplicability of one of the abstract principles of welfare economics.⁴⁵ This excluded principle instructs that the target of a program of redistributive taxation ideally should be individuals' underlying, immutable characteristics such as their genetic abilities, their inheritances both intangible and tangible, and their preferences.

⁴¹ See *infra* Part III.

⁴² This Part inherits, to varying extents, the focus and the starting point of the literature that it addresses. Three of these bequests are worth noting.

First, the focus of that literature is on taxes versus tort rules, as opposed to legal rules in general. It is understood in that literature that tort law is used as a proxy for the private law as a whole. To the extent that the examples herein also focus on tort law, this Article encourages the same understanding. In any event, this Article does address the unique problems of other areas of law, such as contract and labor law. See *infra* Part III.C.

Second, the existing literature also assumes that equity of outcomes, rather than equity of opportunity, should be the object of redistributive policy. This Article, too, proceeds as if this were the goal. It should be noted, however, that the arguments employed in this Part, and elsewhere in the Article, apply with equal force whether the distributive goal is to equalize "starting points" or outcomes. At the risk of getting ahead of the argument: there will still be no efficiency loss on the pure efficiency margin and, thus, to the extent that legal rules have a differential impact on individuals' opportunities, policymakers should adjust them away from efficiency in an effort to equalize these opportunities.

Third, in the models in this literature maximizing total utility yields a (Pareto) efficient outcome, and one which corresponds to that obtained with Pigouvian externality-correcting policies (such as setting damages equal to harm). For more on this technical issue, see Sanchirico, *supra* note 8, at 816 n.20.

⁴³ For discussion of these considerations, see *infra* Parts III-IV.

⁴⁴ The basic contours of the argument in this and the following subpart appear in Sanchirico, *supra* note 8, at 802-03.

⁴⁵ The second welfare theorem states that under certain conditions, the economy can attain any Pareto-efficient allocation of its resources (where Pareto-efficiency is defined with respect to resource feasibility constraints alone, and not incentive constraints) as a competitive equilibrium, so long as lump-sum transfers are feasible. See, e.g., HAL R. VARIAN, *INTERMEDIATE MICROECONOMICS: A MODERN APPROACH* 517-19 (4th ed. 1996).

In the life of the individual, choices in the past determine the set of available choices in the present, and therefore influence what an individual actually chooses in the present, which in turn affects her future choices. Anchoring this chain of choice and opportunity, at least as a theoretical construct, are the "initial conditions" of individual choice, and these are what we would ideally like to tax and subsidize. Why? Because these characteristics fully identify the individual and because they are immutable. That these characteristics identify the individual means that we can precisely tailor our transfers to the well-being of the agent from whom we are taking or to whom we are giving. That these characteristics are immutable means that the individual cannot distort her behavior to reduce the tax or increase the subsidy.

Unfortunately, many of the most relevant underlying immutable characteristics are effectively unobservable to the policymaker. Even if the policymaker could make a reliable list of what these relevant characteristics are, and even if she had some sense of the population distribution of each of these characteristics, she could not readily determine the relevant characteristics for any *particular* individual in order to set her tax and transfer. Certainly, the policymaker cannot depend on the individual herself to truthfully reveal her characteristics—to the extent that she even knows them herself—particularly when the individual is also aware that what she tells the policymaker will affect her tax bill.

For the most part, the policymaker has at her disposal only the observable manifestations of the choices that individuals make based upon their underlying characteristics. Thus, based on their preferences and endowments individuals decide how much to work, how much of which goods to consume, and how much care to take in potentially hazardous activities. All that the policymaker sees is the individual's labor income, her spending on various goods and services, and the amount of harm she has caused.⁴⁶

The optimal-tax literature proposes that we see these observable manifestations as imperfect signals of individuals' underlying characteristics. They are signals because, through the vehicle of choice, they are determined by and thus indicate individuals' underlying characteristics. They are imperfect because they "move" when they are taxed: taxing or subsidizing income earned, consumption of particu-

⁴⁶ More realistically, the policymaker sees only evidence of harm caused. For an analysis of the legal system that accounts for the fact that courts cannot directly observe variables like harm caused or care taken, see, for example, Chris William Sanchirico, *Games, Information and Evidence Production: With Application to English Legal History*, 2 AM. L. & ECON. REV. 342 (2000); Chris William Sanchirico, *Relying on the Information of Interested—and Potentially Dishonest—Parties*, 3 AM. L. & ECON. REV. (forthcoming fall 2001).

lar goods, or harm caused will typically cause tax-reducing or subsidy-increasing distortionary shifts in behavior.

The optimal-tax problem is the problem of making do with these imperfect signals, and the question of which activities to tax becomes the question of which signals to employ, and how much of each behavioral distortion to accept.⁴⁷ This view of the problem has two implications. First, there is no a priori reason to favor one signal over another; there is no reason why our indication of how much an individual chooses to earn on the labor market is any "better" a signal of who that individual is than her choice of which car to drive, which house to live in, or how careful to be in that house or car. Certainly, the mere fact that one signal is *labeled* "income" and another "harm caused" cannot be what drives the analysis.

Second, the sentiment that one signal is somehow *better* than another is not well formed analytically. By way of analogy, consider a supplier producing a good who could use any combination of labor or capital. Which factor of production is "better"? The question makes no sense because a factor's efficacy of production depends on how much it is used, both in absolute terms and relative to other factors. If the factory is already full of machines, then the first few laborers are highly effective. If the factory is already crowded with operators, an additional laborer is unlikely to be productive.

The signals available for redistributive policy are factors in the production of equity. The right question is not "which is best?" but rather "what is the best combination?" No rule dictates that only *one* signal can be chosen. Moreover, the efficacy of each given signal—in terms of redistributive effectiveness and efficiency costs—is not fixed like a weight or a height, but rather depends on use—its own use and that of other tools.

B. The Optimal-Tax Argument for Equity-Informed Legal Rules⁴⁸

To be sure, the bare fact that the structure of the problem does not restrict us to a limited number of tools does not mean that the solution to the problem will entail the use of all tools available. Yet,

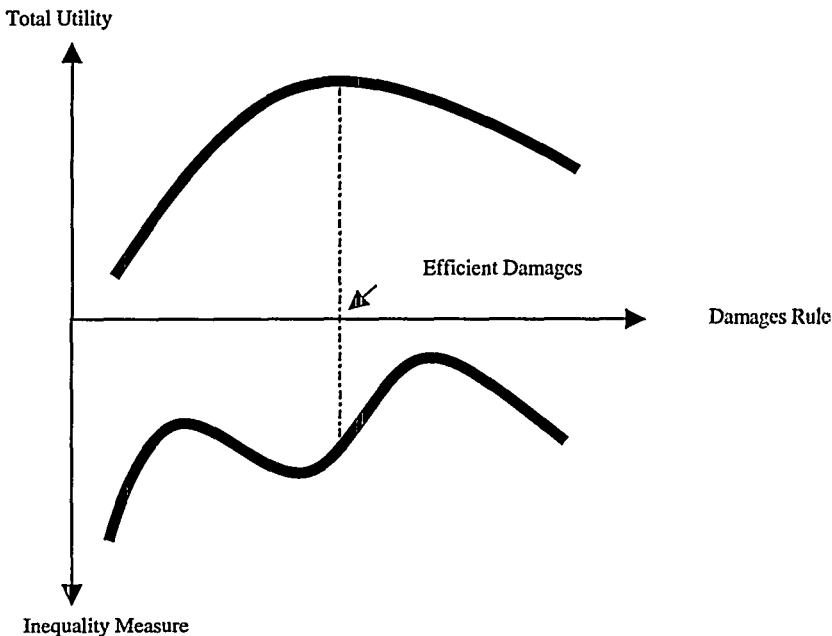
⁴⁷ *But see* Angus Deaton & Nicholas Stern, *Optimally Uniform Commodity Taxes, Taste Differences and Lump-Sum Grants*, 20 *ECON. LETTERS* 263 (1986); Nicholas Stern, *Optimum Taxes with Errors in Administration*, 17 *J. PUB. ECON.* 181 (1982). These papers assume that some underlying characteristics can be directly observed independent of individual actions, but that such observations are prone to error. They examine the trade-off between direct observation of this kind and the form of individual choice-dependent signaling just described. The vast majority of papers in the optimal-tax literature, however, adopt the working assumption that relevant underlying characteristics are not at all directly observable to the policymaker.

⁴⁸ The Technical Appendix § B.2 makes this argument formally.

this is in fact the answer one gets from a serious consideration of the models that have heretofore been applied to the question of which instruments to employ in our redistributive efforts. These models teach us to spread our redistributive efforts among all available tools, because every tool is initially perfectly redistributive, and no tool remains perfect once employed.

The argument for distributionally informed legal rules follows from the type of marginal analysis that characterizes basic economic reasoning. The first step is to recognize that the efficient legal rule is the one that *maximizes* total well-being,⁴⁹ or utility (without regard for the distribution of well-being). In the simplest model of strict liability with one-sided accidents, for instance, setting damages equal to harm maximizes aggregate well-being.

"Maximizes" is the key word here, for maximization of aggregate utility occurs in these sorts of models at a point where marginal aggregate utility with respect to the legal rule is precisely zero.⁵⁰ In other words, if we are positioned at the efficient legal rule (if, for instance, damages equal harm), then total utility can be neither in the process of decreasing nor in the process of increasing as we start to move away from efficiency in either direction. This is illustrated in the top panel of the Figure.



⁴⁹ See *supra* note 42; Sanchirico, *supra* note 8, at 816 n.20.

⁵⁰ Readers with some familiarity with economics will recall that a necessary condition for an (interior) maximum of a (continuously differentiable) function is that the derivative (slope) of the function be equal to zero at the candidate point. See, e.g., ALPHA C. CHIANG, *FUNDAMENTAL METHODS OF MATHEMATICAL ECONOMICS* 231-67 (3d ed. 1984).

Certainly, total utility cannot increase in either direction, because we are already at the total utility-maximizing point. But neither can it decrease. In the majority of economic models, all functions, including total utility, are assumed to change smoothly with no kinks or jumps.⁵¹ Given that total utility changes smoothly, were it to decrease with marginal movements away from the optimum in one direction, then it would have to *increase* with marginal movements in the *opposite* direction. Once again, maximization would be contradicted. This is not to say that total utility cannot *eventually* decrease as we move away from the efficient point, just that it cannot be *in the process of* decreasing at precisely the total utility-maximizing point. Thus, as total utility reaches its highest point, it will be, for at least an infinitely small moment, perfectly flat.

The conclusion for our purposes, then, is that on the margin, there is no “efficiency loss”—no loss to total utility—from shifting the legal rule away from its efficient location, and this is the second step in our argument. Certainly, if we move away from the efficient rule by a discrete amount, we sacrifice efficiency. But the first infinitesimal step, at least, involves no efficiency loss, and this alone tells us something about whether *some* discrete step is worth taking.

But while efficient rules maximize total utility, they have no special status with respect to inequality. Short of enormous coincidence (or a built-in assumption that legal rules have no equity effects), there is no reason to believe that the *inequality* margin is zeroed-out at the efficient legal rule. Thus, as in the example in the bottom panel of the Figure, the curve depicting the appropriate measure of inequality will not generally flatten out in the same way as the total utility curve at the efficient legal rule. If, for instance, changing tort damages affects different people differently, this will almost certainly have some marginal impact on the relevant measure of inequality⁵²—the chance is essentially nil that the differential impact will be precisely such that the relevant inequality measure remains constant. Moreover, one direction of change will be equity increasing. If, as in the Figure, the marginal impact of increasing damages is to increase inequality, then decreasing damages will have the opposite effect and will enhance equality.

Thus, on the margin, movements away from the efficient legal rule have no impact on total utility, but—if we move in the right direc-

⁵¹ See *infra* note 56 for a discussion of how results would change without this assumption.

⁵² The choice of a social-welfare function implies the choice of an inequality measure. For instance, if the social-welfare-weighting function is quadratic, the relevant measure of inequality is the variance. The discussion in the Technical Appendix § B.2 provides more detail.

tion—a beneficial impact on inequality. The existence of such marginally improving movements implies the existence of discrete adjustments for which the equity gains outweigh the efficiency losses. Since the marginal efficiency loss is truly nil, this holds no matter how little weight we place on equity as compared to efficiency—so long as that weight is not actually zero—and no matter how small the distributional effects of the legal rule change—so long as these effects are not completely absent. Of course, we cannot say how large the discrete adjustments will be, only that they will always exist. Their size will depend on how quickly efficiency declines relative to inequality and how we weight each in our notion of social welfare.

It may help to explore these ideas in the context of a more concrete example. Suppose that there are only two people in the economy, one of whom is more well-off than the other. Start at the efficient level of damages—damages equal to harm—and imagine a marginal (i.e., infinitesimal) increase in damages above their efficient level.

One theoretical possibility is that this increase will affect both agents by precisely the same amount and in the same way. Unless enforced by a flank of assumptions ensuring that the two agents are identical in their interactions with the tort system, this is a negligible contingency.

Thus, in general, increasing the level of damages will affect the two agents differently. But the fact that we make our adjustment starting from efficient damages says a surprising amount about the nature of this differential impact. Specifically, a marginal increase of damages above harm must help one agent and hurt the other—in fact, it must help one agent by precisely the same amount that it hurts the other.

The best way to understand this relationship is to rule out all other possibilities. In the easiest case, increasing damages above harm (on the margin) cannot help both agents simultaneously. If it did, the sum of the agents' utilities would increase and this would contradict the fact that our starting point is the efficient level of damages, the level maximizing total utility.

For symmetric reasons, increasing damages cannot simultaneously *hurt* both agents. If it did, then the opposite adjustment, decreasing damages, would increase the sum of the agents' utilities and contradict the supposition that damages are initially efficient. Again, this relies on the standard assumption that individual utility, and so

also the *sum* of individual utilities, do not change direction discontinuously.⁵³

Having ruled out both simultaneous detriment and simultaneous benefit, we may then conclude that one agent is hurt and the other helped by the increase in damages. It is then not too large a step to realize that the degree to which one agent benefits must equal the amount by which the other is hurt. If increasing damages above harm helps one agent more than it hurts the other, then increasing damages increases the sum of utilities, contradicting the principle that damages set equal to harm are efficient. Symmetrically, if increasing damages above harm helps one agent less than it helps the other, then the opposite adjustment, decreasing damages below harm, would (impossibly) enhance efficiency.

Therefore, increasing damages on the efficient damages margin helps one agent by the same amount that it hurts the other. A symmetric analysis would show that decreasing damages below harm would have the same effect, except that the agents' roles would be reversed.

We may thus reach two important conclusions based on the foregoing analysis. First, any marginal adjustment to damages away from their efficient level has *no* effect on the sum of the agents' utilities. Because one agent gains by the exact amount that the other loses, the adjustment constitutes, on the margin, a pure transfer of utility from one agent to the other without any leakage in the bucket. Second, since what has just been said applies to adjustment in both directions, and because these two adjustments have an opposite effect on each agent, *one* of these two directions will necessarily effect a pure transfer from the more well-off agent to the less well-off agent. Thus, moving in whichever direction effects such a transfer will produce a marginal decrease in inequality with no associated loss in aggregate utility.

It is a fascinating consequence of the standard structure of this analytical framework—which itself is based on the general impossibility of perfect transfers⁵⁴—that in the immediate neighborhood of efficient legal rules, pure and perfect transfers of well-being between agents become possible. Adjustments to damages starting from any other position will have real efficiency consequences, and there is no reason to believe that the direction of efficiency increase will correspond to the direction of greater equality. Thus, the trade-off between equity and efficiency is a very real concern everywhere—except at the margins of the perfectly efficient point.

⁵³ For a discussion of what can still be said without the assumption that functions are smooth, see *infra* note 56.

⁵⁴ See *supra* Part II.A.

The real economy, of course, includes more than two people. But the same argument applies no matter how many participants are involved. Marginally increasing damages above their efficient level affects different agents differently: some gain and some lose, but on the whole the gains and losses cancel out. The fact that gains cancel losses means that there is no efficiency loss on the margin. The fact that different individuals are affected differently ensures that one direction of adjustment will be equity enhancing. With more than two individuals, it is theoretically possible that the particular pattern of gains and losses will be such that the relevant measure of inequality remains constant. For example, there are ways to adjust the points in a distribution up and down (with no net change in the total) and yet not affect the distribution's standard deviation.⁵⁵ But these instances are not easy to find; unless one is specifically aiming for them, as an inanimate economy never would, they are essentially impossible to stumble upon. Our conclusion thus continues to hold however large the population: starting from the efficient point, it will be possible to effect a reduction in economic inequality with no loss to efficiency. At the efficient margin, there is no equity-efficiency trade-off.⁵⁶

⁵⁵ Technically, we just take the derivative of the standard deviation with respect to all points, subject to the constraint that the adjustments add up to zero, and set this derivative to zero.

⁵⁶ The argument that damages should *always* be adjusted away from the efficient standard depends on the assumption that the relevant functions are continuously differentiable. See, e.g., CHIANG, *supra* note 50, at 307. In particular, it rests on the assumption that the sum of individual (indirect) utilities as a function of the damages rule does not reach its peak at a kink (with respect to the damages rule), but rather is momentarily flat at the top. See *id.* at 147-48, 240 n.* (providing formal definitions of "continuity" and "continuous differentiability").

The standard assumption that functions are "smooth" is not based on empirical confirmation, but nonetheless allows for use of the calculus in characterizing maximum points. In fact, real functional relationships are never ideally smooth. It is thus worth considering the consequences of relaxing this assumption.

Suppose that total utility, as a function of the damages rule, happened to reach its maximum at a sharp peak. In this case, moving away from efficient damages in either direction would indeed result in a discrete efficiency loss on the margin. As we have already noted, one direction of movement would also result in a discrete equity gain on the margin, and the question would then be whether the gain outweighed the corresponding efficiency loss. If so, the conclusion that legal rules should always be altered for distributional purposes would continue to hold. But if not, it does not follow that the legal rule should be efficient. Even though a small movement away from efficiency might not be warranted, we could not necessarily conclude that a *large* movement would not be welfare enhancing.

All told, allowing for kinks weakens the conclusion reached in this Part from "more than opposite" to merely opposite of the new rationale's conclusion. If kinks are allowed, it would no longer be true that legal rules should *always* be adjusted away from efficient standards, but the new rationale's assertion that legal rules should *always* be set efficiently would still be false.

Indeed, allowing for kinks might also work against the redistributive efficacy of the income tax. Certainly, if we are willing to entertain the possibility of peaks in total utility as a function of the damages rule, we must also be willing to entertain the same possibility

C. The Optimality of Conditioning Legal Rules on Parties' Incomes

The proposition that legal rules should be distributionally informed raises the question of how best to do so. Given the prominence of the double-distortion argument, the issue of whether legal rules should be specifically conditioned on parties' incomes (or on other taxable attributes) is of particular interest.

The question of whether damages, for instance, should be conditioned on income, wealth, or consumption is part of the larger issue of whether optimal "tax rates," broadly defined, should be cross-dependent. The general cross-dependence issue can be illustrated as follows. We observe for each individual a number of different attributes. These include labor income, interest income, financial wealth, consumption of various goods, and damages caused in accidents. Theoretically, we could impose a charge on each individual (which we shall refer to as a "tax") based on the *full list* of her observable characteristics. In other words, we could institute a multidimensional "tax" table, such that each individual would determine her level of taxation by looking up not just her income but also consumption, damages caused, and the like. Of course, in conceiving of and codifying the multidimensional tax, we are free to parse the total tax bill into components corresponding to some or all observable characteristics, calling one portion the "income tax" and another the "damages schedule," for instance.

A more familiar option is to have a set of separate tax tables for income, wealth, and harm caused. The individual would look up her income in one table to find her income tax, her wealth in another table to find her wealth tax, and so forth. She would then add all these taxes together to calculate her total "tax bill."

Establishing separate tax tables for each taxable attribute is a special case of the multidimensional tax table. Any tax structure comprised of a set of separate tax tables can always be expressed by one multidimensional table. In the cell of the multidimensional table representing the tax for each given *vector* of observable characteristics, we simply place the sum of the taxes located in the appropriate cells of each of the separate tax tables.

with respect to the income tax. Thus, it may be that the kinks in the income tax are such that the tax should be set purely on the basis of efficiency.

Indeed, potential kinks in the income tax may actually increase the benefits of deviating from efficiency in setting legal rules. Setting the income tax purely on the basis of efficiency may intensify the redistributive impact of adjusting rules in other areas away from their efficient levels. Plausibly, the marginal social-welfare benefits of redistribution (by any means) diminish as more redistribution is accomplished. It would then be *more* likely that the redistributive benefit of the rule adjustment would overwhelm any discrete efficiency loss.

Conversely, stating the total tax bill in separate tax tables imposes a genuine restriction on the sort of tax structures available for social choice. With a multidimensional tax table it is possible to make the individual's tax on each attribute—however we choose to distinguish this component tax from the whole—a function of the levels of the individual's other attributes. Taxes can thus be *cross-dependent*. Income tax rates, for instance, can be based on wealth, just as damages might depend on the individual's income or wealth. In contrast, if we insist on having a different schedule for each attribute, then the tax on one attribute cannot turn on the level of any other. The marginal tax rate on income, for example, can depend only on the individual's level of income and not on her level of consumption or wealth. Similarly, the level of damages cannot be made a function of income or wealth.

The general question, then, is whether restricting taxes to be "separable," rather than allowing for the more general case of cross-dependence, sacrifices optimality. The particular question for us is whether the effect on one's total tax bill of an increase in harm caused should depend on other factors, such as one's income, wealth, or consumption.

The general cross-dependence question has received surprisingly little attention, even in the large body of formal literature on optimal taxation. Nevertheless, Mirrlees treats the issue briefly: He notes that in any realistic setting, social welfare can be improved by allowing some degree of cross-dependence in the tax system.⁵⁷ In other words, social welfare is sacrificed by insisting on separability. Thus, in reference to our particular question, the social-welfare-maximizing damages rule, will, in general, depend on the income of the parties, as well as on their other observable attributes.

Though the precise argument as to why cross-dependence is optimal is fairly technical, the general idea is quite intuitive. As noted above, the defining problem of optimal taxation is the inability of the government to tailor its taxation policies to the underlying immutable characteristics of each particular individual. Therefore, governments are forced to base taxes on the observable by-products of individual choice rather than on the hidden characteristics that inform those choices. An extension of this logic dictates that in so setting tax rates, the more we are able to tailor these rates to the particular underlying characteristics of the individual, the greater the social welfare that we can attain. Making tax rates cross-dependent is beneficial precisely

⁵⁷ See J.A. Mirrlees, *Optimal Tax Theory: A Synthesis*, 6 J. PUB. ECON. 327, 344 (1976) (noting in passing that when individuals differ along more than one dimension, "some cross-dependence is generally necessary for optimality").

because it allows us to further personalize the application of the tax system.

Consider two individuals with different characteristics, each deciding whether to earn the 30,001st dollar. Under a separable tax system, both individuals will face the same marginal tax rate on this next dollar regardless of the fact that they may have different labor supply elasticities and different levels of overall well-being. Under a cross-dependent tax system, however, the marginal tax rate for each of these individuals can be partly tailored to their particular characteristics. Suppose, for example, that relevant underlying differences among individuals influence consumption patterns and that we understand the operative statistical associations between observed consumption and these unobserved characteristics. Then we can partially tailor the individuals' marginal income-tax rates to their unique characteristics by making that marginal tax rate dependent on their consumption patterns.

Generally speaking, two individuals with the same income may exhibit differences that would lead society to want to tax their incomes differently if those differences were known. Observing other characteristics, such as consumption patterns, is a method by which society can learn more about these differences. Basing the marginal income tax on these observations is a way to use what we learn.

Why not try to separate these two individuals by adjusting a *separate* consumption tax rather than making the income tax depend on consumption?⁵⁸ The answer is that the cross-dependent solution is more precise. Adjustments to a separate consumption tax will affect *all* individuals with the same consumption pattern, including those whose incomes differ from that of our two individuals. On the other hand, consumption-delimited adjustments to the income-tax rate at the \$30,001 level will have an impact more narrowly focused on the task of separating the two individuals in our example. Adjusting this income tax rate only for those who consume at a \$20,000 level, for instance, affects the intersection of the set of individuals at this earnings margin and the set of individuals at this consumption level. A separate adjustment to each tax affects the larger union of those two sets.

Two potential caveats to the general optimality of cross-dependence should be mentioned. The first concerns the objection that cross-dependence is complex and difficult to implement in practice.

Before addressing this objection on its own terms, it is important to point out that the double-distortion argument against cross-dependence in damages rules makes no reference to complexity. The asser-

⁵⁸ I thank Benjamin Cohen for raising this question.

tion, rather, is that this particular form of cross-dependence is suboptimal by canonical optimal-tax logic, which does not incorporate considerations of complexity.

In any event, the complexity point seems inapplicable to the specific instance of conditioning damages on income or wealth. Income-tax records or bank statements could certainly be produced along with evidence of the accident. Indeed, in many states, punitive damages are already a function of the defendant's wealth.⁵⁹ To be sure, the object of this policy is usually to calibrate the severity of punishment rather than to redistribute.⁶⁰ And there are certainly those who oppose such conditioning on other grounds.⁶¹ But no opponent points to its complexity.

Indeed, the ubiquity of all types of cross-dependence calls into question the argument that cross-dependence is prohibitively complex. The "income tax," for instance, is a complicated function of many observable characteristics, not all of which can be rationalized as attempts to define "income." Through the effects of exemptions, deductions, and progressivity, one's marginal income-tax rate at various levels may depend on many things besides the accretion of wealth. A short list would include income source (capital gains versus wage and salary income), marital status, the size of an individual's family (the number of dependents), current liquidity needs (which may require the individual to realize gains), mode of housing (given the mortgage subsidy), and mode of employment (in terms of whether it involves tax-deductible expenses).⁶²

A second potential qualification to the optimality of cross-dependence is that optimal-tax analysis may call for adjustments to legal rules that are counterintuitive⁶³ (perhaps even as counterintuitive as some of the cross-dependencies we see in practice). For instance, one could construct models in which, at least over some ranges, optimal damages would decrease with added income. These would be models

⁵⁹ In thirty-seven states, the trier of fact may consider the defendant's wealth as a factor in assessing punitive damages, and in six states, the trier of fact *must* consider the defendant's wealth. Annotation, *Punitive Damages: Relationship to Defendant's Wealth as Factor in Determining Propriety of Award*, 87 A.L.R.4th 141, §§ 3, 4 (1991). For example, in California both the judiciary and the legislature have addressed this issue and concluded that taking defendants' wealth into account is appropriate. See, e.g., CAL. CIV. CODE §§ 3294-95 (West 1997); *Adams v. Murakami*, 813 P.2d 1348 (Cal. 1991). According to the *Restatement (Second) of Torts*, the trier of fact may consider a defendant's wealth when assessing punitive damages. RESTATEMENT (SECOND) OF TORTS § 908(2) (1965).

⁶⁰ See, e.g., RESTATEMENT (SECOND) OF TORTS § 908(2) cmt. e (1965).

⁶¹ See, e.g., Abraham & Jeffries, *supra* note 31 (arguing that conditioning punitive damages on a defendant's wealth encourages jury prejudice and is inconsistent with the purposes of tort law).

⁶² See, e.g., BORIS I. BITTKER & MARTIN J. MCMAHON, JR., *FEDERAL INCOME TAXATION OF INDIVIDUALS* ¶¶ 2.2, 2.3, 8.2, 10.1, 10.2, 22.2 (2d ed. 1995).

⁶³ See, e.g., Kaplow & Shavell, *supra* note 6, at 681.

in which the tort system was relatively effective at establishing work incentives while other sectors were relatively effective at redistributing economic well-being. In such models it would be optimal to intensify redistribution in other sectors of the economy while counteracting the deleterious effect on work incentives by rewarding those with higher income by lowering their damages. However improbable these types of models are, to advocate cross-dependence is not necessarily to advocate making those with higher income pay more in damages.

This second qualification is a warning against viewing redistributive efforts in the tort system myopically, instead of in the context of a broader redistributive policy; it is an argument against *unthinking* cross-dependence. But it is not an argument against cross-dependence per se. In this respect, this qualification does nothing to bolster the blanket assertion of double-distortion reasoning that conditioning damages on income is categorically suboptimal as a matter of economic logic.

Moreover, if we are to make the possibility of counterintuitive optima a criterion for avoiding use of certain policy instruments, the income tax is no less vulnerable than the tort system. As discussed in Part IV.A, the optimally redistributive income tax need not be progressive.⁶⁴

III

OBJECTIONS, POTENTIAL AND ACTUAL

This Part responds to a number of objections to the foregoing argument for equity-informed legal rules. Several of these objections appeared in published form as a response to an earlier version of the argument in Part II.⁶⁵

A. The Fuzzy Rhetoric of "Redistributing Income"

Scholars employ the phrase "redistributing income" in at least three different contexts. Confusion among these meanings often redounds to the rhetorical advantage of the new efficiency rationale. A critical appraisal of the new rationale thus requires some careful deconstruction.

The phrase "redistributing income" may express a policy goal, namely, to reduce inequality in the distribution of income, as opposed to wealth, well-being, or some other target. The new rationale may well benefit from the impression that a tax on income is the most natural way to reduce inequality in the distribution of dollar incomes. But whatever the validity of this impression, proponents of the new

⁶⁴ See *infra* note 117 and accompanying text.

⁶⁵ Kaplow & Shavell, *supra* note 8 (critiquing Sanchirico, *supra* note 8).

rationale do not propose targeting the distribution of income. Quite rightly, they advocate casting distributional goals in terms of broader concepts of well-being—concepts that, unlike income, account for consumption from savings and the disutility of work. Thus, the new rationale's double-distortion argument purports to show how the same distribution of *well-being* can be achieved at lower cost if redistribution is accomplished solely through the income tax.⁶⁶ Moreover, mathematical models of the new rationale posit the equalization of individual utility, not income, as the ultimate goal of redistributive policy.⁶⁷

The phrase "redistributing income" is also used in connection with assertions about the proper medium of transfer. Apart from the issue of whether and how much to transfer from person *A* to person *B* is the issue of what should physically pass between the two. Should *A* be compelled to buy chocolates for *B*? Should *A* allow *B* to live in her home? Should we tax *A*, purchase food and clothing, and then give these to *B*? More generally, should the transfer be in cash or in kind? In this context, the phrase "redistributing income" refers to the generally accepted principle that transfers should be made in the form of currency.⁶⁸ If we give *B* more cash, she can use the cash to purchase the goods and services that she values most highly. On the other hand, if we purchase for her a nontradable good that she would not herself have purchased with the same amount of cash, then we waste the difference in value between this good and her most highly valued use of the money.⁶⁹

The new rationale, with its emphasis on redistributing by income tax, probably benefits from homonymic association with this fairly uncontroversial principle. Yet the association is fallacious. The new rationale is a statement about how transfers should be determined, not how they should be physically effected. The new rationale tells us that we should set the amount of the transfer solely on the basis of the

⁶⁶ See Kaplow & Shavell, *supra* note 6, at 668 (concluding that if redistribution were confined to the income tax, "all individuals could be made better off"); see also *supra* Part 1 (discussing the double-distortion argument).

⁶⁷ See Kaplow & Shavell, *supra* note 6, at 677 (specifying in equation (A1) that individual utility is a function of leisure, consumption, and how well the individual fares in the tort system); *id.* at 679 (indicating that individuals' utility is the policy target).

⁶⁸ See, e.g., WILLIAM J. BAUMOL & ALAN S. BLINDER, *ECONOMICS: PRINCIPLES AND POLICY* 435 (8th ed. 2000). A more general statement of the principle is that the transfer should be made in a form that is easily tradable. Paternalistic caveats to the general principle arise in special circumstances. See *id.* at 396. For example, we may not wish to give cash to an addict.

⁶⁹ More generally, if we give the individual a good that can only be traded at a discount, we lose the lesser of the difference in value and the trading discount.

individual's income,⁷⁰ ignoring any other indications of the individual's position in the economy. That a transfer is made with cash says nothing about how the transfer was determined. We could transfer cash on the basis of eye color. Conversely, we could transfer chocolates on the basis of wage and interest earnings.

More plausibly, one could determine how much to transfer on an eclectic basis and then effect the transfer entirely through adjustments in the "income tax." Adjusting the income tax is one way to effectively transfer currency. There would then be a sense in which "only the income tax is being used to redistribute." But this is not what the new rationale has in mind. The new rationale advocates *determining* the transfer solely on the basis of the individual's income. Whether the transfer is actually effected solely through adjustments in the income tax is not the point in controversy.

For instance, an equity-motivated adjustment to the tort damages rule that forces injurers to pay harm caused plus \$1,000 could certainly be effected by adjusting the income tax. We would increase injurers' "tax liability" by \$1,000 and decrease victims' tax liability by the same (allowing a refundable credit). Effecting the transfer through the income tax is just a matter of relabeling, and perhaps rescheduling, a liability payment that is already being made in terms of currency. But, although this plan uses only the income tax in effecting the transfer, it does not use only income in determining how large that transfer should be. Hence, it violates the prescription of the new rationale.

Thus, when assessing new-rationale articles with titles like "Why the Legal System is Less Efficient than the Income Tax in *Redistributing Income*,"⁷¹ it is important to understand that the authors are not actually targeting income per se. Neither is their argument an assertion about the form in which transfers should be made. Rather, these

⁷⁰ It is unclear to what extent the new efficiency rationale applies to other conventionally taxable attributes besides income. For wealth taxes and taxes on annual consumption expenditure, see Kaplow & Shavell, *supra* note 6, at 679 n.22:

For convenience, we examine the distribution of income with an income tax as the redistributive tool. In a dynamic analysis, one might wish to distinguish the distribution of consumption or wealth from the distribution of income (and consider consumption or wealth taxes in addition to an income tax), which would raise the issue of distorting savings. One can think of the labor-leisure distortion as exemplifying any distortion that results from a general redistributive tax.

Id. For individual commodity taxes and estate and gift taxes, see *id.* at 679-80 and sources cited *infra* notes 147-49.

⁷¹ Kaplow & Shavell, *supra* note 6 (emphasis added). Consider, as well, the title "Should Legal Rules Favor the Poor? Clarifying the Role of Legal Rules and the Income Tax in *Redistributing Income*." Kaplow & Shavell, *supra* note 8 (emphasis added). Both of these articles contain numerous references to "redistributing income." *Cf. supra* notes 66-67.

authors are arguing that in attempting to reduce inequality in *overall well-being*, only certain conventionally taxable attributes should be considered in determining *how much* to transfer among individuals.

B. The Perverse-Outcomes Bugbear

Kaplow and Shavell put forward the following parable in response to an earlier version of the argument asserted in Part II.B.⁷² Imagine, they say, that the income-rich own yachts, while the income-poor own fishing boats, and that yachts and fishing boats sometimes collide.⁷³ Imagine further that yacht owners, because they are relatively “klutzy,” cause more accidents than fishing-boat owners.⁷⁴ Because rich yacht owners tend to pay damages more often than they receive them, they fare worse than poor fishing-boat owners within the confines of the tort system governing boating accidents.⁷⁵

Kaplow and Shavell assert that under the analysis laid out in Part II, the proper equity adjustment to the damages rule governing boating accidents would be to lower damages to help the klutzy, yet rich, yacht owners at the expense of the well-coordinated, but nonetheless poor, fishing-boat owners.⁷⁶ Arguing that this result is absurd, they suggest that the general analysis that produces it—that is, the analysis in Part II.B—must follow suit.

But Kaplow and Shavell are incorrect about how the analysis in Part II.B would apply to their boating example. According to that analysis legal rules should be adjusted away from efficient standards in a manner that helps those who are less well-off. It is crucial to note that, in determining who these less well-off are, the analysis directs us to consider *all* aspects of individuals' economic lives, not just the regulatory sphere of the legal rule. Less well-off means less well-off *overall*.⁷⁷ And overall well-being includes the utility or disutility derived not only from the portion of the legal system whose rules we are ad-

⁷² See Kaplow & Shavell, *supra* note 8, at 822; see also *id.* at 825-26 (making the same point again in more general terms).

⁷³ See *id.* at 822.

⁷⁴ See *id.* at 822, 828.

⁷⁵ See *id.* at 822.

⁷⁶ *Id.* at 829, 831 (arguing that “Sanchirico’s argument [is] that the legal rule should be adjusted to favor rich yacht owners and disfavor low-income fishermen” and that Sanchirico[’s] “‘equity’ adjustment favors the group in which klutziness is more prevalent”).

⁷⁷ This point is made in several places in Sanchirico, *supra* note 8, at 797, to which Kaplow and Shavell respond. See, e.g., *id.* at 807-08, 817-18 (in particular equation (4)), 819 (in particular equation (5)), 819-20 (in particular Part III.D), 820 (in particular Part IV, end of first paragraph).

justing, but also from labor markets, goods markets, and other segments of the private law.⁷⁸

Thus, in determining how to adjust a particular rule for an equity purpose, we look well beyond inequality arising within the particular rule's regulatory ambit. The optimal equity-motivated adjustment to each individual legal rule is intended to be part of a unified economy-wide movement of resources from those who are more well-off *overall* to those who are less well-off *overall*.⁷⁹

The fact that the proper equity adjustment to legal rules is determined on the basis of overall well-being, of which well-being within the legal system is but one part, implies that the proper adjustment to a given rule may actually move against those who are less well-off within the limited sphere in which that legal rule operates. Just as the student with the best overall exam might not have the best score on each question, the proper adjustment to tort rules may actually favor those who do relatively well within the narrow confines of the tort system. This will happen if individuals' "tort system well-being" is negatively correlated with their overall well-being. In this case, helping those who are less well-off overall happens to mean adopting a policy that tends to favor those who are *more* well-off within the tort system.⁸⁰

Another implication of keying equity adjustments to *overall* well-being is that if one segment of the economy dominates in the determination of overall well-being, then this segment will dictate the equity adjustment to all legal rules and taxes. Thus, if income were the dominant indicator of overall well-being, being income-poor would be closely identified with being less well-off overall, and, accordingly, the proper equity adjustment to all legal rules would tend to help the poor.

Kaplow and Shavell are apparently (and plausibly) assuming that the income-rich yacht owners are better-off overall, despite their klutziness at the helm.⁸¹ But if the rich yacht owners are better-off

⁷⁸ In general, it is not even entirely clear how to divide overall utility among the various spheres of economic and legal activity. This happens to be a simple task in Kaplow and Shavell's model because they separate utility additively across these different areas. See *infra* Part V.A.2(b). It is also, apparently, possible in Kaplow and Shavell's fishing parable. For the remainder of this discussion, this Article will assume *arguendo* that it is possible to identify inequality within the regulatory ambit of a given legal rule.

⁷⁹ More precisely, the proper adjustment is in a direction that helps the less well-off on average. Some of the less well-off overall will be helped, but some will not be; on average, however, the proper adjustment will improve their position. That adjustments to legal rules will not necessarily help *every* less well-off individual is an inevitable feature of any redistributive policy, including the redistributive income tax. Part IV.B discusses the significance of this inevitable "error" more fully.

⁸⁰ Section B.1 of the Technical Appendix formally establishes the arguments in the last two paragraphs.

⁸¹ To be sure, we cannot be certain from their text that Kaplow and Shavell intend to assume that income is dominant in well-being. They do not say as much. However, with-

overall, then Kaplow and Shavell have it backwards. Under the analysis in Part II.B, the equity adjustment to the tort system should favor the poor fishing-boat owners, and not the rich yacht owners.⁸²

Given the confusion over this issue, it may be worth reiterating the main point. The proper equity adjustment to a given legal rule will always favor those who are worse off overall. Will it specifically favor the income-poor? Yes, if helping the less well-off overall is more or less the same as helping the income-poor—which is to say, yes, if having little income is highly correlated with being less well-off overall. The answer would be no if those who are less well-off overall do *not* tend to be income-poor (perhaps the well-off consume mostly out of dissavings from principal that was originally received as inheritance).

Will the adjustment favor those who fare worse within the tort system? The same conditional answer applies: Yes, if helping the less well-off overall is the same as helping those who are less well-off in tort. No, if not. Importantly, we give no special consideration to how individuals happen to fare within the sphere regulated by a particular rule in determining the proper redistributive adjustment to that rule. In particular, how individuals fare within the system governing boating accidents receives no special treatment in determining the proper adjustment to boating damages.

C. The “Cross-Effects” Red Herring

An obvious and acceptable precondition for the optimality of equity-informed legal rules is that individuals are not all perfectly alike in their interaction with the legal system. If everyone were affected in precisely the same way by adjustments to a given rule, then changing the rule would change only the size of the pie and not the distribution of its proportions.

From a theoretical perspective, all observable differences between individuals ultimately derive from differences in their underlying immutable characteristics: their genetic ability, their inheritance (intangible and tangible), and their preferences. There are essen-

out this assumption, their example loses its rhetorical force. Helping the income-rich at the expense of the income-poor would be no indictment if the income-rich were somehow worse off than the income-poor.

⁸² Later in the fishing-boat example, Kaplow and Shavell declare that the best way to help the poor fishermen is to leave the tort rule efficient and make the income tax more redistributive. This plainly begs the question. See Kaplow & Shavell, *supra* note 8, at 823.

The article to which Kaplow and Shavell respond provides an example that is similar to the fishing-boat example, in which it is clearly noted that the proper equity adjustment to the tort system would favor the poor even though they happen to be better-off in tort. See Sanchirico, *supra* note 8, at 802, 804-05 (arguing that the proposed adjustment to damages hurts the less well-off in tort in order to help the income-poor, who are assumed to be less well-off overall); *id.* at 807, 819-20 (especially equation (5)).

tially two avenues by which such underlying differences manifest themselves in the legal system.⁸³ An individual's underlying characteristics may either directly or indirectly affect observable legal behavior and outcomes.

The direct impact is straightforward. The choice problems that individuals face within a given legal sphere may differ depending on a variety of underlying circumstances that determine how the legal system affects their particular lives. For example, the yacht owners are klutzier than the fishing-boat owners in Kaplow and Shavell's parable. More generally, one may posit that individuals differ in "genetic ability" and that these differences directly affect not just job productivity, but also the efficacy and efficiency of their precautionary behavior.

The indirect impact of underlying characteristics on legal-system behavior is somewhat more obscure. To some extent, differences in legal behavior derive solely from differences in behavior in *other* spheres, such as the labor market. Thus, even if two individuals face precisely the same underlying circumstances in their interaction with the tort system, their different choices in the labor market may exert cross-effects that cause different behaviors in the tort sphere. In particular, even in an artificial world in which individuals differ parametrically only in their labor productivity, we can generally expect to see resulting differences in labor-leisure choice reflected in the legal sphere. For example, the fact that yacht owners have more income than fishing-boat owners may affect the way that they operate their boats over and above their underlying differences in klutziness. Poor fishing-boat owners may be less careful because they use their boats out of necessity and not for leisure, and because their livelihoods depend on the quantity of fish they can catch per unit time.

Even though there are two sources of legal heterogeneity, some commentators implicitly encourage the reader to think that the latter avenue, indirect cross-effects with labor-leisure choice, is the only avenue by which individuals can differ in their interaction with the legal system. Consider, for example, the section on "qualifications" in the technical appendix to Kaplow and Shavell's original presentation of the new efficiency rationale.⁸⁴ This section constitutes Kaplow and Shavell's full qualification of their pure-efficiency result in that article.⁸⁵ Because there is some dispute about whether Kaplow and

⁸³ Importantly, precisely the same two avenues create the differences necessary to drive the redistributive impact of *any* policy instrument, including the income tax.

⁸⁴ See Kaplow & Shavell, *supra* note 6, at 680-81.

⁸⁵ In the main text of their article, Kaplow and Shavell also discuss accounting for the victim's wealth in order to determine the extent of the harm. See *id.* at 675-76. This, however, is an efficiency issue, not an equity issue, as Kaplow and Shavell acknowledge. See *id.*

Shavell's qualifications were adequate,⁸⁶ the section in question is reproduced here in its entirety (with the exception of one irrelevant footnote):

(c) Qualifications and the relationship between our result and those in the literature on optimal taxation. Our result is analogous to results on optimal taxation. In simple cases, specific commodity excises are inefficient in the presence of an optimal income tax. This conclusion does not hold generally, however, because *taxes or subsidies on particular commodities might have indirect effects that reduce the distortion of an income tax.* In particular, *by taxing complements of leisure and by subsidizing substitutes, one can reduce the labor-leisure distortion and thereby improve welfare by more than the inefficiency that results from distorted purchases of the taxed or subsidized commodities.* Analogously, *if there were legal disputes involving activities that were strong complements of or substitutes for leisure, one might select rules that provided additional penalties or subsidies relative to what an efficient rule would involve.* (As the excise tax discussion [in the prior section] suggests, however, this would be the most efficient choice only if taxes or subsidies on the activities themselves were infeasible.) Such penalties and subsidies, however, are not conventionally redistributive: *whether an activity should be penalized or subsidized depends on how the activity affects the labor-leisure choice, not on whether it is undertaken disproportionately by the rich.* Thus, although a complete and sophisticated analysis does not demonstrate that it could never be efficient to change legal rules from what narrowly seem to be the most efficient ones, there is no general argument for adjustments of a conventionally redistributive type. [Footnote 26 appears here. Its full text is: "For discussion of other qualifications, see Kaplow, *supra* note 3."⁸⁷⁸⁸

The argument is difficult to follow. But it is at least clear from the repeated mention of indirect effects, substitutes, and complements that the topic is cross-effects. It is also clear that the authors make no explicit mention of their additional assumption that legal heterogeneity does not arise directly, and that individuals' underlying differences have a direct effect only on how much they choose to work.

⁸⁶ See Kaplow & Shavell, *supra* note 8, at 825-27 (asserting that their original results were sufficiently qualified).

⁸⁷ This citation refers to Kaplow's discussion of direct heterogeneity in another paper. See LOUIS KAPLOW, SHOULD THE GOVERNMENT'S ALLOCATION BRANCH BE CONCERNED ABOUT THE DISTORTIONARY COST OF TAXATION AND DISTRIBUTIVE EFFECTS? (Harvard Law School John M. Olin Center for Law, Economics, and Business, Discussion Paper No. 137, 1993) [hereinafter KAPLOW, ALLOCATION BRANCH], revised version published as Louis Kaplow, *The Optimal Supply of Public Goods and the Distortionary Cost of Taxation*, 49 NAT'L TAX J. 513 (1996) [hereinafter Kaplow, *Optimal Supply*]. Part III.D explains why even this discussion is inadequate.

⁸⁸ Kaplow & Shavell, *supra* note 6, at 680-81 (emphasis added) (footnote 25 omitted).

The rhetorical effect of this selective qualification seems similarly apparent. The generalist reader, who may have only a vague understanding of how cross-effects function, is reassured that the optimality of tax-only redistribution is robust, except for second-order esoterica which appear to have something to do with “substitutability” and “complementarity.” Passing unnoticed is the important point that even if cross-effects were entirely absent, legal heterogeneity would still remain by virtue of the underlying individual differences that go directly to individuals’ interaction with the legal system. The argument for equity-informed legal rules holds even if cross-effects are assumed away.⁸⁹

D. Inside the Matryoshka Doll: The “Within-Income-Group Differences” Fallacy

As is evident from the excerpt quoted above, Kaplow and Shavell also “qualify” their original pure-efficiency result by citing to a section in a working paper by one of the authors. According to Kaplow and Shavell, we are to treat this citation as their bow to the direct creation of legal heterogeneity.⁹⁰

Given that this citation appears in a footnote to their technical appendix⁹¹ and refers to “other qualifications” discussed in this working paper without clarifying what these might be,⁹² one could certainly question whether such an oblique reference constitutes adequate “qualification” for the purpose of scholarly discourse. Yet, even if the relevant content of the cited working paper were included verbatim in the body of Kaplow and Shavell’s article, that article’s account of the assumptions necessary for pure efficiency would still be inadequate.

The working paper cited by Kaplow and Shavell portrays the assumption necessary for pure efficiency not as the complete absence of legal heterogeneity, but as the absence of legal heterogeneity “within income groups.”⁹³ The implication is that the pure-efficiency result is impervious to the introduction of legal heterogeneity so long as individuals with the same income are also homogeneous with respect to their interaction with the legal system.

⁸⁹ See section B.2 of the Technical Appendix for a formal proof of this assertion.

⁹⁰ Kaplow & Shavell, *supra* note 8, at 827.

⁹¹ See Kaplow & Shavell, *supra* note 6, at 681 n.26 (citing KAPLOW, ALLOCATION BRANCH, *supra* note 87).

⁹² *Id.*

⁹³ Indeed, the title of the only subsection in this working paper that handles ex-income heterogeneity is “Variation in Incidence *Within Income Classes*.” KAPLOW, ALLOCATION BRANCH, *supra* note 87, at 15 (emphasis added). The published version of this working paper displays the same emphasis. See Kaplow, *Optimal Supply*, *supra* note 87.

There are two problems with this attempt to limit the equity role of legal rules. First, the assertion is incorrect. Even if there were no "within-income-group differences," that is, even if everyone at a given income level were precisely the same in every other respect, legal rules would still have an equity role.⁹⁴

Individual differences in the legal sphere may be parallel to differences in income. Therefore, legal heterogeneity can exist even though all individuals within a given income group are also identical from the perspective of the legal system. Consider, for example, a revision of Kaplow and Shavell's fishing-boat parable, in which fishing-boat owners are income-poor and now also klutzy, while yacht owners are income-rich and well coordinated. Let us also assume that fishing-boat owners all have the same low level of income and the same degree of klutziness and that yacht owners all have the same high level of income and the same degree of coordination. This assumption eradicates within-income-group differences. Even so, there is still significant legal heterogeneity.

As long as legal heterogeneity of any kind exists, even if it is perfectly parallel to differences in income, the rationale for including tort rules in redistributive policy still applies. Were we redistributing solely by income tax, then on the margin, pulling back on the redistribution accomplished by tax would be efficiency-enhancing, while making up the lost redistribution by adjusting tort rules away from efficient standards would incur no efficiency loss. This argument does not rely on the character of the relationship between legal heterogeneity and income heterogeneity. In particular, this argument is not defeated if the two perfectly coincide.⁹⁵

The technical misconception that the existence of an equity role for legal rules hinges on the existence of within-income-group differences points to a broader error of perspective. Despite the implicit approach of the within-income-group differences qualification, there is no sense in which the legal system plays a secondary clean-up role for the income tax. It is wrong to view the legal system as the type of redistributive tool that one resorts to only after the income tax has done what it can, and only for purposes of reaching those differences which the income tax cannot.

The second problem with the attempt to downplay the redistributive role of legal rules by relegating them to within-income-group heterogeneity is that this is, in fact, no real relegation. The implicit statement that there are no significant within-income-group differences is logically equivalent to saying that income is a "sufficient statis-

⁹⁴ The Technical Appendix § B.2 proves this assertion formally.

⁹⁵ This proposition is proved formally in the Technical Appendix § B.2.

tic" for the differences between individuals. In other words, that other differences are essentially superfluous information.⁹⁶

Yet, in reality, income (or any other tax attribute) is but one part of the full economic identity of an individual. Two individuals with the same income may be quite different. One may derive the income from trust or dissavings and spend her day in leisure. The other may receive the same income from working frequent sixteen-hour shifts as a medical intern. There is no reason to suppose that the one imperfect statistic of labor income (or statutory income, or consumption, or wealth, for that matter) can adequately capture individual differences.⁹⁷

E. The Importance of Importance⁹⁸

Some might argue for tax-only redistribution on the basis of the impression that income is the major source of inequality and so, by virtue of its prominence, is rightly the sole instrument for redistributive effort. There are several problems with this assertion.

First, to the extent that this argument applies specifically to income, its premise is debatable. The data suggest that income per se is of ambiguous importance in inequality. Using historical data, Laurence Kotlikoff and Lawrence Summers found in 1975 that sixty to eighty percent of existing private wealth in the United States was inherited rather than earned by current holders.⁹⁹ To be sure, this result concerns the source of the *total* amount of *wealth*, and so is only indirectly related to the source of the *dispersion* in overall *well-being*. Nevertheless, to the extent that we believe that wealth is more indicative of well-being than income, this result suggests that income is not a reliable indication of total well-being. And since a variable is only an important factor in variance if it is also an important contributor to the total, this result further suggests that income is not in fact as cen-

⁹⁶ To see this equivalence, suppose that a group of individuals differ along the two dimensions of height and age. Assuming that there are no "within-height-group differences" means that everyone who is 5' 10" tall, for example, is the same age. Age would be a superfluous signal of individual identity in this strange population.

⁹⁷ The preceding three sections have addressed arguments made in Kaplow & Shavell, *supra* note 8. That article also contains a serious and fair assessment of the practical and empirical difficulties of informing legal rules with redistributive goals. Part IV takes up these issues in detail.

⁹⁸ See Sanchirico, *supra* note 8, at 807.

⁹⁹ See Laurence J. Kotlikoff & Lawrence H. Summers, *The Role of Intergenerational Transfers in Aggregate Capital Accumulation*, 89 J. POL. ECON. 706 (1981); see also Franco Modigliani, *The Role of Intergenerational Transfers and Life Cycle Saving in the Accumulation of Wealth*, J. ECON. PERSP., Spring 1988, at 15 (critiquing Kotlikoff and Summers); Laurence J. Kotlikoff, *Intergenerational Transfers and Savings*, J. ECON. PERSP., Spring 1988, at 41 (responding to Modigliani); cf. William G. Gale & John Karl Scholz, *Intergenerational Transfers and the Accumulation of Wealth*, J. ECON. PERSP., Fall 1994, at 145 (replicating Kotlikoff and Summers's original results).

tral a component of inequality as casual observation might suggest. An earlier paper by the author of this Article corroborates this interpretation.¹⁰⁰ Pointing out that wealth is much more unequally distributed than income, that paper seeks the source of this difference in the data on savings rates, concluding by process of elimination that the difference can be explained only by inheritance.¹⁰¹

These data cast doubt on the widely accepted view that income differences are the major source of economic inequality. But perhaps one could identify a particular attribute other than income, or a set of attributes which might include income, that could rightly be labeled as "the main source of inequality in well-being." And perhaps this list would exclude some or all aspects of the "private law," however defined. The question remains: does it follow that these aspects of the private law should also be excluded from redistributive policy?

The sort of marginal analysis conducted in Part II.B suggests not. As that analysis makes clear, the problem of choosing how to redistribute is not of the "desert island" variety. The problem is *not*: if we can only take two or three redistributive instruments with us, which should we take? Nothing insists that we so limit ourselves; in particular, there is no reason to believe that the tools we have are somehow indivisible and that we are externally constrained in the number we can employ.

The proper analysis is conducted unit by unit across all redistributive tools. Thus, imagine that we are redistributing solely by means of the instruments on our hypothetical list of major sources of inequality. The issue is not whether we should entirely replace one of these sources with some part of the private law not included on the list. The issue is whether, if we let up slightly on our redistributive use of one of these instruments and instead substitute use of an area of the private law, we would improve social welfare.

The logic of marginal analysis suggests that the answer will be "yes." Since we start with optimal use of the policy instruments on the hypothetical list of important sources of inequality, the redistributive benefit of each listed tool will be precisely balanced by its redistributive cost. This is what it means to redistribute optimally. In contrast, for the heretofore unused (and so perfectly efficient) legal rule, there will be only redistributive benefit and no efficiency cost at the margin. Thus, we will always gain by shaving off a little redistri-

¹⁰⁰ See Chris Sanchirico, *Why Is the Distribution of Wealth More Unequal than the Distribution of Income?* (Jan. 1991) (unpublished manuscript, on file with author).

¹⁰¹ See *id.*

bution via the "important" factor and replacing it with some amount of redistribution via the "unimportant" legal rule.¹⁰²

This is not to say that the important factors in inequality will not be important determinants of redistributive policy, just that their importance does not implicate their *exclusive use*. It will still be the case that the most important components of inequality will dictate the *direction* of positive redistributive change in other, less important policy tools. If, for instance, wealth stock is the major component of inequality of well-being, then helping those who are less well-off means helping those with less wealth. In this case, the proper adjustment to any given legal rule would, in large part, be determined by the correlation between wealth and the incidence of the rule change.

F. The Importance of Importance with "Fixed Costs"¹⁰³

The analysis in Part II.B becomes more complex if there are "fixed costs" that must be paid before a given legal rule may be employed for redistributive purpose. Perhaps, for example, using a given policy instrument to redistribute requires setting up an administrative apparatus, cultivating expertise, and forming a knowledge base of relevant statistical information. All of these activities use resources and their necessity raises the possibility that the benefit of using a given tool to redistribute may not justify incurring such start-up costs. From this premise, one might conclude that only policy tools that have a sufficiently large impact on inequality should be employed for redistributive purposes. Perhaps one could further conclude that the income tax is one of these policy tools, but that the private law is not.

Assuming that such fixed costs are significant,¹⁰⁴ their presence would indeed change the analysis. Without fixed costs, the argument made in Part II.B suggests allocating the task of redistribution broadly across all policy tools that have heterogeneous impact on the population. With fixed costs, however, the net positive impact on social welfare may not justify the initial payment.¹⁰⁵

¹⁰² The argument in this paragraph is made in Sanchirico, *supra* note 8. The Technical Appendix § B.2 makes this argument formally.

¹⁰³ I thank Paul Mahoney for suggesting that I explicitly address this issue.

¹⁰⁴ It is possible to overstate these costs as they apply to private-law redistribution if we take the court system as it currently exists. Many of the fixed costs of private-law redistribution have already been paid. There is already a system of laws, case reporting, courts, and lawyering in place. Insurance companies already possess much of the expertise needed to establish the relevant correlations. Indeed, in many states it is already common practice to gather information on defendants' wealth for purposes of calibrating punitive damages. See *supra* note 59; see also *infra* Part IV (discussing these issues).

¹⁰⁵ See, e.g., Shlomo Yitzhaki, *A Note on Optimal and Administrative Costs*, 69 AM. ECON. REV. 475 (1979) (positing a model in which, but for "administrative costs," it would be optimal to tax all commodities, and finding that this does not continue to hold where

It is quite another thing, however, to say that the presence of fixed costs would favor certain policy tools over others. In particular, there is no basis for the assertion that policy tools with relatively large impact on inequality should be employed redistributionally, while those with relatively small impact should not. There are, in fact, two reasons why this assertion falters.

In examining the first reason, let us imagine that all policy instruments are currently set at their perfectly efficient levels and that we are considering whether redistributional adjustments away from perfect efficiency are worthwhile. To test whether using a given policy tool for redistribution is worth incurring the fixed costs of doing so, we must compare the size of those fixed costs with the size of the greatest possible *net* benefit of redistributing via the rule, not the greatest possible *gross* benefit. In calculating the net benefit of redistributing by the rule, we subtract out the efficiency costs of effecting the redistribution. The distinction between net and gross benefits is an important one because policy tools that are important for equity are likely also important for efficiency. While altering such rules may have a large positive impact on equity, such alteration may also have a large negative impact on efficiency. In addition, the fixed costs themselves are likely to be larger for tools with broader impact. Together, larger fixed costs and larger efficiency losses defeat the intuition that only those instruments with a large redistributional impact will be optimally employed for redistributional purpose.

Suppose, for example, that the best use of income taxes for redistributional purpose incurs a positive redistributional impact of 100 "social welfare units," but a detrimental efficiency impact of -90. Imagine that tort rules are much less important overall, offering at most 30 units of positive redistributional impact in return for 10 units of efficiency loss. If redistribution by income tax and tort rule both have the same fixed costs of 15, then only tort rules will be used to redistribute. Likewise, if the numbers for tort were 30 and -20, respectively, but the fixed costs of redistributing via tort law were only 9 for tort rules (and still 15 for taxes), then again only tort rules would be used for redistributive purpose.

The second reason why the presence of fixed costs does not point toward limiting redistribution to important policy tools rests on the following facts: (1) there may well be similar fixed costs to adjusting

administrative costs increase at an increasing rate in the number of commodities taxed); Joel Slemrod, *Optimal Taxation and Optimal Tax Systems*, J. ECON. PERSP., Winter 1990, at 157, 169-71 (discussing Yitzhaki's model and suggesting that administrative costs may depend on the number of different tax rates rather than on the number of commodities taxed).

policy instruments for *efficiency*, and (2) policy instruments may differ as to the optimality of their status quo position.

Suppose that our economy comes to us in a particular status quo position that may not correspond to perfect efficiency (in contrast to what was assumed above) and that any adjustment away from the status quo (not just those for redistributive purpose) will incur fixed costs. The proper way to analyze such a problem is to calculate the socially optimal point irrespective of fixed costs and then compare social welfare at the status quo to social welfare at this "ex-fixed-costs optimum." If the welfare difference between these two points exceeds the fixed costs, then the social optimum is the ex-fixed-costs optimum. Otherwise the social optimum is the status quo.¹⁰⁶

For our purposes, the important implication is this: whether a policy tool is adjusted at all depends not only on its contribution to social welfare at its ex-fixed-costs optimal placement, but also on its contribution to social welfare at the status quo. This makes it very difficult to make general predictions about which policy instruments to adjust and which to leave at status quo levels. Certainly, it defeats any statement linking redistributive use and redistributive importance.

For example, the status quo income tax might be no tax whatsoever, or a head tax just sufficient to raise revenue for the minimal state. Similarly, the status quo tort system might be a "no liability" rule under which victims always bear all the costs of accidents. From an efficiency standpoint, the status quo tax is as good as it gets: there is no distortion to labor-leisure choice because such choice does not affect an individual's tax liability. Perhaps this means that, even though the tax is not helping out on the equity front, its status quo level is not so detrimental that it would be worth incurring the fixed costs to change it. The status quo tort system, on the other hand, is likely a disaster on all fronts: it is probably grossly inefficient and it may well make no contribution toward equity goals. Even if the tort system is a less important component of inequality, and even if its fixed costs are the same as for tax, its status quo state may be so unacceptable as to make the fixed costs of changing it worthwhile. Of course, once the fixed costs for tort are paid, the best choice is the ex-fixed costs optimum for the system. As in Part II.B, this choice will be informed by both equity and efficiency goals. The result: because of differences in the acceptability of their respective status quo states, the relatively important tax system is optimally purely efficient, while the relatively un-

¹⁰⁶ The analysis is actually more complicated than this because the several policy instruments considered here interact with one another. The correct algorithm is to compare social-welfare differences to fixed costs across all possible combinations of policy tool employments.

important tort system is optimally adjusted to account for equity concerns.¹⁰⁷

G. Bargaining Around Redistributive Rule Changes

Another objection to redistributing by legal rule is the fear that whatever we try to accomplish by adjusting a rule will be undone by the parties themselves in a private bargain. Thus, if we adjust landlord-tenant law to give the tenants additional rights, the parties may write these entitlements out of the lease, or adjust the rent accordingly.¹⁰⁸

It is best to understand these problems as another form of the behavioral response limiting all redistributive policy. When we tax income, individuals may choose to earn less. When we raise damages, individuals take more care. Similarly, when we set rules of contract, parties may bargain around them. The behavioral response to contract rules is somewhat different in one sense: it concerns the behavioral response of a group of agents rather than of a single agent. The literature on optimal taxes and rules has not adequately addressed "coalition" incentives. Yet, in principle, scholars could and should account for the rule-mitigating responses of coalitions of individuals just as much as for individuals acting alone.

¹⁰⁷ The reader will notice that the various status quo states posited in the foregoing discussion were fictitious. I have consciously not considered the following argument for tax-only redistribution: (1) the actual status quo is such that we only redistribute by tax, and (2) changing that fact would require significant adjustment costs (fixed costs, in a sense). Such an argument can of course be leveled against any policy change, including efficiency-enhancing changes.

¹⁰⁸ This point is made clearly in POLINSKY, *supra* note 2, at 122-23 (citing Harold Demsetz, *Wealth Distribution and the Ownership of Rights*, 1 J. LEGAL STUD. 223 (1972), and Koichi Hamada, *Liability Rules and Income Distribution in Product Liability*, 66 AM. ECON. REV. 228 (1976)).

Other scholars have cast doubt on similar arguments in the context of competitive markets (as opposed to duopolistic bargaining). Arguing that the distributional efficacy of housing-code enforcement depends in part on whether its costs are passed on to tenants, Bruce Ackerman demonstrates that this cost will not in fact be passed on when the supply of housing is fixed (as it will tend to be when enforcement is citywide) and marginal tenants are indifferent to housing improvements. See Ackerman, *supra* note 1. Richard Craswell refocuses the issue, arguing generally against the intuition that consumers or tenants will be better-off in situations where sellers or landlords cannot pass on their costs (such as those imposed by warranty, product liability, or housing-code enforcement). See Richard Craswell, *Passing On the Costs of Legal Rules: Efficiency and Distribution in Buyer-Seller Relationships*, 43 STAN. L. REV. 361, 381-83 (1991). He notes that the crucial demand-side condition for consumer benefit is, quite apart from the degree to which costs are passed on, that "consumers who are willing to pay the least for the product itself are also willing to pay the least for the warranty [or housing improvement]." *Id.* at 383. Craswell points out that the tenants in the Ackerman model would benefit from housing-code enforcement as long as the marginal tenant cares relatively less about the housing improvement, even though a significant portion of the cost might be passed on to tenants. See *id.*

That said, one should not overstate the impact of coalitional incentives on the taxes-versus-legal-rules question. In the first place, the scope of the objection is limited. It does not apply to situations in which bargaining is impractical, such as that between potential injurers and potential victims in accident law, or polluters and local residents in nuisance law.¹⁰⁹ It also does not apply to bilateral contracting of any complexity in which default rules have real effects. In these situations the scope of explicit agreement is not, and perhaps could not be, complete with respect to all relevant contingencies.¹¹⁰

Secondly, and most importantly, the objection applies only to changes in the law that attempt to directly address the outcome of the bargain. The objection does not apply to changes that adjust either the bargaining positions or the bargaining capabilities of the parties. In general, rules that affect either how well a party might fare if it left the table, or how effectively it could bargain if it remained, will have a real effect on how the surplus of the bargain is distributed. Thus, various provisions of the National Labor Relations Act (NLRA), including the right of a majority-approved union to bargain as a monopsony on behalf of the entire work force, and management's duty to bargain with this union in good faith, adjust the determinants of bargaining outcomes.¹¹¹ Accordingly, the National Labor Relations Board (NLRB) has a real effect on the distribution of surplus between the firm and its employees.¹¹²

Lastly, it must be remembered that coalitional incentives are also a limiting factor in *tax* policy. When an income tax is progressive, for example, high-bracket individuals will try to attribute their income to their lower-bracket family members and associates. Such issues have been enormously important in the development of the tax law.¹¹³

¹⁰⁹ See POLINSKY, *supra* note 2, at 122-24.

¹¹⁰ For a review of the literature on incomplete contracting, see KREPS, *supra* note 4, at 743-70.

¹¹¹ See 29 U.S.C. § 159(a) (1994) (dictating unions' exclusivity of representation); *id.* §§ 157, 158(a) (regarding the duty to bargain in good faith). Once a union forms and is recognized, the NLRA allows it to act on behalf of employees—even those employees that did not vote for the union or participate in the petition process. See *id.* § 159.

¹¹² Of course, the NLRB may also affect the size of this surplus.

¹¹³ See, e.g., BITTKER & McMAHON, *supra* note 62, ¶ 34.1 (1988). According to the authors:

Assignments of income and similar transactions shifting . . . deductions or other tax allowances from one person to another within a family or economic unit usually exude an aura of tax avoidance. . . . The resulting legislative and judicial countermeasures, though responding to taxpayer-initiated plans to reduce the aggregate tax liability of a closely knit family or other economic collectivity, have come to permeate the tax law so completely that they sometimes determine which of several parties to an ordinary business transaction must report a particular receipt or can deduct an expense.

IV
DATA, ERROR, AND APPROXIMATION

The new efficiency rationale purports to ground itself in the bare logic of individual choice and social welfare. This Article argues that this logic, as far as it goes, actually points in a very different direction.

Nonetheless, the analysis thus far does not rule out the possibility that there may be other reasons, external to the logic of choice and welfare, for favoring taxes over legal rules in any redistributive program. It is therefore worth considering a series of alternative arguments for eschewing private-law redistribution.

A. Determining the Proper Redistributive Adjustment¹¹⁴

One might argue that the task of redistribution should be assigned to policy instruments on the basis of how difficult it would be to determine the proper redistributive adjustment in each case. In the taxes-versus-legal-rules debate, one might be tempted to argue against using the legal system because the proper adjustment is not clear from the theory, and obtaining the data necessary to determine the proper adjustment would be relatively difficult. While the analysis provided in Part II.B points out the optimality of some adjustment to legal rules, it does not say precisely what that adjustment should look like—for example, it does not indicate whether damages should be raised or lowered. And obtaining the data necessary to determine the direction of the adjustment may seem like a daunting task.¹¹⁵

While the informational issue is an important one, it is easy to overestimate its impact on the taxes-versus-legal-rules debate. The same information problems plague the income tax. Progressive in-

¹¹⁴ I thank Alan Schwartz for suggesting that I address this issue. Some of the points in this subpart are made in Sanchirico, *supra* note 8.

¹¹⁵ It is useful to distinguish the state's statistical knowledge from its particular knowledge. One can know the statistical distribution of height for a population, but not know the height of any particular individual. The optimal tax program assumes that the government does not know each particular individual's underlying situation. However, it grants to the state the statistical knowledge necessary for proper allocation of various redistributive tools. This is partly justified by the fact that gathering and using statistical knowledge is not subject to the same incentive problems as gathering and using particular knowledge. An individual may be more likely to reveal her relevant characteristics when they will simply be tallied up with similar measurements for a large group of individuals. This is because her report, as only one of many that ultimately shapes policy, will have a negligible effect on her personal well-being. But once we treat this particular individual according to what she tells us about herself, we invite her to color her report in a way that makes our treatment more favorable.

Nevertheless, even statistical knowledge is costly to obtain. Accordingly, this subpart considers the problems that stem from the need for and lack of statistical knowledge, while continuing to assume that particular knowledge is never available.

come taxes may be the redistributive hero of income-tax folklore. But careful thinking about the income tax is far less sanguine.¹¹⁶

The formal theory of the redistributive income tax does not provide definitive answers any more than the theory of redistributive legal rules. Indeed, some would argue that the absence of concrete theoretical results, such as the absence of a theoretical justification for redistribution via progressive rate structures, is itself one of the most interesting lessons of the optimal-tax literature. No matter how much weight we place on equity in our social objective, the equations we obtain as "solutions" tell us only that tax rates should lie between 0% and 100% and that the top and bottom marginal rates should be zero.¹¹⁷ The theory of the redistributive income tax, like the theory of redistributive legal rules, is just a processor for data that must be separately supplied.

Moreover, the type of data required for determining the right way to redistribute via the income tax—indeed, via any policy instrument—is the same as for the legal system. The proper redistributive adjustment to any policy instrument depends generally on the trade-off between (1) the extent to which the adjustment distorts behavior and (2) the extent to which the adjustment favorably redistributes. The first factor depends on the intensity of agents' behavior in response to the rule change, that is, the "elasticity" of their decisions with respect to the rule. The more elastic, the greater the distortion. The second factor depends on the correlation between well-being and the impact of the adjustment. The tighter the statistical association between those who most benefit from the change and those who are least well-off, the more positive the distributional impact of the rule change.¹¹⁸ How these two variables balance depends on the relative weights we accord to distribution and efficiency.

The argument in Part II.B for always adjusting damages away from their efficient level conducts this same kind of balancing.¹¹⁹ In that analysis, the distortion was to care-taking behavior (and was zero

¹¹⁶ See, e.g., Graetz, *supra* note 20, at 18-19 ("The current practice of fashioning tax legislation to achieve a particular result in a distribution table creates the illusion of precision when such precision is impossible.").

¹¹⁷ These formal results derive in large part from J.A. Mirrlees, *An Exploration in the Theory of Optimum Income Taxation*, 38 *REV. ECON. STUD.* 175 (1971). Nicholas Stern provides a lucid discussion of these results and others. See Stern, *supra* note 15, at 38. For a less technical account, see Joel Slemrod, *Do We Know How Progressive the Income Tax System Should Be?*, 36 *NAT'L TAX J.* 361 (1983). Uncertainty about whether rates should be progressive also appears earlier in the legal literature. See, e.g., WALTER J. BLUM & HARRY KALVEN, JR., *THE UNEASY CASE FOR PROGRESSIVE TAXATION* (1953). Despite its title, Blum and Kalven's text raises arguments both for and against progressivity and concludes that "[t]he case for progression [is] stubborn but uneasy." *Id.* at 103 (emphasis added).

¹¹⁸ This point is made precise by Peter Diamond's well-known "covariance formula." See P.A. Diamond, *A Many-Person Ramsey Tax Rule*, 4 *J. PUB. ECON.* 335, 338 (1975).

¹¹⁹ There, however, the analysis was explicitly marginal and concerned the question of

on the margin whether the adjustment was to increase or decrease damages). The redistribution depended on the correlation between well-being and the impact of increasing damages. Roughly, if the less well-off tended to pay damages more often than they received them, then decreasing damages was equity enhancing, the extent of the positive effect depending on the tightness of the association.

The same trade-off informs the analysis of how optimally to set tax rates. If we raise or lower the tax rate at a particular level of income, this will distort the choice of work effort. The redistributive impact will depend on whether the set of individuals whose tax bill increases as a result of the rate change tend to be more or less well-off in the economy, taking account of not only income, but also leisure and inherited wealth and advantage. The optimal degree of progressivity or regressivity is difficult to determine in this framework. It turns on how this trade-off varies across different levels of income. In particular, progressivity is not obviously optimal, because there is no reason to think that higher levels of income are necessarily associated with a trade-off more favorable toward redistribution. While the positive redistributive impact of increasing the tax on the very highest incomes may be greater than that of increasing the tax on the lowest income levels, the distortion of the behavioral response may also be larger if the elasticity of labor supply increases with income.

One might respond that while income taxes and the private law may be equal in terms of the types of data that would theoretically be necessary, practical policy choices must be made on the basis of the data that is actually available. Because we have more information pertinent to the income tax, the argument would continue, the income tax should be the focus of our redistributive efforts.

But, arguments based on the current availability of information, as opposed to the potential availability of information, inject a status quo bias into policy analysis that is unwarranted, especially at the level of academic discourse. If we know more about the income tax, it is primarily because it plays such a prominent role in current policy. A similar sort of bootstrapping would justify any policy currently in place. Indeed, such a bootstrapping argument could have been used against the income tax itself: when the income tax was adopted, we knew quite a bit more about the consequences of tariffs than income taxes.¹²⁰

whether to make any adjustment at all, rather than how to properly determine the adjustment.

¹²⁰ See, e.g., ROY G. BLAKEY & GLADYS C. BLAKEY, *THE FEDERAL INCOME TAX* 75 n.11 (1940) (stating that, at the time, a "federal revenue bill practically always meant a tariff bill" and that "the federal government depended almost entirely on revenues from customs duties"); SIDNEY RATNER, *AMERICAN TAXATION: ITS HISTORY AS A SOCIAL FORCE IN DEMOCRACY* 308 (1942) ("In 1913 . . . taxes on commodities in the country or at its ports

In any event, the belief that we have more information about the income tax than about the private law is open to question. Insurance companies stake their existence on understanding, in a dollars-and-cents way, how different cohort groups interact differently with the tort system, and how individuals in general respond to changes in legal rules. These are precisely the two types of information necessary for employing tort rules as redistributive tools.

Nonetheless, the fact that the informational problems of redistributing via legal rules is no greater than via taxes does not change the fact that these problems are large in an absolute sense. The question is: then what? A familiar and puzzling response is to conclude that it is best to refrain from even attempting redistribution via the private law. But this response fails to recognize that to do nothing is to make a choice. If our best guess involves doing something, then there seems no reason to favor a worse choice over a better one simply because the worse choice happens to correspond to the status quo.¹²¹

Moreover, such debilitating caution with respect to equity-enhancing adjustments seems inconsistent. When it comes to efficiency-enhancing reforms, law and economics has always been willing to advocate taking positive policy steps with only a vague perception of the empirical landscape. Determining the efficient rule is prone to informational problems of the same magnitude as is determining the redistributionally optimal rule. It is clear that neither "due care" nor even "harm caused" could ever be precisely defined.¹²² Yet no one seriously suggests that this uncertainty warrants the elimination of the tort system. Instead, the tort system rests on the tacit agreement that it is better to attempt to do something based on what we know, than to do nothing because we can never be sure.

B. The Two "Haphazardness" Objections

1. *Random Redistribution and Horizontal Equity*

Another potential objection to redistribution by private-law rules begins with the assertion that the redistributive event in the private law is random rather than periodic, and narrowly focused rather than broad-based.¹²³ Redistributing via the tort system means redistrib-

yielded 94.6 per cent of all federal tax revenues. In 1930, taxes on personal and corporation incomes yielded 66.5 per cent of all federal revenues. Taxes on commodities provided only 29.5 per cent." (quoting M. SLADE KENDRICK, *TAXATION ISSUES* 25 (1933)).

¹²¹ See *supra* Part III.F for an analysis of adjustment costs.

¹²² Shapiro and McClennen make a similar point. See Shapiro & McClennen, *supra* note 7, at 463 (citing J.D. Hanson & M.R. Hart, *Law and Economics, in A COMPANION TO THE PHILOSOPHY OF LAW AND LEGAL THEORY* (D. Patterson ed., 1996)).

¹²³ See, e.g., POLINSKY, *supra* note 2, at 126 ("[R]edistribution through the legal system only may occur when a dispute arises, and not all members of a given income class will be involved in [the] dispute.").

uting only when accidents happen to occur, and only among those who happen to be involved.¹²⁴ Tax-based redistribution, on the other hand, inherits the supposed regularity and comprehensiveness of the underlying tax system. Two separate conclusions might be drawn based on this potential distinction: (1) that tax-based redistribution is more effective and/or (2) that it is more fair.

Let us begin by noting that this first "haphazardness" objection is not an argument against redistributing via the private law *per se*, but is rather an argument against redistributing via the rules governing those components of the private law in which the redistribution would be keyed to haphazard events. Of course, the private law goes well beyond unintentional torts. Private law also governs property relations and contracts. It would be difficult to argue that these areas of private law are any less comprehensive than taxation. After all, property, in one form or another, forms the tax base, and income often flows from contractual arrangement. Thus there is the risk, in interpreting the haphazardness argument, that we will confuse the literature's proxy for the private law with the private law itself.

Yet even with respect to the system governing unintentional torts, the haphazardness argument neglects the existence of accident insurance. Insurance transmutes the haphazard into the definite. The prospective, probabilistic cost becomes the current, definitive premium.

Consider, for example, the sort of income-independent changes in the level of tort damages studied in Part II.B. Suppose that the well-off tend to be injurers more often than victims, so that the proper redistributive adjustment would be to increase the level of damages. But then imagine that individuals are fully insured against both the harm that they experience as victims and the liability they face as injurers. Thus, when an accident occurs, the injurer herself pays nothing, the injurer's insurance company pays (legal) damages to the victim's insurance company, and the victim's insurance company pays actual harm to the victim. Each individual will pay a premium that reflects the following: (1) the chance that she is an injurer; (2) the level of damages that the insurance would have to pay; (3) the chance that she is a victim; and (4) the difference between the damages that the insurance company receives from the injurer's insurer and the actual harm that the victim experiences.

In this setting, an increase in legal damages above actual harm is, in the first instance, paid by the injurer's insurance company and pocketed by the victim's. This will tend to reduce an individual's pre-

¹²⁴ The next section considers the separate objection that not all those who benefit are less well-off and not all those who lose are more well-off.

miums to the extent that she is likely to be a victim, and increase her premiums to the extent that she is likely to be an injurer. On average, those more likely to be victims than injurers will see their premiums fall, while premiums will increase for those more likely to be injurers. In our example, then, the less well-off will tend to benefit from lower premiums, while the more well-off will tend to face higher premiums. This differential impact will not depend on the random occurrence of accidents, but will apply to all individuals.

This is, to be sure, a highly stylized description of how insurance brings the expected application of tort rules into the definitive present. In reality, no given individual is ever fully insured. And premiums only imperfectly reflect the true relevant probabilities and outcomes. Consequently, there will always be residual uncertainty in the effect of any rule for unintentional torts.

Yet to focus on this residual uncertainty as a reason to favor tax-based redistribution over redistribution by private law is once again to implicitly ascribe to the tax system powers and properties that it simply does not possess. The same problem plagues all potential tax attributes.

Income, for instance, can be as random as tort damages. Some individuals, such as unhedged investors, entrepreneurs, commissioned salespeople, those with performance-based salaries, and temporary workers, face income risk directly. Almost all individuals face uncertainties related to promotion or layoff. Indeed, to the extent that one's income is not uncertain, this is probably due to partial insurance, just as in tort. With income, however, the insurance is implicit, and we tend mistakenly to believe that the resulting certainty is structural. Holmström and Shavell suggest that not all employment contracts are fully contingent on employee performance (as incentive-setting might seem to dictate) because the relatively risk-neutral firm is well suited to implicitly insure its worker against the vagaries of the economy and/or the random component in productive output.¹²⁵ Engineers and academics, for example, sign away their patent rights in return for a fixed salary, thus insuring themselves against the risk of not inventing or discovering. More generally, wages and salaries are fixed on an annual basis, not because there is certainty about the employee's future productivity, but because the worker is implicitly insured. The difference between the worker's salary and the expected value of her product reflects the implicit premium charged by the firm for providing the insurance.

¹²⁵ See Bengt Holmström, *Moral Hazard and Observability*, 10 BELL J. ECON. 74 (1979); Steven Shavell, *Risk Sharing and Incentives in the Principal and Agent Relationship*, 10 BELL J. ECON. 55 (1979).

Thus, it appears as though taxes and legal rules are equally haphazard in this sense. But even if this were not so, this first form of the haphazardness objection is conceptually problematic on its own terms.

Suppose that the world consists of equal numbers of two types of individuals, those who are well-off and those who are not. Imagine that the state has the opportunity to redistribute resources between a randomly chosen pair of individuals, one from each group.¹²⁶ Suppose, further, that the state can do nothing more. Assuming the state values equity, should it effect the redistribution between the two individuals even though it cannot do the same for all pairs?

The redistribution would reduce almost every measure of inequality even if only slightly. Arguably, if the state cares about reducing inequality and this single transfer is the best that it can do in that regard, then it ought to make the transfer. To refuse to institute a beneficial policy in a specific instance because that policy would not have the same effect in all similar instances, with "similar" suitably defined, would be to eliminate almost all state action, including the prosecution of criminals and the compensation of victims.

One might nonetheless argue against the isolated transfer on the basis of some notion of "horizontal equity": that is, that "like" ought to be treated "alike." Why should this one well-off individual be punished while all other well-off individuals remain immune? Similarly, why should this one less well-off individual receive a benefit while all others who are less well-off receive nothing?¹²⁷

This notion of "horizontal equity" is plagued by two debilitating ambiguities. First, the operational effect of the concept depends on an arbitrary determination of who is considered on the same "horizontal" level with whom. This problem is particularly acute in the argument against haphazard redistribution. Consider again our hypothetical. If there is a horizontal-equity argument against making the random transfer between the pair, it must somehow be that all those who are less well-off should be treated as one similarly situated group and all those who are more well-off should be treated as another, such that the random transfer increases "vertical equity" between the two groups at the expense of horizontal equity within each cohort.

But what justifies drawing a horizontal line between the two groups? All that separates the more well-off from the less well-off is

¹²⁶ I assume throughout my analysis that the amount redistributed is not so great that it simply reverses the ordering of the two individuals and results in the same or greater distance between them.

¹²⁷ I thank Eugene Vokoh for bringing this very valid issue to my attention at a workshop at the UCLA School of Law.

their relative well-being. Arguably, all members of this hypothetical population should be placed on the same horizontal plane. But then redistribution within the single pair would have very different consequences for horizontal equity. The transfer would actually increase horizontal equity as redefined, since it works *toward* treating like alike.

The other debilitating ambiguity in the concept of horizontal equity concerns the issue of when to measure well-being. Even if one draws the line between the two cohorts in the example, there is the issue of whether we should measure well-being before or after the random choice of the transfer pair. A horizontal-equity problem crops up only if we measure after the pair is selected. If we instead measure *ex ante*, all individuals within each group will be on the same footing because all face the same likelihood of being chosen for the transfer.

2. *Error in the Perfect Policy*

One may also object to redistributing via private law because it is haphazard in another sense. Given that redistributive adjustments to the private law will be based on population-wide correlations and not individual-by-individual calculations, there will be cases when our adjustment inadvertently redistributes in favor of the more well-off, and thus exacerbates inequality.¹²⁸ The across-the-board adjustment to the damages rule discussed in Part II.B, for example, was to be chosen based on whether it affected the desired redistribution on average. It would not do so in every case unless correlations were perfect. In the aggregate, raising the level of damages (if this were the proper adjustment) might tend to help the less well-off at the expense of the more well-off, but some of the more well-off would gain and some of the less well-off would lose.

In terms of our thought experiment from Part IV.B.1, it would be as though the state were faced with a decision as to whether to redistribute between these two individuals knowing only that it was likely that the first was more well-off than the second. It would then face the possibility that any attempt at redistribution would actually act against its equity objective.

The response to this objection echoes responses made throughout the Article. In the first place, every redistributive policy, particularly the income tax, shares this attribute. When we impose higher taxes on those with higher incomes, there is no guarantee that we are,

¹²⁸ See, e.g., POLINSKY, *supra* note 2, at 126 (stating that “[i]t may be that higher income persons are more likely to be drivers than pedestrians, but certainly there are many low-income drivers and high-income pedestrians” and that “[t]hus, liability rules regarding driver-pedestrian accidents are not very precise instruments for accomplishing income redistribution,” but that “in some kinds of disputes [with sharper correlations], the choice of legal rule might contribute towards the implementation of distributional goals”).

in every case, creating the desired redistribution. One individual with higher income may actually be worse off than another with lower income; perhaps the lower-income individual has more wealth, or has worked much less for only somewhat less income.

In general, all feasible redistributive policies will involve error. The inevitability of the error is a direct result of the fact that the variables upon which we can practically base redistribution are imperfect signals of individuals' true underlying identity and well-being.

In any event, the possibility of error should not necessarily dictate inaction. This Article drew a similar conclusion in Part IV.A with regard to errors in determining the optimal redistributive adjustment. The errors at issue here are somewhat different because they concern the fact that even the optimal redistributive adjustment, calculated with perfect knowledge of all relevant correlations, can only be right on average. But the argument for action is essentially the same. We should resist ascribing special standing to the status quo, and understand that making no redistributive adjustment is just as much of a policy choice as making an adjustment.

Thus, in the revised hypothetical considered above, we should view a failure to effect the proposed redistribution between the two individuals as involving the same degree of choice as redistributing. As the hypothetical was originally cast in Part IV.B.1, the state could determine with certainty which choice was equity-enhancing. In the revised hypothetical in this Part, the state is forced to play the probabilities: it knows only that the transfer is *likely* to be redistributive. But uncertainty does not imply that inaction is the best choice—no matter how averse one is to risk.¹²⁹ In this case, it may well be best to effect the proposed redistribution between these two individuals, because doing so will decrease the expected value¹³⁰ of any viable measure of inequality.¹³¹

V

DECONSTRUCTING THE FORMAL "PROOFS" OF PURE EFFICIENCY

Louis Kaplow and Steven Shavell provide what is perhaps the most complete statement of the new efficiency rationale in their influential paper, *Why the Legal System Is Less Efficient than the Income Tax in*

¹²⁹ Consider, for example, the choice of whether to purchase insurance.

¹³⁰ One would calculate the expected value of this equality measure by first multiplying the possible levels of the measure by their probabilities and then summing the results.

¹³¹ In particular, the state should choose the policy that maximizes the expected value of social welfare (or some other statistic of the distribution of social welfare that expresses social preference over uncertain social states).

Redistributing Income.¹³² While Kaplow and Shavell reference the informal double-distortion argument as laid out in Part I, they also go beyond this by providing a formal model in which they prove that “only the income tax system should be employed to achieve distributional goals,”¹³³ and that “it is appropriate for economic analysis of legal rules to focus on efficiency.”¹³⁴ The purpose of Part V.A is to show that although these proofs are logically correct they rely on the assumption that all agents are identical with respect to the legal system. The Technical Appendix expands upon some of the more technical aspects of this discussion and contains formal proofs of the main assertions.¹³⁵

A portion of the optimal-tax literature which predates Kaplow and Shavell’s 1994 article considers conditions on individuals’ preferences and endowments under which it would be optimal to tax only income. Although these arguments were eventually discounted within the optimal-tax literature, they have resurfaced in law and economics in several areas, including the debate over whether legal rules should take account of equity concerns. Part V.B offers a critical analysis of this subliterate and connects it to Kaplow and Shavell’s 1994 article.

A. The Absence of Legal Heterogeneity in the Kaplow and Shavell Model¹³⁶

Despite the impression one might glean from the informal discussion in their article, Kaplow and Shavell’s efficiency results do not actually rely on double-distortion reasoning. Indeed, as we have seen in Part I.B, their argument could not rely on double-distortion reasoning. What, then, makes their argument work? In particular, how does their argument avoid the logic described in Part II.B, which seems to point toward a pervasive role for legal rules in redistributive policy?

¹³² See Kaplow & Shavell, *supra* note 6. Their paper expands on results that originally appear in Steven Shavell, *A Note on Efficiency vs. Distributional Equity in Legal Rulemaking: Should Distributional Equity Matter Given Optimal Income Taxation?*, 71 AM. ECON. REV.: PAPERS & PROC. 414 (1981). Other papers have made similar arguments. See Aanund Hylland & Richard Zeckhauser, *Distributional Objectives Should Affect Taxes but Not Program Choice or Design*, 81 SCANDINAVIAN J. ECON. 264 (1979); Kaplow, *Optimal Supply*, *supra* note 87; Louis Kaplow & Steven Shavell, *Economic Analysis of Law*, in HANDBOOK FOR PUBLIC ECONOMICS (Alan J. Auerbach & Martin Feldstein eds., forthcoming 2002); Louis Kaplow & Steven Shavell, *Property Rules Versus Liability Rules: An Economic Analysis*, 109 HARV. L. REV. 715, 744 n.99, 745 n.102 (1996) [hereinafter Kaplow & Shavell, *Property Rules*]. Polinsky also argues against some forms of redistribution by legal rule. See POLINSKY, *supra* note 2, at 119-27. This Article addresses these arguments in Part IV. See *supra* notes 108-09, 128 and accompanying text.

¹³³ Kaplow & Shavell, *Property Rules*, *supra* note 132, at 745 n.102.

¹³⁴ Kaplow & Shavell, *supra* note 6, at 677.

¹³⁵ See Technical Appendix §§ A, B.1, B.3.

¹³⁶ The assertions in this subpart are proven formally in the Technical Appendix § B.1. These points are also made in abbreviated form in Sanchirico, *supra* note 8.

Kaplow and Shavell's efficiency result derives from the fact that the legal sphere in their model lacks any independent redistributive potency. As this subpart explains in detail, a series of implicit assumptions leads to the result that any income-independent change in legal rules affects the utility of all agents in their model by precisely the same amount. Either everyone's utility goes up by x , or everyone's utility goes down by x . Thus, in the Kaplow and Shavell framework, trying to redistribute via across-the-board adjustments to legal rules is not so much suboptimal as impossible.

It is important not to fault Kaplow and Shavell for their model's simplicity per se. The central issue here is whether to locate our redistributive efforts in the legal system, the income tax, or both. To the extent that Kaplow and Shavell's simplifying assumptions eliminate effects extraneous to this central issue, all the better. The point of this subpart is that several of Kaplow and Shavell's assumptions are not merely simplifying, but result-driving.

In the Kaplow and Shavell framework, cleansing the model of legal heterogeneity is no mean feat. There are three separate avenues by which a change in legal rules affects any given individual. Two of these concern the individual's capacity as a potential victim, and the other, her capacity as a potential injurer. The effect on individual well-being at each of these points of impact may potentially differ in both direction and magnitude among different individuals. All these points of impact may, therefore, contribute toward the overall differential impact of the rule change. Yet four separate assumptions in the Kaplow and Shavell model ensure that these effects are precisely the same for each individual. First, we consider the three points of impact; next the four assumptions.

To fix ideas, we will consider increasing the level of damages from the amount of harm caused to harm caused plus \$1,000.¹³⁷ Considering this sort of across-the-board adjustment will help to illuminate what really drives Kaplow and Shavell's results. In particular, we know from Part I.B that double-distortion reasoning does not apply to across-the-board adjustments. On the other hand, Kaplow and Shavell's pure-efficiency result rules out across-the-board equity adjustments as much as it does specific income conditioning.

1. *The Three Potentially Heterogeneous Points of Impact*

Kaplow and Shavell study a highly stylized legal system in which the only private law is tort, the only legal rule is the level of damages that defendants pay under a strict-liability standard, and the only form

¹³⁷ Following the example of Kaplow and Shavell, let us ignore the possibility that defendants will be judgment proof. The analysis would be essentially the same if we were to decrease the level of damages by a specific amount.

of behavior regulated by the legal system is the precautionary effort of injurers. Individuals, who are risk-neutral, choose how much to work, how much to consume, and how much care to take. All injurers end up in court, and the court, once the case is before it, can perfectly discern causation and harm. How does increasing damages by \$1,000 affect the well-being of a given individual in this framework?

a. *The Individual as Victim: Impacts A and B*

Let us begin compiling the list of effects on this individual by imagining her as a potential victim. However cautious other people are, they may end up injuring our individual. The \$1,000 increase in the level of damages means that she will receive more compensation in this case; even though injury is still not beneficial, increased compensation makes it less detrimental on net, and the individual is therefore better-off in her capacity as a potential victim. This is the first point of impact, hereinafter "Impact A."

Second, we must account for how the population's behavioral response to the change in the damages rule affects our individual. An increase in the damages rule will likely cause other individuals to increase their level of precaution. This will mean that our individual will be injured less often. If the tort system is currently undercompensating for injuries, this increase in general precaution will increase our individual's well-being. If the system is overcompensating, however, the increase in caution will decrease our individual's well-being.¹³⁸

b. *The Individual as Injurer: Impact C*

We finish the list of three points of impact by now imagining our individual as a potential injurer. However cautious, our individual may end up causing an accident. The third and last impact of increased damages, then, is that the individual will have to pay more when and if this happens. To the extent that she is a potential injurer, this decreases her well-being.¹³⁹

¹³⁸ Recall that in Kaplow and Shavell's framework the victim's behavior does not affect the probability and severity of accidents.

¹³⁹ What about the cost of the individual's heightened precaution? It is one of the great conveniences of this sort of marginal analysis that in assessing the impact of a policy on an individual, we need not account for the individual's own behavioral changes. Although the individual will certainly alter her behavior, this will not affect her well-being on the margin. Roughly, the reason is as follows: the fact that she has chosen her behavior optimally before the change in the rule means that marginal changes in her choice of precautionary effort can have no effect on her well-being. Therefore, marginal changes in her well-being, due to changes in her choice of precaution, which in turn occur because of changes in the legal rule, also have no effect on her well-being. This idea is formally entitled the "envelope theorem" and its application depends on the assumption that utility is continuously differentiable. For a fuller explanation, see Ian Ayres, *Pushing the Envelope: Antitrust Implications of the Envelope Theorem*, 17 *Miss. C. L. Rev.* 21 (1996).

Thus, when we increase the level of damages, our individual experiences the following: (A) she receives more when she is a victim; (B) she is injured less often (which could be good or bad depending on whether damages are more or less than harm); and (C) she pays more when she is an injurer.¹⁴⁰

2. *Four Homogenizing Assumptions*

For any change in the level of damages, the effect on well-being via all three of these avenues, A through C, is precisely the same for all individuals in Kaplow and Shavell's model. Creating this homogeneity requires four interwoven assumptions. Instead of stepping through each assumption in turn, this section organizes the analysis of these assumptions according to their effect on the three points of impact.

a. *The Individual as Victim: Homogenizing Impacts A and B*

All individuals in the Kaplow and Shavell economy have precisely the same preferences and precisely the same endowment with the one exception that different individuals earn different amounts for each hour of work. That is, individuals have different "productive abilities." We will call this restricted form of heterogeneity "assumption 1."

One particular manifestation of assumption 1 is that all individuals in Kaplow and Shavell's world are equally harmed by every accident. One might imagine that there are different kinds of accidents and that different individuals are prone to different types of mishaps. Farmers are more likely to be injured in tractor accidents, urban dwellers in taxi collisions; blue-collar workers are more likely to be injured in the factory, white-collar workers on the elevator. One might also imagine that correlations exist between the frequency of victim status and other indications related to individuals' overall well-being. Certainly, insurance companies imagine such correlations. But in Kaplow and Shavell's model only one generic accident takes place, and it injures everyone to precisely the same degree every time it occurs.

This significantly (but not completely) homogenizes the first two impacts discussed above (A and B).¹⁴¹ Because all individuals face precisely the same probability of suffering this generic injury, any increase in the damages rule will be paid equally in expected value to all individuals. If damages are set to harm plus \$1,000, then each individual receives this additional \$1,000 with precisely the same probability. This concerns impact A. Impact B is similarly affected: any reduction

¹⁴⁰ Symmetrically, if we were to decrease the level of damages, our individual would: (A) receive less when a victim; (B) face the prospect of more frequent injury; and (C) pay less when an injurer.

¹⁴¹ See *supra* Part V.A.1(a).

in the probability of accidents, as a result of the population's behavioral response to the rule change, affects each individual's probability of injury by precisely the same amount. We can summarize this by saying that in Kaplow and Shavell's model, any adjustment in the damages rule affects each individual's "victim lottery" by exactly the same amount—where an individual's victim lottery is the list of potential outcomes for an individual in his capacity as victim (including both injury and compensation), along with the respective probabilities of these outcomes.

Of course, that the rule change affects each individual by the same amount in dollar terms does not mean that the rule change has a uniform effect on all individuals in terms of well-being. A dollar of additional compensation, for example, may mean different things to different people. Eliminating this residual source of difference in impacts *A* and *B* is the job of assumption 2.

Assumption 2 is actually the conjunction of two subsidiary assumptions. First, for a given individual in Kaplow and Shavell's model, the marginal utility of a dollar (in terms of compensation) is the same no matter how many dollars the individual already possesses. Second, this constant marginal utility of a dollar for each individual is uniform across all individuals. Thus, an additional dollar of compensation increases everyone's utility by the same amount no matter who they are or what their income level is.

In conjunction, assumptions 1 and 2 insure that any change in the level of damages affects not just the balance sheet but also the utility of each individual—in her capacity as a potential victim—by precisely the same amount.

b. *The Individual as Injurer: Homogenizing Impact C*

The bulk of this subsection demonstrates that the combination of assumption 1 and two new assumptions, assumptions 3 and 4, ensures that all individuals in Kaplow and Shavell's world take the same amount of care.¹⁴² From this it follows easily that changes in tort law have a homogenous effect on individuals in their capacity as potential injurers. When all individuals take the same level of care, they are equally likely to cause the one generic accident in Kaplow and Shavell's model. This in turn will mean, apropos of impact *C*, that any increase in the level of damages affects each individual's "injurer lottery" by precisely the same amount: all individuals pay the \$1,000 increase in the level of damages with the same frequency. Given that everyone's injurer lottery changes by the same amount, assumption 2

¹⁴² Recall that we are considering an across-the-board adjustment in the damages rule. Individuals will take different levels of care if damages are keyed to their differing incomes.

insures that this uniform change has a uniform effect on individual utility.

The crux of the matter, then, is to explain why everyone takes the same level of care in Kaplow and Shavell's model. We get part of the way there by explaining how by virtue of assumption 1, the manner in which precautionary choice enters both the utility function and budget constraint is precisely the same for all individuals.

One might imagine that individuals who differ in their ability to convert work effort into dollars would also differ in their ability to convert precautionary effort into safety. What, after all, does the word "ability" mean when it stands behind the word "productive"? If we define *ability* to mean the motor skills necessary to operate intricate machinery or the intelligence required to design bridges and circuits, one would think that these same attributes also have an impact on the individual's adeptness in exercising precaution. The same reasoning applies if *ability* implies diligence and earnestness. Yet, in the Kaplow and Shavell model, differences in the choice problem faced by each individual are confined to the rate at which each individual can trade hours of work for dollars in the labor market.

While this restriction is necessary for the result that all individuals take the same level of care, it is not sufficient. The fact that individuals' choice problems within the legal system are the same does not generally imply that their choices within the legal system will be the same. This is because the heterogeneity that is introduced in labor productivity is hard to confine. Parametric differences in one sphere of choice typically infect other spheres through interdependencies in individual decision making.

Thus, we might expect that additional labor productivity would be reflected first in higher earnings, and then in more consumption of certain goods and less of other goods. In this way, differences in productive ability manifest themselves, *inter alia*, in terms of differences in consumption patterns. Similarly, individuals of differing productive ability (and thus of different incomes) might make different choices about the manner and extent of precautionary effort. Likely, they will participate in different activities requiring different methods of precaution. These differences in precautionary activity would in turn lead to differences in the probability that the individual causes an accident, and thus to differences in the impact of our proposed change in the damages rule on the individual in her capacity as injurer.

In general terms, choice interdependencies operate through two sources: individual budget constraints and individual preferences. Kaplow and Shavell's third and fourth assumptions, respectively, act to cut off each of these two avenues.

The content of assumption 3 is that an individual's precautionary effort does not affect the range of feasible choices available to her in terms of leisure or consumption, and vice versa. In other words, precautionary effort is "off-budget." In Kaplow and Shavell's model, an individual who wishes to consume more must sacrifice leisure time to earn the necessary income, and conversely an individual who wants more leisure time must resign herself to less consumption. In contrast, an individual may increase precautionary effort without limit, irrespective of how much time she is spending at her job, and of how much income she spends on pure consumption goods. Thus, although an individual would always prefer to engage in less rather than more precautionary effort, the cost of precautionary effort is purely preference-based and not incurred in terms of lost consumption or leisure.

The fourth and last assumption—pertaining to preferences rather than the budget constraint—is that precautionary effort does not affect an individual's enjoyment of leisure or consumption, and vice versa. In particular, the marginal utility of leisure and consumption is assumed to be independent of the amount of precaution an individual has taken, and likewise, the marginal disutility from precautionary effort is assumed to be independent of the amount an individual works and consumes. It is, of course, easy to imagine that the enjoyment of one's car, and the value of one's leisure time generally, would be greatly curtailed if one decided to use the car only to commute in order to avoid causing accidents. But this type of utility interdependence is ruled out in the Kaplow and Shavell model.¹⁴³

In concert, then, the third and fourth assumptions guarantee that an individual's choice of precautionary effort is independent of the rest of her choices. While assumption 1 does allow for differences in an individual's labor-leisure choice problem, assumptions 3 and 4 guarantee that this heterogeneity does not infect the legal system via budget constraints or cross-effects on marginal utility. As a result, all individuals in Kaplow and Shavell's world will choose precisely the same level of precautionary effort both before and after the hypothesized redistributive adjustment.

3. Summary

In the general case, tort law affects different individuals differently. Even in the simplest framework, the tort law has several points of impact and the effect of each on well-being will vary across individuals. It is no doubt an indication of their modeling prowess that

¹⁴³ Technically, utility in Kaplow and Shavell's model is additively separable in leisure, consumption, and care choice.

Kaplow and Shavell manage to present to us a model with ostensibly heterogeneous agents in which every one of these impacts is precisely the same for all individuals. But once we understand and appreciate this feat, it is also no wonder that the tort law has no redistributive role in optimal policy in their model. Kaplow and Shavell have effectively rendered the tort law incapable of effecting redistribution of *any* kind, optimal or not. In the end, the real reason "Why the Income Tax is More Efficient at Redistributing Income than the Legal System," to quote the title of their article, is that only the income tax *can* "redistribute income" in their model. Importantly, the answer has nothing to do with counting distortions and is certainly not an implication of optimal-tax logic.¹⁴⁴

B. Return of the "Income Tax Only"¹⁴⁵ Conditions¹⁴⁶

Notwithstanding the fundamental inclusivity of optimal-tax logic, many scholars in that area at one point pursued the search for conditions under which it would be optimal to tax only labor income in redistributive policy. Early papers were enthusiastic about the possibility that plausible conditions could be found.¹⁴⁷ But as this research program progressed—and the underlying nature of the problem became clearer—the focus shifted away from advocating a single tax on income, toward the more agnostic task of asking what it would require for this to be optimal. In the end, given the theoretical restrictiveness of the conditions identified, and the fact that none could be shown to enjoy empirical support, the answer was "too much."¹⁴⁸

¹⁴⁴ More precisely, the only means of redistributing via tort law in the Kaplow and Shavell model is to condition damages on income—i.e., to tax the income of tortfeasors. Kaplow and Shavell's formal proof of their pure-efficiency result entails showing that any redistribution accomplished by legal rules can be replaced with a more efficient adjustment of the income tax. It is possible to demonstrate precisely how the logic of this proof falters when there is legal heterogeneity. Because this is a more technical discussion, it is relegated to sections A and B.3 of the Technical Appendix.

¹⁴⁵ This is also referred to as the conditions for "uniform commodity taxation." For an explanation of why these two names mean essentially the same thing, see *infra* text accompanying note 157.

¹⁴⁶ The points in this subpart also appear in more technical fashion in Sanchirico, *supra* note 8.

¹⁴⁷ See, e.g., A.B. Atkinson & J.E. Stiglitz, *The Design of Tax Structure: Direct Versus Indirect Taxation*, 6 J. PUB. ECON. 55 (1976); Angus Deaton, *Optimally Uniform Commodity Taxes*, 2 ECON. LETTERS 357 (1979); Deaton & Stern, *supra* note 47 (correcting an error in Deaton, *supra*).

¹⁴⁸ The literature culminates in Angus Deaton, *Optimal Taxes and the Structure of Preferences*, 49 ECONOMETRICA 1245 (1981). Deaton presents these "income tax only" conditions to demonstrate that existing empirical studies seeking to calculate optimal taxes were effectively building results into their maintained hypotheses because these studies were forced to adopt such conditions due to data limitations. See Stern, *supra* note 15, at 43-46, for a critical appraisal of this literature.

In the years following the publication of Sanchirico, *supra* note 8, the field of public economics has revisited the income-tax-only literature, confirming earlier findings that re-

Nonetheless, the advocacy of "income tax only" conditions has of late resurfaced within the law-and-economics literature.¹⁴⁹ In particular, such conditions have played some role in the taxes-versus-legal-rules debate.¹⁵⁰ It is, therefore, worth explaining what these conditions are and how they work. In light of what this Article has already explained about the nature of the optimal tax enterprise, an intuitive explanation of how these conditions operate should suffice to re-establish that they are less relevant than has been recently proposed. Once these conditions have been explained, it will be possible to relate them to the particular assumptions in the Kaplow and Shavell model, as described in the previous section.

1. *An Intuitive Explanation of Income-Tax-Only Results*

An explanation of income-tax-only results begins with the fact that in a world with only two goods—say, leisure and apples—there is never any social-welfare reason to tax more than one. This is easiest to see if we restrict attention to simple proportional taxes stated as a percentage of expenditures or receipts. Suppose, for example, that eliminating the income tax means that each individual keeps 10% more of what she earns.¹⁵¹ Each hour of work then buys 10% more apples.¹⁵²

sults therein rest on artificial assumptions. See, e.g., HELMUTH CREMER ET AL., DIRECT VERSUS INDIRECT TAXATION: THE DESIGN OF THE TAX STRUCTURE REVISITED (Université Catholique de Louvain Ctr. for Operations Research and Econometrics, Discussion Paper No. 9910, 1999) (finding that, contrary to Atkinson & Stiglitz, *supra* note 147, optimal tax policy implicates more than just an income tax, even if preferences are separable between labor and produced goods), available at <http://www.core.ucl.ac.be/services/psfiles/dp9910.pdf> (last updated Mar. 9, 2000); EMMANUEL SAEZ, THE DESIRABILITY OF COMMODITY TAXATION UNDER NON-LINEAR INCOME TAXATION AND HETEROGENEOUS TASTES I (Nat'l Bureau of Econ. Research, Working Paper No. 8029, 2000) (finding that "a small tax on a given commodity is desirable if high income earners have a relatively higher taste for this commodity or if consumption of this commodity increases with leisure"); Robin Boadway et al., *Redistribution with Unobservable Bequests: A Case for Taxing Capital Income*, 102 SCANDINAVIAN J. ECON. 253 (2000) (finding a redistributive basis for capital-income taxation when individuals differ not just in labor productivity but also in the size of their inheritances).

¹⁴⁹ See, e.g., Louis Kaplow, *A Framework for Assessing Estate and Gift Taxation*, in RETHINKING ESTATE AND GIFT TAXATION 164 (William G. Gale et al. eds., forthcoming 2001) (applying income-tax-only conditions to the issue of whether estate and gift taxes should be repealed); Kaplow, *Optimal Supply*, *supra* note 87 (applying income-tax-only conditions to the finance of public goods); Kaplow & Shavell, *supra* note 6 (applying income-tax-only conditions to the issue of whether legal rules should be informed by equity goals).

¹⁵⁰ See Kaplow & Shavell, *supra* note 8, at 825-26 (referring to income-tax-only conditions, inter alia, as "standard"); Kaplow & Shavell, *supra* note 6, at 676 n.15 (citing income-tax-only results).

¹⁵¹ This would be the case if the income tax were initially about 9.0%.

¹⁵² This is true regardless of the price of apples. Suppose, for instance, that the price of apples is \$0.50 and initially income is \$100 per hour. Then the individual can purchase 200 apples per hour of work. If the individual's income goes up by 10% to \$110, then the number of apples she can purchase also goes up by 10%, to 220. Similarly, if the price of apples is \$0.25, then the number of apples she can purchase goes from 400 to 440, also a 10% increase.

If we then increase the tax on apples such that what used to cost a dollar now costs \$1.10,¹⁵³ the individual is back to where she started in terms of the real trade-off between apples and leisure. Instead of earning, say, \$100 per hour after tax, she now earns \$110; but the bundle of apples that she was able to buy with \$100 now costs her \$110. One hour of leisure time foregone still trades for the same number of apples.

Accordingly, we would expect the individual to work and eat apples in just the same amount as before the changes. Thus, from the individual's point of view, and also from the point of view of any social-welfare function built from individual utilities, reducing the income tax to yield 10% more take-home pay while simultaneously increasing the after-tax cost of the single good by 10% has no net impact.

Moreover, there will be no change in the tax revenues that the government collects. What the government collected at the point at which the individual earned the money, it now collects at the point at which she spends it. The government collected \$10 in income tax per hour of work; it now collects \$10 in apple tax per hour of work.

Thus, eliminating the income tax while suitably increasing the apple tax has no real effect on the economy. Symmetrically, eliminating the apple tax and suitably increasing the income tax would also have no real effect. Consequently, whatever we can accomplish—in terms of maximizing social welfare subject to a government budget constraint—by taxing both goods, we can also accomplish by taxing only one. This is the sense in which, in our two-good world, it is always optimal to tax only one of the goods.¹⁵⁴

But in a world having three or more goods, say leisure, apples, and automobiles, the argument made for the sufficiency of taxing only one of the goods no longer holds. Suppose, for example, that initial commodity taxes are such that if we reduced the tax on automobiles to 0%, the individual could buy the same number¹⁵⁵ of automo-

¹⁵³ This would be the result if, for example, the apple tax were initially 20% and we raised it to 32%.

¹⁵⁴ This is a general idea and applies to any tax structure, not just simple proportional taxes. The more generally applicable statement of the idea is as follows: the budget line (which will be nonlinear with nonlinear taxes, and should be stated in terms of net excess demands for the purposes of this explanation) is the set of bundles that are just affordable. Every point on each consumer's after-tax budget line is associated with the following: (1) a unique amount of leisure; (2) a unique number of apples; and (3) a total tax bill. It matters not for the shape of the budget line, and therefore not for individual choice (nor, therefore, total tax revenue), whether we quote the total tax bill as a function of leisure or of apples. Each bundle *on* the line will still be affordable, and each bundle above the line will still be *unaffordable* (given positive producer prices).

¹⁵⁵ Most automobiles are not divisible goods. More plausibly, we could think of this good as "automotive services."

biles with 15% less cash, whereas if we reduced the apple tax to 0%, the individual could buy the same number of apples with 10% less cash.¹⁵⁶ Suppose we then eliminate both taxes and, as in our discussion of the two-goods case, attempt to adjust the income tax to keep the individual's trade-off between leisure and each of automobiles and apples the same as it was before the change. We will quickly find that this is impossible. If we increase the income tax such that take-home pay per hour decreases by 10%, then the apple-leisure trade-off returns to what it was, but the automobile-leisure trade-off ends up more favorable to automobiles. Conversely, if we increase the income tax such that take-home pay per hour decreases by 15%, then the automobile-leisure trade-off is restored, but the apple-leisure trade-off tilts in favor of leisure.

Of course, we always can impose assumptions upon consumer choice that make the three-good world act just like the two-good world. The income-tax-only literature does precisely this. In terms of the view of redistribution described in Part II.A, such assumptions boil down to the requirement that, given leisure choice, apples and automobiles are not separate signals of individuals' underlying characteristics. Suppose, for example, that all agents in the economy consume apples and automobiles in the same proportion—say, three hundred apples for every automobile. As a result, there are really only two goods: leisure and a composite good consisting of three hundred apples and an automobile. Once we know how many apples a given consumer has eaten, we automatically know how many automobiles she has in her garage (one three-hundredth of the number of apples consumed). And since we learn nothing new about an individual's underlying characteristics by acquiring separate knowledge of her apple and automobile consumption, there is no reason to treat the two commodities separately in our optimal tax program. Consequently, we find ourselves back in the two-good world, where we know that it is never necessary to tax more than one in the effective *pair* of goods (leisure and the apple-automobiles composite). Thus, we lose nothing by taxing leisure alone.

In particular, when apples and automobiles form a composite good in this sense, we will never have trouble using adjustments to the income tax to neutralize the elimination of both apple and automobile taxes, as attempted in the paragraph before last. Given that consumers treat three hundred apples and one automobile as a single commodity, it will always be optimal for the tax system to tax them as

¹⁵⁶ This would be the case if the tax on automobiles was initially about 17.65% and the tax on apples was initially 11.11%.

such.¹⁵⁷ This implies that the optimal tax (stated as a percentage of expenditure) will be the same for both commodities. This, in turn, implies that reducing the optimal tax on automobiles and apples to zero will mean the same percentage decrease in the amount of cash necessary to purchase a given amount of either good.¹⁵⁸ It will then be possible to restore the trade-off between leisure and both goods simultaneously merely by adjusting the income tax.¹⁵⁹

Of course, the same logic implies that it is also optimal to tax only the apples-automobiles composite good, and not income. Furthermore, nothing about the logic of this result requires that we group commodities in a particular way. We can always reset our assumptions so that, for instance, leisure and automobiles comprise the package commodity: our result then would be that it is optimal to tax either apples only or the leisure-automobiles composite only. It should be emphasized that none of these assumptions has empirical support. Thus, any privileging of one assumption over the others—for example, any assumption that singles out leisure—has no justification; that is, none beyond the fact that it produces the result that the modeler desires.

2. *Income-Tax-Only Results and the Kaplow and Shavell Model*

How do the income-tax-only conditions just described relate to Kaplow and Shavell's formal model and results? Kaplow and Shavell's model satisfies the income-tax-only conditions a fortiori. In Kaplow and Shavell's model there are three "goods": consumption, leisure and precaution. As noted in the previous section, the individual's choice of precaution is structurally independent of the individual's choice of leisure and consumption, and differences among individuals only arise in the labor market. Consequently, all individuals choose the same level of precaution.¹⁶⁰ Thus, it is certainly true that once we know an individual's consumption, learning about his level of precaution (via the event of his causing an accident) communicates no more information about who he is. Indeed, even if we do *not* know his consumption level, his level of precaution transmits no new information about his underlying characteristics.

¹⁵⁷ In other words, the optimal tax solution will entail uniform commodity taxes. The income-tax-only literature is actually more commonly thought of as the "uniform commodity tax" literature. See, e.g., sources cited *supra* notes 147-48.

¹⁵⁸ For example, if the tax on both goods is 10%, then eliminating both taxes means, for both goods, that what used to cost \$1 now costs about \$0.91.

¹⁵⁹ Continuing the previous example, *supra* note 158, if the income tax rate were initially 10%, we would raise it to about 18.18%.

¹⁶⁰ This assumes that damages are not a function of income. This assumption is justified by the fact that there are no general income-tax-only results allowing for cross-dependent policies. It is not at all clear that the conditions thus far identified in the literature are sufficient for income-tax-only results when cross-dependencies are allowed.

Thus the difference between Kaplow and Shavell's assumptions and the income-tax-only conditions is the difference between incremental and absolute informational value. The income-tax-only conditions require only that precaution have no incremental informational value regarding the individual's underlying characteristics given knowledge of his level of consumption. This holds a fortiori in the Kaplow and Shavell model, in which precaution has no informational value whether or not we know how much the individual consumes.

CONCLUSION

An impressively large portion of modern legal scholarship rests on the precepts of law and economics. And much of law and economics—as currently practiced—rests on its ability to justify its exclusive focus on efficiency. With so much at stake, one might imagine that arguments for efficiency would be subject to continuous challenge and scrutiny. But, at least in recent years, this has hardly been the case.

Perhaps it is the rhetorical effectiveness of the verbal arguments now being put forward for efficiency. Perhaps it is the fact that such arguments appear to be fortified with impregnable mathematical modeling. Perhaps it is a simple collective reluctance to go back and adjust results that have already been settled on the basis of efficiency alone. Whatever the reason, it has of late become acceptable in law and economics to dispose of equity with a quick citation to the new-rationale literature and a nonchalant gesture toward the income tax.

Upon close inspection, it becomes clear that new-rationale arguments provide a less-than-stable foundation for the field's exclusive focus on efficiency. Both the verbal and the formal versions of new-rationale reasoning fall far short of a coherent argument for efficiency. The verbal presentation—the double distortion argument—is flawed in two ways. On its face, it simply has no bearing on redistributive adjustments to legal rules that are not specifically structured to depend on the income of the parties to the action. Further, given its implicit reliance on “distortion counting”—rightly disfavored in public economics for more than four decades—it fails as an argument against the form of income-conditioned adjustments that it does address.

The flaw in the technical manifestation of the new rationale pertains not to its logic, but to the premises to which that logic is applied. The formal argument for efficient legal rules turns out to depend on untenable result-driving assumptions. Such assumptions, which severely limit how individuals differ from one another in the model, create an artificial world in which income-independent adjustments to legal rules are redistributively impotent.

Perhaps there is an argument waiting to be found that will enable law and economics to continue in its established routine. It is never possible to say with certainty that no viable argument exists, only that those that have been put forward are insufficient. Nonetheless, the refutation of yet another rationale for efficiency must indicate something. Perhaps it suggests that seeking a reason to ignore equity is no longer the best use of the field's collective intellectual resources. Perhaps "efficiency" now dictates that we turn our attention to making equity an operational criterion for evaluating legal rules.

TECHNICAL APPENDIX

A. Where Kaplow and Shavell's Tax Substitution Argument
Falters with Legal Heterogeneity¹⁶¹

Kaplow and Shavell employ a "tax substitution" argument in their formal proof of pure efficiency¹⁶² and it may be helpful to show where that argument would go awry were legal homogeneity not imposed upon the model.

The gist of the tax substitution argument is this: For every redistributive legal rule (including those conditioned on parties' incomes) we can find an alternative tax surcharge that accomplishes precisely the same redistribution but also raises tax revenue—tax revenue that can then be distributed to the population or used for public goods. The conclusion is that any redistribution accomplished by adjusting legal rules away from efficient standards can be better accomplished with taxes.

In the presence of legal heterogeneity, this argument fails on two scores. First, the substitute tax surcharge that Kaplow and Shavell propose only exists in an artificial world in which all individuals with the same income are affected in the same way by changes in the tort system. Second, even when legal heterogeneity exists only across and not within income groups, so long as that heterogeneity is in part due to the direct impact of underlying differences,¹⁶³ Kaplow and Shavell's argument will not fully account for individuals' behavioral responses to the substitution of the tax.¹⁶⁴

In order to explain these two points in more detail, it will be necessary to delve more deeply into Kaplow and Shavell's tax substitution argument. Though this argument is quite technical, it is possible to explain its general features without resorting to the mathematical apparatus in the Kaplow and Shavell proof.

Starting from an efficient-damages rule (in the Kaplow and Shavell framework, this means setting damages equal to harm¹⁶⁵), imagine some proposed adjustment to the damages rule that would make the damages paid by each liable defendant turn on her income,¹⁶⁶ all for some (here unspecified) redistributive purpose.

¹⁶¹ The assertions in this section are proven formally in section B.3 of this Technical Appendix.

¹⁶² See Kaplow & Shavell, *supra* note 6, at 669.

¹⁶³ See *supra* note 83 and accompanying text (discussing the distinction between direct and indirect sources of legal heterogeneity).

¹⁶⁴ The assumption that there are no within-income-group differences in individuals' interaction with the legal system was discussed in Part III.D. See *infra* note 175 for an explanation of how the analysis in the present section relates to the analysis in Part III.D.

¹⁶⁵ See Kaplow & Shavell, *supra* note 6, at 678.

¹⁶⁶ We could likewise consider a more complicated rule in which the level of damages depends on the income of *both* parties. Nothing in the following analysis would change.

We can represent the new damages rule by making a "damages table" (Table 1) that, like a tax table, lists income in the first column and the damages that must be paid in the second. (In the Kaplow and Shavell framework, damages need not also be stated as a function of harm, because there is only one possible level of harm.¹⁶⁷) The damages table might look like this:

TABLE 1
NEW DAMAGES RULE

Income (\$)	Damages (Rebate) (\$)
less than 10,000	(2,000)
10,000–50,000	2,000
50,000–150,000	7,000
greater than 150,000	10,000

Adopting this damages table, from an initial position of efficient damages, will benefit some members of the population and hurt others. To keep track of incidence, we can imagine a hypothetical "impact list" (Table 2), that shows precisely how the adjustment affects each individual in the population. The impact list might look like this:

TABLE 2
IMPACT LIST

Name	Loss (Gain) (\$)
Mary	4,000
Bob	(5,000)
Bill	4,000
Jane	(1,000)
Manny	4,000
...	...
	> 0

The first column of the impact list contains the name of the individual¹⁶⁸ and the second column lists the monetary equivalent of the loss suffered (or, if negative, the gain enjoyed) by this individual as a

¹⁶⁷ In a model with many levels of harm, we would have one damages table for each level of harm, or alternatively, one multidimensional damages table with a level of damages corresponding to each combination of harm level and income.

¹⁶⁸ In reality the government will have only a statistical knowledge of incidence and will not know how each particular individual is affected by adoption of the damages table. See *supra* Part II.A. This hypothetical impact list is presented for expositional purposes only. Both Kaplow and Shavell's proof and the treatment of it here assume that the government cannot actually construct this list. If it could, perfectly corrective transfers would be feasible. See *id.*; discussion *supra* note 2.

result of society's adoption of the damages table, starting from a regime of efficient damages.¹⁶⁹

As is appropriate, in calculating these "before-versus-after" gains and losses, *after* means not only after the rule change but also after individuals' consequent behavioral adjustments. Thus, we change the damages rule, allow individuals to alter both their precautionary effort and their work effort, and only after they are done adjusting do we calculate how much better or worse off each of them is relative to their position before the policy change.

The impact list describes the redistribution accomplished by the change in the legal rule. We can think of the government's adoption of the damages rule as a transfer of well-being from those on the list who lose (those with positive numbers) to those on the list who gain (those with negative numbers). Of course, the transfer is made with the proverbial leaky bucket. Since we adjust damages away from the efficient rule, and the efficient rule maximizes total well-being, losses will outweigh gains in the second column of the impact list, and summing this column over the entire population will produce a positive total (as shown), signifying aggregate net loss.

In lieu of this redistributive adjustment to the damages rule, Kaplow and Shavell propose an alternative adjustment *to the income tax*.¹⁷⁰ It is important to understand the precise nature of this adjustment. To this end, imagine inserting a third column between the two now comprising the impact list. This new second column, in Table 3, would contain the income of the individual listed in the first column.

TABLE 3
IMPACT LIST PLUS INCOME

Name	Post-Damages Adjustment Income (\$)	Loss (Gain) (\$)
Mary	80,000	4,000
Bob	5,000	(5,000)
Bill	70,000	4,000
Jane	14,000	(1,000)
Manny	80,000	4,000
...		...
		> 0

If we look at the second and third columns of Table 3, and ignore for a moment the names of the individuals, we see a list matching each level of income with an individual's net loss, positive or nega-

¹⁶⁹ Because this is an explanation of Kaplow and Shavell's construction, it employs their assumption that utility is linear in money with the same coefficient for all agents. This justifies use of monetary equivalents of utility gain and loss.

¹⁷⁰ See Kaplow & Shavell, *supra* note 6, at 671.

tive, from the proposed adjustment to damages. Shifting perspective, we can view these columns as a regular tax table—an association of income levels with dollar amounts. This is illustrated in Table 4. (The dollar amounts may be positive or negative, so, more descriptively, the table is a tax-subsidy table.) To construct Kaplow and Shavell's mimicking income tax adjustment, we treat this constructed tax table as a surcharge on top of the pre-existing income tax:

TABLE 4
INCOME TAX SURCHARGE

Name	Income (\$)	Surcharge (Credit) (\$)
Mary	80,000	4,000
Bob	5,000	(5,000)
Bill	70,000	4,000
Jane	14,000	(1,000)
Manny	80,000	4,000
...		...
		> 0

An individual first calculates her income tax using the pre-existing income tax table and then adds on the surcharge (or subtracts the credit, if the number is negative) given by Table 4.

Kaplow and Shavell make two claims about this alternative supplemental tax. First, its redistributive impact will mimic precisely that of the proposed damages adjustment.¹⁷¹ Second, the supplemental tax will raise revenue—revenue that can be used for government spending, increased transfers, or reduced taxes.¹⁷²

As noted, two problems defeat the construction and operation of this mimicking tax adjustment in settings other than the special framework that Kaplow and Shavell employ. First, the adjustment will not in general be well defined. Consider again the manner in which we constructed the supplemental tax from the impact list for the damages rule. The supplemental tax charged at a particular income level was defined as the impact of the damages rule on an individual having that level of income. But what if there are several individuals with that level of income,¹⁷³ each of whom experiences a different impact from the damages adjustment? Which individual's gain or loss becomes the supplemental tax for that level of income?

¹⁷¹ See *id.* at 673.

¹⁷² See *id.*

¹⁷³ Given that there are approximately 273 million people in the United States, almost all of whom earn less than \$50,000 per year, a crude calculation suggests that there will be over five thousand individuals at each dollar amount of income—and many times that in each tax bracket. U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES 7 tbl.2, 467 tbl.738 (2000).

In the tables listed above, Mary and Manny suffer the same loss—\$4,000—from the damages adjustment. Coincidentally, they also have the same income—\$80,000. Thus there appears to be no ambiguity here in the construction of the supplemental tax: those earning \$80,000 pay a surcharge of \$4,000. But what if Mary and Manny, still having the same income, were affected differently by the damages adjustment? Suppose, for example, that Manny's loss was \$2,000 and not \$4,000. What would be the proper tax surcharge at the \$80,000 income level? Would it be Manny's loss of \$2,000 or Mary's loss of \$4,000?

Construction of the supplemental-tax table presupposes that with each level of income there is associated one and only one level of gain or loss as a result of adopting the damages table. Yet, as already noted, taxable income is only a rough approximation of a person's economic identity (does the income come from a trust fund or an hourly wage?). In particular, that two individuals have the same income may say very little about how they would fare as a result of adopting the damages table. True, their identical income level will mean that they will pay the same in damages (according to the damages table above). But the fact that their damages levels are the same does not say that they are affected the same by the damages rule. Consider that the three points of impact of a change in the damages rule, as identified above in Part V.A.1, were calculated in a world in which *all* individuals, not just all individuals of the same income, faced the same damages level. Yet these three points of impact were still three separate avenues by which different individuals would be affected differently by changes in the damages rule. The *same* three points of impact provide potential differences among a smaller group of individuals having the same income.

Kaplow and Shavell avoid this fundamental ambiguity in the construction of their tax supplement with a set of assumptions, highlighted in Part V.A.2, that eliminate differences in these points of impact. In their economy, all individuals who earn a given level of income will be identical in all other respects as well, including their interaction with the tort system and, specifically, their gain or loss upon adoption of the damages table.¹⁷⁴

We have already seen that, starting from an income-independent damages rule, the impact of an income-independent shift in the damages rule in the Kaplow and Shavell model is precisely the same for *all* individuals, at *any* income level. All individuals take the same amount of care, and so they face the same change in their "injurer lottery."

¹⁷⁴ See Kaplow & Shavell, *supra* note 6, at 672-73.

Moreover, all individuals are affected identically by all accidents, and so they face the same change in their "victim lottery."

When damages *are* conditioned on income, individuals in the Kaplow and Shavell model will, in fact, face different injurer and victim lotteries. As potential injurers, individuals will differ most obviously in the level of damages that they must pay if they cause a given injury. This will, in turn, cause them to adopt different levels of care. As potential victims, individuals may also face different amounts of damages depending on their income level.

The important point, however, is that all of these differences will be driven entirely by differences in damage levels, which in turn derive solely from differences in income, via the damages table. Thus, conditioning damages on income in the Kaplow and Shavell model will produce differences in damages paid, damages received, and care taken, but all individuals *at a given level of income* will still be identical with respect to their interaction with the tort system.

Even if we were to assume that the impact of the damages adjustment is fully determined by income level, the mimicking tax adjustment that Kaplow and Shavell propose would still only work under the very specific structure of their model. Thus, we turn to the second reason that the Kaplow and Shavell proof does not generalize to the natural case of legal heterogeneity.

The structural assumption now at issue is the fact that Kaplow and Shavell do not allow for *parametric* heterogeneity in individuals' interaction with the tort system.¹⁷⁵ In other words, in the Kaplow and Shavell model, underlying differences do not go directly to individuals' interaction with the legal system.¹⁷⁶

Kaplow and Shavell assume that individuals differ parametrically with respect to the *labor market*,¹⁷⁷ productive ability is a parameter. Analogous differences in the sphere of tort, which do not appear in the Kaplow and Shavell model, might include differences in "care abil-

¹⁷⁵ There is nothing inconsistent in admitting parametric differences in tort while retaining the hypothesis (however ungrounded) that there are no within-income-group differences. Whatever parametric differences are assumed in tort need only be made a deterministic function of whatever parametric differences are assumed for labor markets. Differences in care ability, for instance, can be assumed perfectly to track differences in productive ability, as if the ability to produce goods and services efficiently were of the same source as the ability to produce care efficiently. That parametric differences need not produce within-income-group differences implies that assuming away within-income-group differences is not enough to make Kaplow and Shavell's tax substitution argument viable. This corroborates the point made in Part III.D, that, contrary to Kaplow and Shavell's assertion, the argument for equity-informed legal rules survives the removal of within-income-group differences.

¹⁷⁶ See discussion *supra* Part III.C.

¹⁷⁷ See Kaplow & Shavell, *supra* note 6, at 677.

ity." Alternatively, different individuals might have proclivities to be injured in different sorts of accidents with differing frequencies.

When such parametric differences are allowed, Kaplow and Shavell's mimicking tax adjustment stumbles on a complication that we have thus far glossed over. Substituting the tax supplement that Kaplow and Shavell propose for the proposed damages rule in Table 1 will generally induce agents to change the amount that they work. As we shall see, this will, in turn, imply that the tax supplement will *not* in fact mimic the damages table.

To show that this is an independent problem let us assume that there are no within-group differences. Given adoption of the new damages rule, Mary is \$4,000 worse off than she would be if the tort system were efficient. (See Table 2.) With the new damages rule in place, Mary chooses to earn \$80,000. (See Table 3.) Kaplow and Shavell's mimicking tax supplement would then, *inter alia*, charge all individuals earning \$80,000 (who are identical to Mary by hypothesis) \$4,000 in additional tax. (See Table 4.)

Now *if* it were true that Mary would also choose to earn the same amount, \$80,000, under the mimicking tax supplement, the impact on Mary of the tax supplement would indeed mimic the impact on Mary of the new damages rule. Instead of paying \$4,000 more in expectation through the tort system, as shown in Table 2, she would be paying \$4,000 more in supplemental taxes under Table 4. Kaplow and Shavell count on this invariance in work effort when structuring their mimicking tax supplement.

With parametric legal heterogeneity, however, there is no reason to believe that Mary will choose to earn precisely the same amount under both regimes. Before explaining why this is so, let us first examine in detail why this would be a problem. Suppose Mary, who would choose to earn \$80,000 under the new damages rule, would decide to earn only \$49,000 under the mimicking tax surcharge. Suppose, also, that under the new damages rule, \$49,000 is associated with only \$2,000 of loss in tort.¹⁷⁸ The mimicking tax supplement would then charge Mary \$2,000, which is less than the \$4,000 that she would actually lose if we adopted the new damages rule. For similar reasons, the tax supplement may charge others with *less* income than Mary too much relative to the impact on them of the new damages rule. The result would be that the tax supplement would not, in the end, have the same redistributive impact as the damages table. Moreover, given the possibility that significant numbers of individuals respond by

¹⁷⁸ Recall that we have assumed for purposes of argument that there are no within-income-group differences.

working less, there is no longer any guarantee that the tax supplement would raise revenue.

This explains why Kaplow and Shavell's construction falters if individuals react to the substitution of a supplemental tax for the new damages rule by changing how much they work. To see why parametric differences in tort would cause them to react in this way, consider the following simple example based on the tables above.

First, imagine that there are no parametric differences in tort. This implies that individual differences in tort are entirely driven by differences in the damages they face, which in turn are determined according to differences in their incomes. We will examine the very simplest illustration of the fact that work incentives will then be the same under the new damages rule and the tax supplement.

Notice in Table 1 that the new damages rule happens to be such that individuals earning \$70,000 must pay the same amount of damages—\$7,000—as individuals earning \$80,000. Thus, in the absence of parametric differences in tort, \$70,000 earners are impacted the same by adoption of the damages table as \$80,000 earners. Consistent with this, Table 3 shows that Mary and Bill, \$80,000 and \$70,000 earners, respectively, both suffer by \$4,000 from adoption of the damages table. Further, Table 4 shows no difference in the tax surcharge across the \$70,000 and \$80,000 income levels.

Thus Mary faces the same incentive to lower her earnings to \$70,000 under the new damages rule as she does under the alternative tax supplement. Neither her (expected) damages nor her tax surcharge change if she chooses to earn \$10,000 less.

Now let us introduce a simple form of parametric difference in tort by assuming that \$70,000 earners differ from \$80,000 earners in their capacity as victims. Let us suppose that as a result of this difference, \$70,000 earners would lose \$1,000 less than \$80,000 earners as a result of adoption of the new damages rule. Thus, the impact suffered by Bill would be \$3,000 rather than \$4,000. And more generally, in Tables 3 and 4, we would see \$4,000 next to the \$80,000 income level and \$3,000 next to the \$70,000 income level.

Notice that this \$1,000 difference in impact from the new damages rule operates across, and not within, income groups.¹⁷⁹ We are

¹⁷⁹ Three technical notes: First, although we focus on parametric differences on the victim side, one could easily imagine parametric differences on the injurer side, such as differences in the ability to effect precautionary measures, that would have the same effect as the example we are about to describe. Second, nothing in this example, except its simplicity, turns on the fact that Mary and Bill are in the same damages bracket in the damages table. Third, differences in choice variables across income levels, such as differences in care choice caused by differences in damages levels across income levels, will generally exist in Kaplow and Shavell's framework and are actually *not* subject to the problem that we are discussing here. This is not at all obvious, but follows from the so-called

supposing a difference *between* the \$70,000 and \$80,000 earner groups. Notice, correspondingly, that there is no difficulty here, as there was above, in defining Kaplow and Shavell's tax supplement; the supplement is simply \$1,000 less at the \$70,000 level than at the \$80,000 level.

However, with the introduction of this across-income-group difference, Mary's work incentives under the tax supplement will differ from her work incentives under the new damages rule. Let us continue to focus on Mary's incentive to earn \$10,000 less, and so enter the \$70,000 income bracket. First, consider Mary's incentive to earn \$10,000 less under the new damages rule. Earning \$10,000 less means more leisure (in an amount depending on the productivity of \$80,000 earners) and \$10,000 less consumption. But earning \$10,000 less has *no* impact on how well Mary does in her capacity as injurer, because, by the simplifying design of our damages rule, Mary's damages do not change if Mary earns \$70,000 rather than \$80,000. Moreover, Mary's interaction with the tort system *as victim* also remains fixed: Mary is still the same person facing the same underlying parameters. Thus, under the proposed adjustment to damages, Mary's incentive to work less and earn \$70,000 rather than \$80,000 is confined to the leisure-consumption trade-off.

Compare Mary's incentive to earn \$10,000 less under the tax supplement. Here, Mary will face an additional incentive to reduce earnings. Certainly, Mary would have more leisure and less consumption, just as under the new damages rule. But on top of this, Mary's supplemental tax is reduced when she earns \$10,000 less. The supplemental tax at the \$80,000 income level is \$4,000, while at the \$70,000 level it is \$3,000. Since the tax supplement is keyed to the cost that would be imposed on individuals as a result of the new damages rule, and this cost is less for \$70,000 earners than for \$80,000 earners, Mary can reduce her supplemental tax bill by reducing the amount that she earns.

What is happening in this example? Individuals at the lower income level (\$70,000) are hurt less in their capacity as victims by the change in the damages rule. Because this turns on who they are within the tort system *per se*, and not what their income is, higher earners cannot, under the new damages rule, enjoy this reduction in loss simply by lowering their income. In the *tax supplement* world, how-

envelope theorem. *See supra* note 139. The envelope theorem states that in calculating how well an individual would fare as a result of a change in an exogenous variable, we need not, on the margin (and under certain differentiability conditions), consider the effect of induced changes in her choice variables. Here, this means that in calculating differences in how individuals at different levels of productive ability (the exogenous variable) fare as a result of the damages rule, we need not consider their differences in care choice.

ever, higher earners do enjoy this benefit when they lower their income.

Could another kind of tax supplement solve these problems and extend Kaplow and Shavell's tax substitution argument to account for parametric differences in tort? We already know that the answer is no. There can be no tax substitution proof of the optimality of purely efficient legal rules when individuals differ with respect to the legal system. Indeed, there can be no proof by any means, because, as shown informally in Part II.B and formally in this Technical Appendix, section B.2, a proof does exist for the opposite proposition.

B. Mathematical Analysis

1. *The Absence of Legal Heterogeneity in the Kaplow and Shavell Model: Mathematical Reprise*

This section of the Appendix consists of three subsections. This subsection complements the discussion in Part V.A, which explains how the Kaplow and Shavell model avoids the general argument for equity-informed legal rules as described in Part II.B of this Article and in section B.2 of the Appendix. In particular, this subsection shows that across-the-board deviations from efficient damages have no distributional impact in the Kaplow and Shavell model.¹⁸⁰ This assertion is established after describing the Kaplow and Shavell model in mathematical terms.

Kaplow and Shavell posit a population of individuals who interact in the labor market and in the tort system.¹⁸¹ Each individual chooses how much *labor* $H \geq \ell \geq 0$ to supply, and how much *care* $x \geq 0$ to take. (Consumption from labor income is implicitly determined by labor choice.) If an individual chooses to work ℓ hours, she earns $y = \alpha\ell$ in *pre tax income*, where $\alpha > 0$. Individuals differ according to their (*productive*) *ability* α . (The distribution of α is discussed below.) The individual keeps $y - t(y)$ of her pre tax income, where the function t , the *tax schedule*, is a policy variable. If an individual takes care level x , then the probability that she causes an accident is $p(x)$, where $p' < 0$, $p'' > 0$. Whenever an accident occurs, it causes harm h . This harm is borne equally by all agents. The individual causing the harm pays damages of d ,¹⁸² and all agents share the proceeds equally. Therefore, in the Kaplow and Shavell model, an individual with ability α chooses labor ℓ and care x to maximize *expected utility*:

¹⁸⁰ This argument was originally made in Sanchirico, *supra* note 8, at 814.

¹⁸¹ See Kaplow & Shavell, *supra* note 6, at 677.

¹⁸² In the Kaplow and Shavell model damages may be a function of parties' incomes. Since the object here is to show that the legal system has no independent redistributive potency, such rules are not considered in this section.

$$EU \left(\underbrace{\ell, x}_{\text{choices}}; t, d, \alpha \right) = \underbrace{\left[\alpha \ell - t(\alpha \ell) - \ell \right]}_{\text{from labor choice}} - \underbrace{\left[x + p(x)d \right]}_{\text{from care choice}} - \underbrace{\bar{p}(h-d)}_{\text{unrecovered harm caused by others}}, \quad (1)$$

where \bar{p} is the *average accident probability* across the population and $\bar{p}(h - d)$ is the expected amount of unrecovered harm (possibly negative) befalling this individual. The *efficient level of damages* in the Kaplow and Shavell model, the level that maximizes total individual utility, is $d = h$. The *efficient income tax* is a “head tax” ($t(y)$ is constant in y), whose size depends upon how much revenue the government must raise.

Let us now show that changing the damages rule affects all individuals’ utility by precisely the same amount in the Kaplow and Shavell model. Write $v(t, d, \alpha) \equiv EU(\ell^*(t, \alpha), x^*(d); t, d, \alpha)$ for individuals’ *indirect utility*. This is the maximum level of utility attainable for an individual of ability α when taxes are t and damages are d . By the envelope theorem, $v_d = -p + \bar{p} - \bar{p}_d(h - d)$, where v_d represents the derivative of indirect utility with respect to the damages rule. All individuals face the same care choice problem (essentially, that of choosing x to minimize $x + p(x)d$). Therefore, p is the same for all agents. We conclude that v_d is also the same for all individuals.

2. *A Generalization of Sanchirico’s Equity-Regarding Result to Any Kind of Legal Heterogeneity*

In this subsection, the Kaplow and Shavell model is altered by adding the realism-enhancing feature that individuals differ parametrically with respect to their interaction with the tort system. It is then shown that this implies that the damages rule in the Kaplow and Shavell model should be adjusted away from perfect efficiency so long as there is any social concern for equity. Thus, this formal analysis constitutes a proof of the assertion made in Part II.B. Reference is also made to several of the arguments in Part III.¹⁸³

Recall that in the Kaplow and Shavell model individuals differ parametrically according to α and that this enters the model only through labor-leisure choice. Let us now introduce an additional parameter γ that is directly relevant to choice and welfare within the tort system and that varies across the population (the distribution of γ is discussed below). Perhaps γ measures productivity of care-effort in the same manner that α measures productivity of labor-effort.¹⁸⁴ The

¹⁸³ This subsection is a generalization of a technical argument that appears in Sanchirico, *supra* note 8, at 813-20. The generalization is to an arbitrary form of legal heterogeneity, rather than heterogeneity that enters through differences in “care effectiveness.”

¹⁸⁴ Productivity in the labor context means units of output per units of work. Productivity in the care context might mean percentage points of accident probability reduced per hour of precautionary effort.

parameter γ could also reflect the varying tendencies of individuals to be victims.

Importantly, γ can be related to α in any way with no effect on the overall result that legal rules should be equity-informed. Indeed, γ and α can be deterministically related. In this case, all individuals with the same α and so the same income will have the same γ and so the same tort-based welfare. This is the case of no within-income-group differences discussed in Part III.D, and the fact that this case is subsumed within the general result to follow constitutes a formal proof that within-income-group differences are not a precondition for the optimality of equity adjustments to legal rules.

Relevant to Part III.C regarding cross-effects, the argument in this subsection retains Kaplow and Shavell's assumption that labor choice and care choice are perfectly separable. That is, in this variant of the Kaplow and Shavell model it will still be the case that there are no cross-effects between the tort system and labor-leisure choice. Thus, the argument in this subsection also constitutes a formal proof of the assertion in Part III.C that cross-effects are not a precondition for the result that legal rules should be equity-informed in the presence of any social concern for equity.

Let $\ell^*(t, \alpha)$ and $x^*(d, \gamma)$ be the utility-maximizing choice of leisure and care by individual (α, γ) , when faced with tax system t and damages rule d . (Such notation reflects the fact that, as noted, this argument maintains Kaplow and Shavell's assumption that the choice of labor and care are separable under this utility function.) Let $v(t, d, \alpha, \gamma) \equiv EU(\ell^*(t, \alpha), x^*(d, \gamma); t, d, \alpha, \gamma)$ be the individual's *indirect utility function*. We can divide indirect utility into the utility derived from optimal labor choice, $v^L(t, d, \alpha) = \alpha \ell^*(t, \alpha) - t(\alpha \ell^*(t, \alpha)) - \ell^*(t, \alpha)$, and the utility derived from the tort system $v^T(d, \gamma)$. (In the special case that γ represents only productivity in care effort, we would have $v^T(d, \gamma) = -x^*(d, \gamma) - p(\gamma x^*(d, \gamma)) - \bar{p}(h - d)$.) Represent the population distribution of α and γ with the joint-density function $f(\alpha, \gamma)$. In what follows, all expectations " $E[. . .]$ " are taken with respect to this density, and a " \sim " indicates which variables are random.

We wish to determine what the optimal tax system and damages rule would be, if we were concerned not just with total well-being in our economy, but also with how that total is distributed. In order to treat these issues with precision and consistency, we imagine the problem faced by a fictional social planner who chooses the tax system t and the damages rule d to maximize a well-defined social-welfare function. This social-welfare function (along with the choice of individual utilities) will express the planner's preferences over policy choices, and will incorporate in a coherent manner the planner's attitude toward what is casually thought of as the equity-efficiency trade-off. The

planner solves the problem: choose $t(y)$ and d to maximize

$$SWF(t, d) = E[W(v(t, d, \tilde{\alpha}, \tilde{\gamma}))], \tag{2}$$

subject to:

$$E[t(\tilde{\alpha} \ell(t, \tilde{\alpha}))] \geq S,$$

where the social planner is constrained by the necessity of raising S in tax revenue. Social welfare SWF is a “weighted sum” of individual utilities, where W is the *weighting function*. Several things are worth noting about SWF . First, it will be assumed that the weighting function W increases in v . This means that the planner’s preferences over policy variables respect Pareto superiority. Second, the extent to which the planner is concerned about equity is reflected in the extent to which W ’s slope, $W'(v)$, decreases in v —i.e., the extent to which W is concave. To the extent that W flattens as it increases, the increase in social welfare from transferring “utils” to the less well-off will exceed the decrease in social welfare from transferring the same number of “utils” from the more well-off.

In order to show that the optimal level of damages will not be the efficient level, we will examine the derivative of social welfare with respect to d and evaluate that derivative at efficient damages.¹⁸⁵ If this derivative is not zero, then we know that efficient damages are not optimal. We can then examine the sign of this derivative to establish that social welfare can be improved by adjusting damages away from efficiency in a manner that helps those who are less well-off overall. Differentiating SWF with respect to d gives

$$\begin{aligned} SWF_d &= E[W'(v) \tilde{v}_d] = E[(W'(v) - \overline{W'}) \tilde{v}_d + \overline{W'} \tilde{v}_d] \\ &= E[\overline{W'} \tilde{v}_d] + E[(W'(v) - \overline{W'}) \tilde{v}_d], \end{aligned}$$

which may be further simplified and stated as a first-order condition:

$$SWF_d = \underbrace{\overline{W'} \overline{v}_d}_{\text{efficiency effect}} + \underbrace{\text{cov}[W'(v), \tilde{v}_d]}_{\text{equity effect}} = 0. \tag{3}$$

In this model, the efficient level of damages is the level of damages that maximizes the simple sum of individual utilities.¹⁸⁶ Maximizing the simple sum of individual utilities is the same as solving the social-welfare problem with a linear weighting function, for which $W'(v)$ is constant over v . The first-order condition for efficient damages in this case is $\overline{W'} \overline{v}_d = 0$, or equivalently,

$$\overline{v}_d = 0 \tag{4}$$

The first-order condition for efficient damages (equation (4)) differs from the first-order condition for socially optimal damages (equation

¹⁸⁵ The analysis applies holding the tax system $t(y)$ fixed in any configuration, including the optimal configuration.

¹⁸⁶ See *supra* note 42; Sanchirico, *supra* note 8, at 816 n.20.

(3)) by the covariance term $\text{cov}[W'(\tilde{v}), \tilde{v}_d]$. Thus whenever this covariance is not zero, socially optimal damages will not equal efficient damages. Barring negligible coincidence, this covariance term will be nonzero so long as both $W'(v)$ and v_d vary across the population.

The term $W'(v)$ will vary across the population so long as (1) well-being v varies across the population¹⁸⁷ and (2) W' varies in v , as it will when W is concave, reflecting the fact that the social planner cares about equity in the distribution of well-being.

The term v_d will vary over the population so long as changes in the damages rule, d , do not impact the utility of all individuals by precisely the same amount, a condition violated in Kaplow and Shavell's original model.¹⁸⁸

Equation (3) gives some information about the direction in which damages should be adjusted away from their efficient level. If $\text{cov}[W'(\tilde{v}), \tilde{v}_d]$ is positive, then social welfare is increasing at efficient damages and social welfare is improved by increasing damages above the efficient level. This covariance is positive where $W'(v)$ and v_d move together. Given a concern for equity, W is concave and $W'(v)$ moves against v . Thus, the covariance is positive where v and v_d move against each other, i.e., where those who are less well-off overall (those with low v) are made relatively better-off by the change in the damages rule (high v_d).

A symmetrical analysis applies when the covariance is negative. There, damages should be lowered below the efficient level because lowering damages tends to help those who are less well-off.

In accord with the discussion in Part III.B concerning the possibility of perverse outcomes, note that the equity adjustment here is determined with respect to the covariance between the impact v_d of the change and overall well-being v , not just tort well-being v^T .

3. *Where Kaplow and Shavell's Tax Substitution Argument Falters with Legal Heterogeneity: Mathematical Reprise*

This subsection complements the analysis in section A concerning Kaplow and Shavell's tax substitution proof. That section described how Kaplow and Shavell prove the sub-optimality of redistributive legal rules by showing that it is always possible to construct an alternative tax adjustment that mimics the redistributive impact of the legal rule, and raises revenue to boot. It was argued that this construction

¹⁸⁷ Well-being will vary across the population no matter how the income tax is structured. See Sanchirico, *supra* note 8, at 801.

¹⁸⁸ See *supra* Technical Appendix § B.1.

relied on the assumption that all individuals were identical with respect to the tort system. In the presence of legal heterogeneity, two things go wrong with Kaplow and Shavell's construction. First, the supplemental tax is not well defined when there are within-income-group differences: the redistributive impact of the legal rule will not be replicable with a tax that is keyed only to income. Second, even in the absence of within-group differences (i.e., even in the improbable case where individuals differ in their interaction with the legal system in tandem with their income differences), substitution of the constructed tax supplement will not be neutral with respect to individuals' labor-leisure choices. Without such neutrality, the tax supplement will not mimic the redistributive impact of the legal rule; neither is there any reason to think that it will raise revenue.

This subsection restates these arguments, but now in the symbolic notation of the Kaplow and Shavell model. The necessary technical apparatus has, for the most part, already been laid out in section B.1. However, we will now be considering damages rules that may depend on the incomes of the parties to the action.¹⁸⁹ Thus, imagine any initial pair of tax and tort policies, $t_0(y)$ and $d_0(y)$, respectively. The individual's problem is that of choosing care x and income y to maximize utility:

$$y - t(y) - \frac{y}{\alpha} - \left[x + p(\gamma x) d_0(y) + E[\tilde{p}(h - d_0(\tilde{y}))] \right]. \quad (5)$$

This form of the individual's problem differs from that discussed above in sections B.1 and B.2 in several respects. First, the individual's leisure-choice decision is stated in terms of choosing income rather than leisure; in other words, $\frac{y}{\alpha}$ is substituted for ℓ . This change is for convenience only and is of consequence otherwise.¹⁹⁰ Second, damages are now a function of the defendant's income. This affects the damages paid by our individual as well as the damages she receives. Third, in contrast to the analysis in section B.2, the analysis in this subsection is explicit about how legal heterogeneity enters the model. The parameter γ determines the impact of care effort x on the probability that the individual causes an accident $p(\gamma x)$, just like α measures the impact of labor effort ℓ on production and thus wages. Virtually any source of legal heterogeneity will have the same effect in the analysis that follows.

¹⁸⁹ For simplicity, we will only consider damage rules that are keyed solely to defendants' incomes. The analysis would be the same for the case considered by Kaplow and Shavell in which both parties' incomes determine damages.

¹⁹⁰ Assuming, of course, that α is never zero.

As noted in section B.2, varying the distribution of γ allows us to consider several different possibilities for legal heterogeneity. When γ is "trivially distributed," so that each individual has the same γ , there is no legal heterogeneity. When γ is nontrivially distributed, but is a deterministic function of α (i.e., the distribution of γ conditional on any α is trivial), there is legal heterogeneity, but there are no within-income-group differences. The general case of heterogeneity even within income groups is where γ is nontrivially distributed even conditional on α .

Given our arbitrarily chosen pair of tort and tax policies, $t_0(y)$ and $d_0(y)$, Kaplow and Shavell's tax substitution proposal consists of two simultaneous policy changes. First, damages are set to their efficient level, $d_1(y) = h$.¹⁹¹ Second, each individual pays, in addition to $t_0(y)$, a supplemental tax $s(y)$ equal to how much better-off she is within the tort system¹⁹² under the new efficient-damages regime (or equivalently, and in line with Table 3 in section A, how much *worse* off she is in the tort system when $d_0(y)$ is used instead of $d_1(y)=h$). Thus, letting $x_i(\alpha, \gamma)$ for $i = 0, 1$ be the individual's care choice before and after the change to efficient damages,

$$s(y) = -[x_1(\alpha, \gamma) + p(\gamma x_1(\alpha, \gamma))h] \\ - [-x_0(\alpha, \gamma) + p(\gamma x_0(\alpha, \gamma)) + E[\tilde{p}(h - \tilde{d}_0)]] . \quad (6)$$

The double negative is retained so that what is being subtracted corresponds notationally with the relevant portion of individual utility (see equation (5)).

We immediately encounter the first problem with the construction of this supplement to the income tax: Why should the right hand side of equation (6) be expressible as a function solely of income, y ? In other words, why would an individual's income tell us precisely how she benefits from the change from the initial damages rule $d_0(y)$ to efficient damages?

In the unaltered Kaplow and Shavell model, in which γ is the same for all individuals, the right-hand side of equation (6) can indeed be expressed as a function of individual income. In this very special case, we can ignore the variable γ . And since income is then an invertible function¹⁹³ of α in each regime $i = 0, 1$, we can replace

¹⁹¹ Setting damages equal to harm is still efficient even with the introduction of the variable γ . See the discussion surrounding equation (4) in this Technical Appendix.

¹⁹² Recall that due to Kaplow and Shavell's separability assumption it is possible to isolate and discuss well-being with the tort system.

¹⁹³ In particular, each level of income y is associated with no more than one level of productive ability α . In fact, one can show that income will be strictly increasing in productive ability.

every α on the right hand side of equation (6) with the corresponding income level. We thus obtain

$$s(y) = -[x_i + p(x_i)h] - [x_o(y_i^{-1}(y)) + p(x_o(y_i^{-1}(y)))d_o(y) + E[\tilde{p}_o(h - \tilde{d}_o)]] \tag{7}$$

Here $y_i^{-1}(y)$ denotes the level of productive ability α associated with income y in regime $i = 0,1$. Further, the variable α has been eliminated from the first addend because care taken in the efficient-damages regime is a function of neither α nor y . Notice that in contrast to equation (6) the right-hand side here is a function only of income y .

The supplemental tax is also well defined with legal heterogeneity, so long as there is no heterogeneity within income groups. Technically, this is the case in which γ is related to α according to some deterministic functional relationship $\gamma = \gamma(\alpha)$. In this case, within each damages regime, each income level y is associated not only with no more than one α , as above, but also—via $\gamma(\alpha)$ —no more than one γ . We may then replace each (α, γ) in equation (6) with the corresponding y . Furthermore, γ can be written as a function of y in both regimes. All told, equation (6) can be rewritten with the right-hand side varying across individuals as a function only of y :

$$s(y) = -[x_i(y_i^{-1}(y)) + p(\gamma_i(y)x_i(y_i^{-1}(y)))h] - [x_o(y_o^{-1}(y)) + p(\gamma_o(y)x_o(y_o^{-1}(y)))d_o(y) + E[\tilde{p}_o(h - \tilde{d}_o)]] \tag{8}$$

Here $y_i^{-1}(y)$ denotes the (α, γ) pair associated with y , and $\gamma_i(y)$ denotes the γ associated with y in regime $i = 0,1$.

Even though the supplemental tax is well defined in the case of no within-income-group differences, the second problem of the construction persists so long as there is *any* kind of legal heterogeneity. Kaplow and Shavell’s proof requires that each individual make the same income choice under the new efficient damages/supplemental tax regime as she did under the original regime.¹⁹⁴ The marginal benefit to an individual with income y of increasing her income in the old regime $(d_0(y), t_0(y))$, is, by equation (5):

$$\left[\underbrace{(1 - t'_0(y)) - \frac{1}{\alpha}}_{\text{more after-tax income, less leisure}} \right] - \left[\underbrace{p(\gamma_o(y)x_o(y))d'_o(y)}_{\text{more damages if injure}} \right]$$

The marginal benefit to the individual of increasing income above y in the new regime $(d_1(y) = h, t_1(y) = t_0(y) + s(y))$ is

¹⁹⁴ The reason why income-choice neutrality is a necessary step in Kaplow and Shavell’s proof is explained in section A of this Technical Appendix.

$$\left[\underbrace{(1 - t'_0(y) - s'(y)) - \frac{1}{\alpha}}_{\text{more after-tax income (accounting for supplement), less leisure}} \right] - \left[\begin{array}{c} 0 \\ \text{no effect on damages due} \end{array} \right].$$

The issue is whether the marginal benefits of earning more income in each regime, as just derived, are identical. This in turn reduces to the question whether $s'(y) = p(\gamma_0(y)x_0)d'_0(y)$, that is, whether the marginal supplemental tax in the new regime is the same as the effective marginal tax imposed by the adjustment of damages for income in the old regime.

In the complete absence of legal heterogeneity—as in Kaplow and Shavell's original model—the answer is yes. This is clear from differentiating equation (7) with respect to y and using the envelope theorem to eliminate derivatives in y that operate through changes in x_0 :

$$\begin{aligned} s'(y) &= x'_0 y_0^{-1} (1 + p'(x_0))d_0(y) + p(x_0)d'_0(y) \\ &= p(x_0)d'_0(y). \end{aligned}$$

Note that the individual's utility-maximizing choice of x_0 (ignoring γ) implies that $(1 + p'(x_0))d_0(y) = 0$.

If we add legal heterogeneity, however, this equality will not obtain—even if there are no within-income-group differences, as was assumed in construction of equation (8). Differentiating equation (8) with respect to y (with application of the envelope theorem to both x_0 and x_1) produces an extra term:

$$s'(y) = p(\gamma_0(y)x_0)d'_0(y) + \underbrace{\left(p(\gamma_1(y)x_1)\gamma'_1(y)h - p(\gamma_0(y)x_0)\gamma'_0(y)d_0(y) \right)}_{\text{extra term}}. \quad (9)$$

Thus the marginal supplemental tax in the new regime does not equal the effective marginal damages tax in the old regime.

Intuitively, the absence of income-choice neutrality with legal heterogeneity stems from the difference between simply imitating what someone else *does*, with consequences determined by one's own payoff functions, and actually stepping into someone else's shoes, in terms of both her actions *and* her payoff function.

Thus, imagine that there is legal heterogeneity, but not within income groups. Consider first the new regime with efficient damages and the tax supplement given by equation (8) (which equation is constructed under the assumption that there are no within-income-group differences). Imagine that the individual is deciding whether to change her income from some arbitrarily chosen level y to some other arbitrarily chosen level y' . This change will affect her total tax bill via her regular income tax and via the tax supplement. The change in

the tax supplement will be the difference between two differences. In particular, the change in her tax supplement will be the difference between the benefit to y' income individuals of a move to the new regime and the benefit to y individuals of the same regime change. These regime change benefits differ across the two income levels for two kinds of reasons.

First, there are the reasons that go solely to the differences in income between these two groups of individuals. In particular, because individuals at different income levels pay different amounts in damages in the old regime, the benefits they derive from switching to the new regime will differ.

Second are the reasons that go directly to the parametric differences between individuals who choose to earn y' and individuals who choose to earn y . By hypothesis, these differences are parallel to differences in chosen income levels. Yet it is worth noting for future reference that they are not driven by income differences. Were an individual in the y group to change her income to y' , she would not actually take on these different attributes of the group that chooses to earn y' . For example, in the discussion above surrounding equations (8) and (9), the particular parametric difference considered was "care ability" γ . All individuals who chose a given level of income had the same care ability, but had they decided to change their income, their care ability would have remained the same.

Now consider the situation where an individual changes her income from y to y' in the *old* regime with inefficient damages. Again, her regular income tax will change. In place of the change in the tax supplement, however, we have the change in how the individual fares in the income-contingent tort system. These two will differ. In the old regime, the individual's well-being changes only for the first effect mentioned above: the fact that she is choosing a different level of income. Because she still faces the same parameters, she does not fully step into the shoes of those who chose y' optimally in the old regime and the second effect mentioned above is absent.

The fact that the second effect is present only when the individual changes income under the supplemental tax and not under the old income-contingent damages regime corresponds to the presence of the extra term in equation (9). The extra term disappears only when individuals at any y' income face the same tort payoff function as individuals at any y income¹⁹⁵—i.e., only when all agents, within and across income groups, are identical with respect to the tort system.

¹⁹⁵ Mathematically, this occurs when $\gamma_i(y) = 0$, for $i = 0, 1$, in which case the extra term vanishes.