



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.



Queen's Economics Department Working Paper No. 1210

Why the Legal System is Not Necessarily Less Efficient than the Income Tax In Redistributing Income

Dan Usher
Queen's University

Department of Economics
Queen's University
94 University Avenue
Kingston, Ontario, Canada
K7L 3N6

2-2011

Why the Legal System is Not Necessarily Less Efficient than the Income Tax In Redistributing Income

Dan Usher
February 1, 2011

Abstract: A common, though by no means universally-accepted doctrine among practitioners of law and economics is that redistribution is no business of the law. This *efficiency-only* doctrine is not that redistribution is unworthy as a social objective, but that any given benefit to the poor is attainable at a lower cost to the rich through taxation than through the choice of legal rules. The rationale for the efficiency-only doctrine is that redistributive law creates a *double distortion*: an initial distortion arising from redistribution *pre se*, through taxation or through law, and an additional distortion all its own. The efficiency-only doctrine is sometimes valid, but is far narrower than its advocates would seem to suggest, and is inapplicable to most of what is commonly thought of as redistributive law. Redistribution is best supplied by a combination of law and taxation.

JEL Categories: H21, K13, K34

“Redistribution is accomplished more efficiently through the income tax than through the use of legal rules, even when redistributive taxes distort behaviour ...it is appropriate for economic analysis of legal rules to focus on efficiency and to ignore the distribution of income in offering normative judgments.”

Louis Kaplow and Steven Shavell, “Why the Legal System is Less Efficient than the Income Tax in Redistributing Income”, *Journal of Legal Studies*, 1994, page 677.

“There is every reason to help the poor man who happens to be a farmer, not because he is a farmer but because he is poor. The program” (a negative income tax) “should be designed to help people as people not as members of particular occupational groups or age groups or wage-rate groups or labor organizations or industries.”

Milton Friedman, *Capitalism and Freedom*, (1982 edition, page 191)

“For these reasons and more, economists who favour redistribution and economists who oppose it can agree that property law is usually the wrong way to pursue distributive justice. Unfortunately, these facts are not appreciated by many lawyers who have not studied economics.”

Robert Cooter and Thomas Ulen, *Law and Economics*, (fifth edition, 2008, page 113)

There is a doctrine within the discipline of law and economics that laws should be chosen for efficiency alone, leaving all redistribution to the tax system instead. The doctrine is not that redistribution itself is an unworthy objective of public policy, but that the consequences of redistributive but inefficient law are worse for everybody than the available alternatives.

The rationale for the *efficiency-only* doctrine is similar to Milton Friedman’s rationale for the negative income tax. As developed by Kaplow and Shavell, it is that an additional dollar’s worth of benefit to the poor can be provided at a lower cost to the rich by an increase in the rate of an existing negative income tax than by the introduction of a new law or change in the law for the sole purpose of raising the income of the poor. The efficiency-only doctrine rejects redistributive law, assigning all redistribution to the tax system, or, to be more precise, the doctrine promotes efficiency as the sole criterion for choosing among alternative laws, regardless of whether or not the law is redistributive.

The new redistributive law might be the replacement of the present system of parking fines that are the same for everybody, rich or poor, with a system of income-contingent parking fines, with higher fines on the rich than on the poor for one and the same offense. The new redistributive law would be inefficient if its benefit to the poor fell short of its cost to the rich, as might be the case if it yielded less revenue, were more expensive to administer or were less likely to deter harmful parking violations. Suppose, all things considered, the present system of parking fines imposed a cost of \$10 on everybody, while the new law imposed a cost of \$5 on the poor together with a cost of \$25 on the rich. If so, a switch to the new law yields a gain of \$5 to the poor at a cost of \$15 to the rich, generating redistribution at a “price” of \$3 to the rich per dollar acquired by the poor. Redistribution obtained on these terms is, by definition, inefficient if it could be obtained at a lower price by an increase in the rate of a negative income tax or in some other way. Comparison of “prices” of different modes of redistribution will be central to our analysis of the efficiency-only doctrine.

There is a simple case where the efficiency-only doctrine must surely be correct. It must

be correct if there is no deadweight loss in taxation because, in that case, an increase in the rate of a negative income tax generates a one-to-one transfer of income from rich to poor. The resulting price of income to the poor cannot be other than 1, and new redistributive law, with its implicit price of 3, would be needlessly wasteful.

The comparison is less clear-cut when deadweight loss in taxation interposes a gap between the full cost of taxation to the tax payer and the revenue acquired by the government for redistribution or for any other public purpose. Deadweight loss automatically raises the price of additional income to the poor from 1, when the tax rate is 0, all the way to infinity at the top of the Laffer curve. Under these circumstances, one might suppose there to be a balance between redistributive law and redistributive taxation at the point where their prices of income to the poor are the same. It is claimed here that this is in fact so, but to make the case it is necessary to breach a second line of defense of the efficiency-only doctrine: that redistributive but relatively inefficient law contains a *double distortion*, that it necessarily inherits the full distortion in redistributive taxation and adds an extra distortion all its own.

The double distortion argument - the basis for Kaplow and Shavell's support for the efficiency-only doctrine in the quotation at the front of this paper - is exemplified by income contingent parking fines. The higher fine paid by the rich under a system of income-contingent parking fines is like a rise in the income tax rate, generating the same extra deadweight loss as would be generated if the tax rate itself rose instead. That is the first distortion. In addition, income-contingent parking fines would be costly to administer and would induce inefficient patterns of parking violations. That is the second distortion. Redistributive taxation is unambiguously superior to redistributive law in so far as both generate the first distortion equally, but only the latter generates the second,

The claim here is not that the double distortion argument is invariably wrong, but that it is only valid for a narrow range of redistributive legal rules and is invalid for most of what proponents of redistributive legal rules would seem to have in mind. Redistributive legal rules can be classified as conforming to one of three distinct patterns

- a supplementary but relatively inefficient negative income tax.
- a costly transfer of a fixed amount of post tax income from rich to poor.
- a reassignment of gross income or of strands of property rights.

The claim here is that the double distortion argument is only valid for the first item on the list, and is invalid for the second and third items which together represent most of what is commonly thought of as redistributive legal rules.

Justification of this claim is straightforward once the required analytical machinery is in place. A distribution of income is specified. There is a list of redistributive legal rules. Two meanings of efficiency are distinguished. Deadweight loss is modeled as the consequence of tax evasion. Then the three patterns of redistributive legal rules are specified in detail and the relevance of the double distortion argument is determined in each case. The paper finishes with a discussion of implicit and explicit assumptions: the contrast between tax evasion and the labour-leisure trade off as sources of deadweight loss, the treatment of personal goods, the trade-off in practice between redistributive legislation and redistributive taxation.

The Scope of Redistributive Law

The interesting question about the “efficiency-only” doctrine in the quotation from Kaplow and Shavell¹ above is not whether it is right or wrong, but what exactly it is right, or wrong, about. Consider the following legal rules, all of which might be thought of as redistributive:

- Parking fines are levied in proportion to the income of the person who parks illegally.
- Parking fines are levied in proportion to the cost of the illegally parked vehicle .
- Setting damages higher when the injurer is wealthy and lower when the injurer is poor²
- Industrial accidents are the responsibility of the employer even when an accident is caused by the negligence of employees.
- No-fault insurance.
- Everybody, rich or poor, is entitled to sleep on park benches.
- Workers must not be paid less than some minimum wage.
- Workers may form a union.
- Land reform, expropriating large estates and reassigning the land in small plots to new peasant-owners.

Assume for the sake of the argument that all of these rules are inefficient in the sense that the adoption of each rule would cause the national income to be less than if the rule were not adopted. On that assumption, the quotation from Kaplow and Shavell would seem to imply that none of these rules should be adopted because whatever redistribution they provide can be provided more efficiently through the tax system. The implication is that, starting from a situation where any of these rules is in force, the rich and the poor can both be made better off by abolishing the rule and increasing redistribution through the tax system instead.

The Starting Point

Imagine a society with a given set of laws, a given distribution of income and a negative income tax the sole purpose of which is to narrow the distribution of income. [To keep the analysis simple, all other uses of public funds are abstracted away.] We have so far spoken of rich and poor without specifying what is meant by rich and poor in the context of an entire distribution of income. Following in the steps of Kaplow and Shavell, we assume from here on that, with the original law in force, there is a fixed, uniform distribution of gross (pre-tax,

¹Kaplow and Shavell (1994, 667) state that “For the purposes of this article, the term “legal rules” refers to rules other than those that define the income tax and the welfare system”. By contrast, Milton Friedman proposed the negative income tax as an alternative not to redistributive legal rules, but to the welfare system.

²This is Kaplow and Shavell’s principal example.

pre-transfer) income, Y^0 , from a minimum of Y_p^0 to a maximum of Y_R^0 . In numerical examples, it will be supposed that

$$Y_p^0 = 0 \quad \text{and} \quad Y_R^0 = 100 \quad (1)$$

This imposed uniform distribution of income has two advantages here: The first is that discussion of the effects of laws or taxes may concentrate upon the top and the bottom incomes, Y_R and Y_p , because all other incomes change smoothly in between. The second is that the demogrant of a negative income tax is a function of the sum of top and bottom incomes rather than of some complex property of the distribution of income as a whole.

Tax Evasion as the Source of Deadweight Loss

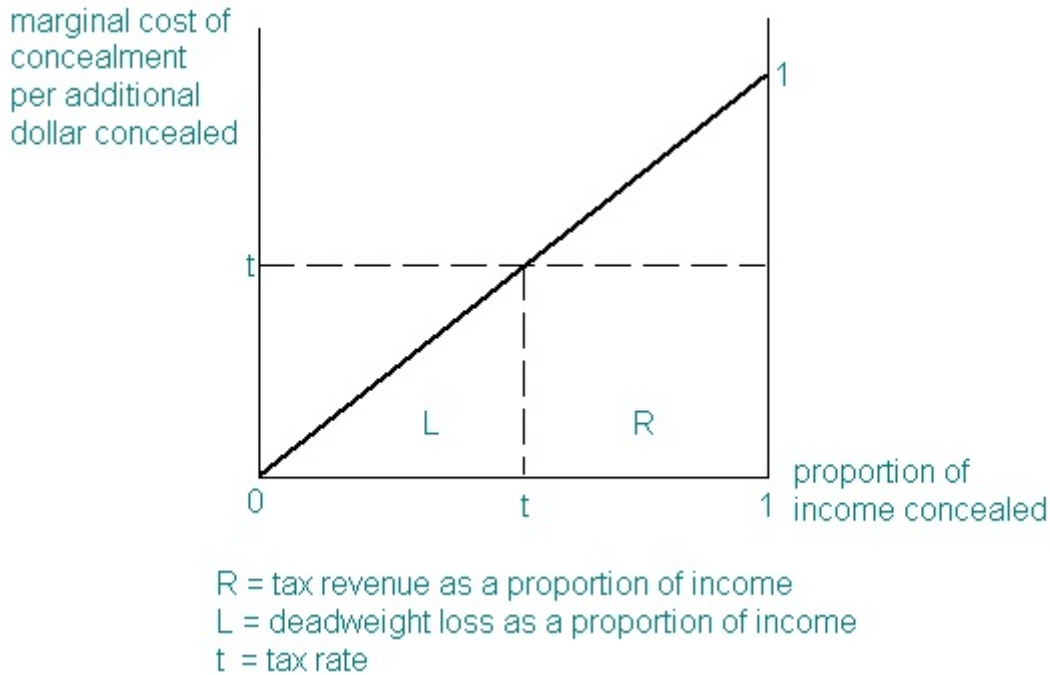
It is customary in public finance to portray the waste of resources in taxation, the deadweight loss, as originating from the tax-induced distortion of the labour-leisure choice. A different procedure is to be followed here. Deadweight loss is deemed to arise from tax evasion instead. There are several reasons for this choice: Deadweight loss arising from tax evasion has some properties in common with deadweight loss arising from distortions in the labour-leisure choice, but there are some differences too, and these have a bearing on the relative merits of legal rules and taxation for the redistribution of income. The mechanics of deadweight loss from tax evasion is very much simpler than the mechanics of deadweight loss in the labour-leisure choice. Propositions that may be hard to derive when deadweight loss originates from the labour-leisure choice pop out easily when deadweight loss originates from tax evasion. Most importantly perhaps, the derivation of deadweight loss without reference to the labour-leisure choice is the strongest way of countering the presumption in much of the literature of public finance that no other source is important or sufficient in itself. There is no reason to suppose that deadweight loss from tax evasion is the less important of the two.

The full social cost of tax evasion includes the cost to the taxpayer of concealing income, the cost to the government of detecting and punishing tax evasion, and the cost to tax evaders unlucky enough to be detected and punished. To focus upon deadweight loss and for simplicity of exposition, tax evasion is treated here as costly to the tax evader but undetectable. Think of the tax payer as hiding money underground where the tax collector cannot find it. The deadweight loss is the social cost of hiding income from the tax collector, the difference between the loss of public revenue from tax evasion and the corresponding gain to the tax evader himself.

The key assumption in modeling deadweight loss from tax evasion is that the marginal cost of concealing an extra dollar of income from the tax collector is an increasing function of the amount of tax already concealed. Specifically, the assumption is that, regardless of whether a person's pre-tax, pre-transfer income, Y^0 , is large or small, the additional cost of concealing the x^{th} percentile of income is exactly $x\%$ of the additional amount concealed, as illustrated in figure 1.

The horizontal axis shows the proportion of pre-tax income concealed, from 0 when none is concealed to 1 when one's entire income is concealed. The vertical axis shows the marginal cost of concealment, measured as a proportion of the additional income concealed. The diagonal line at 45 degrees to both axes is a reflection of the strong assumption that the cost of concealment per additional dollar concealed is just equal to the share of income already concealed. The tax payer hides income from the tax collector with absolutely no chance of discovery but at a cost as indicated by the height of the diagonal line. More expenditure than is indicated would be superfluous; less would be ineffective.

Figure 1: The Marginal Cost of Concealing Income from the Tax Collector.



Given this admittedly simple picture of tax evasion, a person's response to taxation is determinate. When the tax rate is t , a person hides a proportion t of his income and declares a portion $(1 - t)$, so that the fraction of true income (unconcealed or concealed) paid to the tax collector becomes $t(1 - t)$ represented in the figure by the area of the rectangle R . The fraction of his income used up in hiding income from the tax collector is $t^2/2$ represented in the figure by the area of the triangle L . The area of the triangle L is the waste of resources (or deadweight loss) in tax evasion; it is income used up by the tax payer but contributing neither to his own consumption nor to the revenue of the government.

Now suppose that the redistribution of income is arranged through a negative income tax where each person is taxed at a uniform rate t and where all public revenue is returned to the tax payers in equal amounts (called the demogrant) per head. With tax evasion as specified in figure 1, it follows that for any original income, Y^0 , and any tax rate, t ,

$$\text{Net income} = \text{gross income} - \text{tax paid} - \text{cost of tax evasion} + \text{demogrant} \quad (2)$$

$$\text{or} \quad Y(t) = Y^0 - t(1 - t)Y^0 - (t^2/2)Y^0 + t(1 - t)(Y_p^0 + Y_R^0)/2$$

To see why the demogrant is what it is claimed to be, note that every person pays a share $t(1 - t)$ of his gross income to the tax collector and that the average gross income per person must be $(Y_p^0 + Y_R^0)/2$.

The net income of the richest person is reduced to

$$Y_R(t) = Y_R^0[1 - t(1 - t) - t^2/2] + t(1 - t)(Y_p^0 + Y_R^0)/2 \quad (3)$$

and the net income of the poorest is increased to

$$Y_p(t) = Y_p^0 [1 - t(1 - t) - t^2/2] + t(1 - t)(Y_p^0 + Y_R^0)/2 \quad (4)$$

Equations (3) and (4) show the redistributive effect of a negative income tax on the understanding that the original law is in force. Replacement of the new redistributive law leads to modifications of these equations to be discussed presently.

When income is redistributed by means of a negative income tax, the price, $p(t)$, per dollar of additional income to the poorest person with income of the richest person as the numeraire - dollars lost to the richest person per dollar gained by the poorest person - becomes³

$$\begin{aligned} p(t) &= - [\delta Y_R / \delta t] \div [\delta Y_p / \delta t] \\ &= [1 + 2tY_p^0 / (Y_R^0 - Y_p^0)] \div [1 - 2tY_R^0 / (Y_R^0 - Y_p^0)] \end{aligned} \quad (5)$$

which is equal to 1 - meaning that dollars can be transferred one-for-one - when $t = 0$, but rises steadily with t all the way to infinity when t rises to $(1/2)(Y_R^0 - Y_p^0)/(Y_R^0)$.

If $Y_p^0 = 0$, meaning that the poorest person has no income other than the transfer under the negative income tax, then equation (5) boils down to

$$p(t) = 1/(1 - 2t) \quad (6)$$

and the highest feasible tax rate - the rate beyond which additional increases would reduce net incomes of both rich and poor - is 50%.

Thus, from equations (3) and (4), it follows that when the pre-tax income of the richest person is 100, when the pre-tax income of the poorest person is 0 and when tax evasion is as described in figure 1, the most that can be transferred to the poor by means of a negative income tax is 12.5 which is acquired at a tax rate of 50% and which imposes cost of 25 on the richest person.⁴

³Note that $[\delta Y_R / \delta t] = Y_R^0 [-1 + t] + [1 - 2t](Y_p^0 + Y_R^0)/2 = - (1/2)[(Y_R^0 - Y_p^0) + 2tY_p^0]$ and that $[\delta Y_p / \delta t] = Y_p^0 [-1 + t] + [1 - 2t](Y_p^0 + Y_R^0)/2 = - (1/2)[(Y_p^0 - Y_R^0) + 2tY_p^0]$ which, together, imply equation (5).

⁴The price of income to the poorest person with income to the richest person as the numeraire is closely related to the marginal cost of public funds defined as

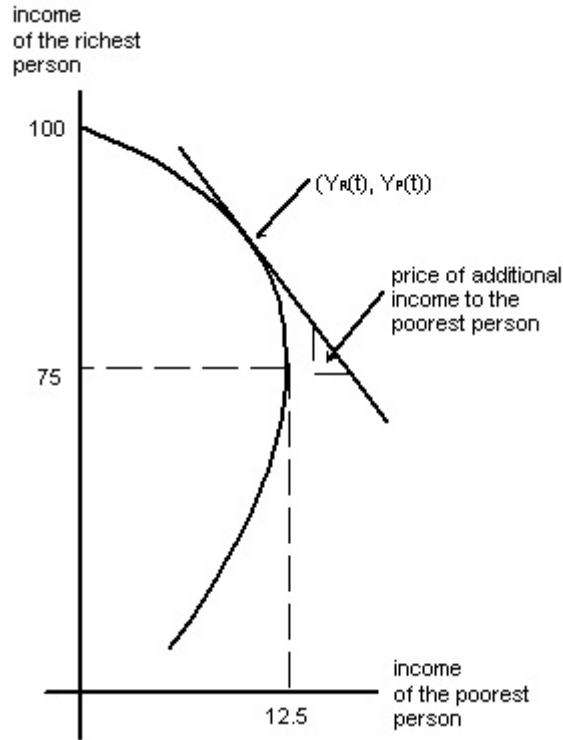
$$\{\text{additional tax paid} + \text{additional deadweight loss}\} / \{\text{additional tax paid}\}$$

resulting from a slight increase in the tax rate. Specifically,

$$\begin{aligned} \text{marginal cost of public funds} &= \{d[t(1 - t) + (t^2/2)]/dt\} / \{d[t(1 - t)]/dt\} \\ &= (1 - t)/(1 - 2t) \end{aligned}$$

which begins at 1 when $t = 0$ and rises to infinity when $t = 50\%$.

Figure 2: The Production Possibility Curve for Income of the Richest Person and the Income of the Poorest Person



All feasible combinations of net (post-tax, post transfer) incomes of the richest person and the poorest person, $Y_R(t)$ and $Y_P(t)$, are represented in Figure 2 as a production possibility frontier their net incomes, on the understanding that others' net incomes vary uniformly in between. The vertical axis shows the net income of the richest person, $Y_R(t)$. The horizontal axis shows the net income of the poorest person, $Y_P(t)$. Each point on the curve shows the combination of net incomes at some tax t , from $(100, 0)$ at $t = 0$ to $(75, 12.5)$ at $t = 50\%$ at which the net income of the poorest person is as large as it can be because, mirroring the Laffer curve, increases in the tax rate beyond 50% yield no extra tax revenue, reducing net incomes rich and poor alike. By construction, for any given rate of tax, t , the price of additional income to poor with income of the rich as the numeraire, $p(t)$, is represented by the slope of the production possibility at that tax rate in accordance with equation (6). The price of income to the poor rises steadily with the tax rate from 1 when $t = 0$ to infinity when $t = 50\%$ tracing out a supply curve (not shown) of income to the poor. A variant of Figure 2 will be used in showing when an increase in the rate of the negative income tax would be preferable to the introduction of the new redistributive law and when that would not be so.

A production possibility frontier like that in Figure 2 can be expected to exist in a wide variety of circumstances, extending well beyond the ascription of deadweight loss to tax evasion alone, but the size of the demogrant is at the mercy of arbitrarily-chosen parameters. The maximal feasible demogrant depends on the efficiency of tax evasion. The lower the marginal cost of concealing income from the tax collector, the smaller the maximum attainable demogrant

and the worse off everyone must be. Like efficiency in crime, efficiency in tax evasion must be harmful to the population as a whole.

It was assumed, quite arbitrarily, in the construction of Figure 1 that a person's marginal cost of concealment of one additional dollar is just equal to the proportion of pre-tax income already concealed, so that the slope of the curve in figure 1 is equal to 1. The marginal cost of concealment was assumed to be x when a fraction x of pre-tax income is already concealed. To see the significance of this assumption, suppose instead that the marginal cost of concealment is δx where a small δ signifies efficient tax evasion. Once again, the taxpayer conceals income from the tax collector up to the point where the marginal cost of concealment is just equal to the marginal cost of the tax that would otherwise be paid, i.e. $\delta x = t$. Now,

$$\text{Tax revenue} = R = t(1 - x) = t(1 - t/\delta) \quad (7)$$

$$\text{Deadweight loss} = L = tx/2 = \frac{1}{2} t^2/\delta \quad (8)$$

$$Y_p(t) = \frac{1}{2} t(1 - t/\delta)(100) \quad (9)$$

$$Y_R(t) = 100[1 - t(1 - t/\delta) - \frac{1}{2} t^2/\delta + \frac{1}{2} t(1 - t/\delta)] = 100[1 - t/2] \quad (10)$$

and
$$p(t) = - [\delta y(100, t)/\delta t] / [\delta y(0, t)/\delta t] = (\frac{1}{2}) / (\frac{1}{2} - t/\delta) = 1/(1 - 2t/\delta) \quad (11)$$

so that the supply curve in figure 2 becomes steeper as the cost of tax evasion, δ , falls.

The price, $p(t)$ in equation (6), of extra income to the poor was derived on the assumption that $\delta = 1$. On that assumption, tax revenue is maximized at a tax rate of 50%, generating a rise in the income of the poorest person from 0 to 12.5, a corresponding fall in the income of the richest person from 100 to 75, and a deadweight loss of 12.5. By contrast, if $\delta = 2$, signifying that tax evasion is twice as costly as had been assumed, tax revenue is maximized at a tax rate of 100%, generating a rise in the income of the poorest person from 0 to 25, a fall in the income of the richest person from 100 to 50, and a deadweight loss of 25.

The clean simplicity of the model rests upon the very strong assumption that tax evasion is either perfectly concealed or not concealed at all. For any given expenditure on tax evasion, income is concealed up to some fixed amount because additional concealment would surely be discovered unless expenditure on concealment were increased appropriately. On the strength of this assumption, the marginal cost per dollar of tax concealed as shown in figure 1 is a simple relation between dollars and dollars, presumed to be independent of prices of goods or of how net income is spent. A more realistic model of tax evasion would allow for a probability of detection dependent on the amount of tax concealed, the amount of public expenditure to detect concealment and the punishment when concealment is detected. Such a model, which is surely appropriate in some circumstances, would complicate the story in this paper without shedding much extra light upon the choice between law and tax as instruments for redistribution. (See Cowell, 1990)

Two Meanings of Efficiency

With the introduction of deadweight loss into the simple example at the outset of this paper, it becomes essential to recognize a distinction between what might be called *instrumental*

and *absolute* efficiency. Absolute efficiency is the maximization of income, either the national income or the sum of the incomes of all relevant parties, such as plaintiff and defendant in a legal dispute. A gain of \$5 to one person at cost of \$10 to another is necessarily inefficient in this sense of the term, no matter who the beneficiary happens to be. There are many circumstances, such as the allocation of public expenditure for road repair in different places or legal rules with no distributive implications, where absolute efficiency - the principle that a dollar-is-a-dollar-is-a-dollar to whomsoever it may accrue - is the appropriate objective.

By contrast, instrumental efficiency is the attainment of some objective while inflicting the least possible harm on people who are adversely affected. When the redistribution of income is an object of public policy, a gain to the poor may be acquired efficiently not in the sense that the national income is maximized, but in the sense that the increase in the income of the poor is procured with the least possible reduction in the income of the rich. An increase in \$5 to the poor at a cost of \$10 to the rich would be instrumentally efficient if the only other way to procure that \$5 increase would impose a cost of \$11 on the rich.

The distinction is important because, in so far as redistribution is expensive, a society seeking absolute efficiency ought typically to allow no redistribution at all, but a society prepared to buy some redistribution at the cost of diminishing the national income must choose its preferred point on the production possibility curve of net incomes in figure 2.

As expressed in the quotation from Kaplow and Shavel at the beginning of this paper, the efficiency-only doctrine is an appeal to absolute efficiency in the choice among alternative laws, on the understanding that redistribution belongs in the domain of taxation exclusively. Imagine a law that would cause an increase of \$2,000 in the incomes of each of 1,000 wealthy people, but would at the same time cause a decrease of \$1 to each of 1,000,000 poor people, raising the national income by a million dollars. The efficiency-only doctrine would require this law to be introduced because the new law can be combined with changes in tax rates to preserve the original incomes of poor people without at the same time reducing the national income as a whole. But the reassignment of income must be just right, taxing the 1,000 wealthy people between \$1,000 and \$2,000 each, and directing the extra revenue from the tax increase to the million poor people harmed by the new law.

Three Patterns of Redistributive but Inefficient Law

Patterns of redistributive law can be represented as modifications of equations,(3) and (4) converting gross to net incomes through a negative income tax. Think of these equations as describing the economy prior to the introduction of some new redistributive but inefficient law.

Three patterns will be examined in turn: The first treats the introduction of the new redistributive but inefficient law as analogous to a supplementary but less productive income tax. The second treats it as a transfer of net income from rich to poor. The third treats it as a transfer of gross income from rich to poor or as a reassignment of strands of in the bundles of property rights.

i) Why Redistributive but Inefficient Law May Be Worse for Everybody than an Increase in the Rate of the Negative Income Tax

The claim to be examined here is that the introduction of a new redistributive but

inefficient law is invariably harmful because everybody can be made better off - or the rich better off and the poor no worse off - by an appropriate increase in the rate of the negative income tax instead. The crux of the argument is that the new law creates a double distortion, replicating the deadweight loss of the equivalent increase in the negative tax in addition to whatever causes the law to be inefficient. The objection to this argument is not that it is universally wrong, but that it applies only to a tiny and relatively insignificant portion of the law. Thus, the natural starting place for a critique of the double distortion argument is a case, that of income-contingent parking fines, where the argument is valid. : income-contingent parking fines.

Originally, parking fines are the same for everybody. A fixed fine, F , is imposed for all parking violations regardless of the income or social status of the perpetrator of the parking violation. The new redistributive but inefficient law imposes an income-contingent fine, f , so that the dollar value of the fine is proportional to the income of the parking violator. It will be shown that the original fixed fine is unambiguously to the income-contingent fine because the original fine can be combined with an increase in the rate of the negative income tax to make everybody better off than they would be with an income-contingent fine.

Assume once again that people's gross incomes vary uniformly between a minimum of Y_p^0 and a maximum of Y_R^0 , and that originally a tax rate, t , is imposed. Suppose that the fine, F , is "correct" in the sense that it is just equal to the marginal cost to society as a whole of one extra parking violation. [It is assumed here for convenience that all parking violations are alike and all parking violations are detected by the police.]

Think of illegal parking as analogous to a commodity and of the fine as analogous to its price. With income-contingent fines, the prices of illegal parking - F_R to the rich and F_p to the poor - become

$$F_R = (\text{declared income of the richest person})(f) \quad (12a)$$

and
$$F_p = (\text{declared income of the poorest person})(f) \quad (12b)$$

The important consideration here is that a person confronted with an ordinary tax rate t and an income contingent fine of f is in exactly the same position as if he had been confronted with no fine but an income tax rate of τ where

$$\tau = t + f \quad (13)$$

That person's incentive to conceal income from the tax collector, and the corresponding deadweight loss, must be the same as well. On the extreme assumption that there is a zero elasticity of demand for illegal parking, the effects of an income-contingent fine at a rate f and an increase f in the rate of the negative income tax must be exactly the same. Both yield the same revenue and the same distortion from tax evasion and whatever else shrinks the tax base in response to increases in the tax rate. That is the first part of the double distortion from income-contingent fines.

The other part is a mixture of things.

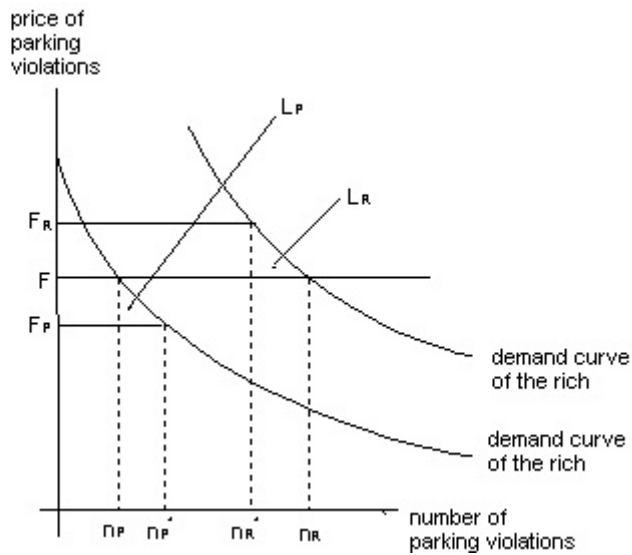
- Redistribution from income-contingent fines is *haphazard*. Some poor people never park illegally. Others do so often. Unlike the negative income tax that benefits all equally poor people equally, income contingent parking fines are only beneficial to those people who park illegally because their circumstances lead them to do so or because they have relatively low respect for the law. This was implicit in Friedman's quotation at the beginning of this paper.

- Administration of income-contingent fines is likely to be *expensive*. With a fixed fine, the person ticketed for parking illegally sends a cheque to the city hall. With income-contingent fines, each violator's income must be noted and the parking fine set accordingly, a process likely to cost more than the revenue from the fine.

- Declared income may be somewhat *unrepresentative* of people's places on the scale of rich and poor. A wealthy person may turn out to earn no income in some given year. Either that person's parking fine would have to be zero as well or some long-term measure of income would be required for the assessment of income-contingent fines.

- There may be a *maldistribution* of parking violations such that everybody, rich and poor alike, could be made better off if the poor had fewer violations, the rich had more and the poor were compensated by the rich for their loss.

Figure 3: The Maldistribution of Parking Violations



Extending the analogy between parking violations and ordinary commodities, demand and supply curves of parking violations are illustrated in Figure 3, with the quantity of parking violations on the horizontal axis and with the price of parking violations on the vertical axis. The height of the supply curve is the price that must be paid for parking violations. The three horizontal supply curves are respectively at the price, F , in the original legal regime where everybody, rich and poor, was fined at the same rate, at the price, F_R , of the higher fine to the rich in a regime of income-contingent fines and at the price, F_P , of the lower fine to the poor under a regime of income contingent fines. The two demand curves, one for the rich and other for the poor, show the number of parking violations “demanded” at various prices.

The switch from a fixed fine to income-contingent fines raises the poor person's demand for parking violations from n_P to n_P^* and lowers the rich person's demand for parking violations from n_R to n_R^* . Magnitudes of n_P^* and n_R^* depend upon the rate, f , of the income contingent fine, but one can think of the rate as chosen to keep the total number of parking violations unchanged so that

$$n_P^* + n_R^* = n_P + n_R \quad (14)$$

The right hand side of the equation is fixed for any given F . The left hand side increases as f falls and vice versa. The chosen value of f is whatever makes the two sides equal. Typically, there would be some change, ΔD , in the the demogrant, though it is hard to say, a priori, whether the change would be positive or negative. Specifically,

$$\Delta D = F_p n_p^* + F_R n_R^* - F(n_p + n_R)$$

Then,
$$\text{the total gain to the poor} = (F - F_p)n_p^* + \Delta D/2 - L_p \quad (15a)$$

where the first expression is the reduction in the fine to the poor, the second expression is the poor's share of the (positive or negative) change in the demogrant and the third expression is the deadweight loss associated with the reduction in the fine. Similarly,

$$\text{the total loss to the rich} = (F_R - F)n_R^* - \Delta D/2 + L_R \quad (15b)$$

The first two expressions in equations (15a) and (15b) are monetary gains and loss which must necessarily be the same because the net transfer to one party cannot differ from the net transfer from the other. The third expression in equations (15a) and (15b) is the deadweight loss when both rich and poor are confronted with "false" prices for parking violations, for, when the true social cost of parking violations is F , the prices F_R and F_p are respectively too high and too low. The total deadweight loss to both parties combined is $L_R + L_p$. This loss can be avoided by a reversion to the original fixed fine, F , coupled with an appropriate increase in the rate of the negative income tax. Define Z to be the common value of the monetary gain to the poor and the monetary loss to the rich, that is

$$Z = (F - F_p)n_p^* + \Delta D/2 = (F_R - F)n_R^* - \Delta D/2 \quad (16)$$

Both rich and poor would gain from the replacement of the income-contingent fine, f , with the original fixed fine, F , coupled with an increase in the rate of the negative income tax sufficient to increase the income of the poor by an amount between Z and $Z + L_R + L_p$.

At first sight, one might suppose that this manoeuvre could be blocked by a rise in the deadweight loss from the extra tax evasion in response to an increase in the rate of the negative income tax, but that is not so. As explained above, the income contingent fine is as conducive to extra tax evasion as the equivalent increase in the rate of the negative income tax. Hence the double distortion in the income-contingent fine from the maldistribution of parking violations and the additional waste of resources hiding income from the tax collector. Taking account of the entire range of incomes, rather than just the income of the richest and poorest persons, the cost of the first distortion per person is $(L_R + L_p)/2$. Recognizing that the income-contingent fine, f , is like an increase in the tax rate from t to $t + f$ and measuring the waste of resources in tax evasion as in equation (2), the cost of the additional tax evasion per person becomes $[(t + f)^2/2 - t^2/2][(Y_p^0 + Y_R^0)/2]$. Income-contingent fines generate both distortions. Fixed fines coupled with the equivalent increase in the tax rate generate only the first.

There is no trade-off here between redistributive (but inefficient) law and redistributive taxation because the distortion in redistributive taxation is inherited by redistributive law. The full distortion in redistributive law is invariably the larger of the two. As demonstrated by income-contingent fines, the case against the introduction of redistributive law is that everybody - rich and poor alike - can be made better off by an increase in the rate of the negative income tax instead. The new question becomes how far this argument can be pushed. It will be claimed below that the argument cannot be pushed very far beyond income-contingent fines.

Two final observations: If replacement of existing law by some redistributive but inefficient law is worse for everybody than an increase in the rate of the negative income tax, then presumably the replacement of existing law with a new efficient law - for which the sum of the gains to all beneficiaries exceeds the sum of the losses to everybody else - must also be advantageous for everybody, rich and poor alike, when coupled with an appropriate increase in the rate of the negative income tax, and this must be so regardless of the law's redistributive consequences. A new law yielding a million dollars to the rich at a cost of three-quarters of a million dollars to the poor should immediately be adopted because the poor can be more than compensated by an appropriate change in tax rates. Fishy as it seems, this too is an implication of the double distortion. The argument will be discussed in detail below.

Also, of the four costs of redistributive law as set out above - that benefits and costs are haphazard, that administrative cost is likely to be high, that taxable income is an imperfect indicator of people's true incomes, and that there is a maldistribution of parking violations with the rich parking too little and the poor parking too much - only the last is accounted for in the double distortion. In practice, the other three costs may be equally or more important. In particular, the strongest argument against income-contingent fines is that the cost of checking the income of each parking violator may be many times the revenue from the fine.

ii) Redistributive Law as a Transfer of Net Income from Rich to Poor

Laws may benefit the poor at the expense of the rich without provoking extra tax evasion. Suppose, for example, that the original law forbids everybody, rich and poor, from sleeping on park benches, while a proposed new law allows everybody to do so. The new law is inefficient as well as redistributive if the rich place a higher monetary value on parks free of sleeping bums than the poor place on the right to sleep there. Yet, one is unlikely to hide more of one's income from the tax collector depending on which of these laws is in force.

Generalizing this example, imagine a society already imposing a negative income tax at a rate t and contemplating the introduction of a redistributive but inefficient law that transfers an amount K to the poorest person at a cost δK to the richest person, with changes in all other incomes varying steadily in between. The value of δ must exceed 1 if the law is to be inefficient as well as redistributive. The question at hand is whether everybody, rich and poor, can be made better off by replacing the redistributive law by an increase, Δt , in the rate of the negative income tax, or, to simplify matters, whether a tax increase Δt can be found to make the rich person better off than under the redistributive but inefficient law but without making the poorest person any worse off.

Adoption of the redistributive but inefficient law changes the incomes of the richest and the poorest person from $Y_R(t)$ and $Y_P(t)$ as in equations (3) and (4) to $Y_P(t) + K$ and $Y_R(t) - \delta K$. If, instead, there is an increase Δt in the tax rate, the incomes of the richest and the poorest persons become $Y_R(t + \Delta t)$ and $Y_P(t + \Delta t)$. If the poorest person is to be kept equally well off in either case, then Δt must be such that

$$Y_P(t) + K = Y_P(t + \Delta t) \quad (17)$$

Subject to that constraint, the new redistributive but inefficient law is superior to the increase in the rate of the negative income tax if and only if

$$Y_R(t) - \delta K > Y_R(t + \Delta t) \quad (18)$$

The question becomes when, if at all, can that inequality be expected to hold.

Approximating $Y_P(t + \Delta t)$ by $Y_P(t) + [\delta Y_P(t)/\delta t]\Delta t$ and making use of equation (4), equation (18) reduces to

$$K = [\delta Y_P(t)/\delta t]\Delta t = (1 - 2t) Y_R^0/2 \quad (19)$$

Similarly, equation (19) reduces to

$$-\delta K > [\delta Y_R(t)/\delta t]\Delta t = -Y_R^0/2 \quad (20)$$

from which it follows that the redistributive but inefficient law is superior to an increase in the rate of the negative income tax

$$\delta K < Y_R^0/2 = K/(1 - 2t) \quad (22a)$$

or, equivalently, $\delta < 1/(1 - 2t) \quad (22b)$

But δ and $1/(1 - 2t)$ can both be interpreted as prices of additional income to the poor . The parameter δ is the price through the introduction of the redistributive but inefficient law. The expression $1/(1 - 2t)$ is the price through an increase in the rate of the negative income tax in the special case where $Y_P^0 = 0$. Since the redistributive law cannot be inefficient as well unless $\delta > 1$, it is evident that an increase in the tax rate is less expensive, and therefore preferable, to the introduction of the redistributive law at relatively low initial rates of tax for which $1/(1 - 2t)$ is small but not at relatively high rates of tax for which $1/(1 - 2t)$ is large.

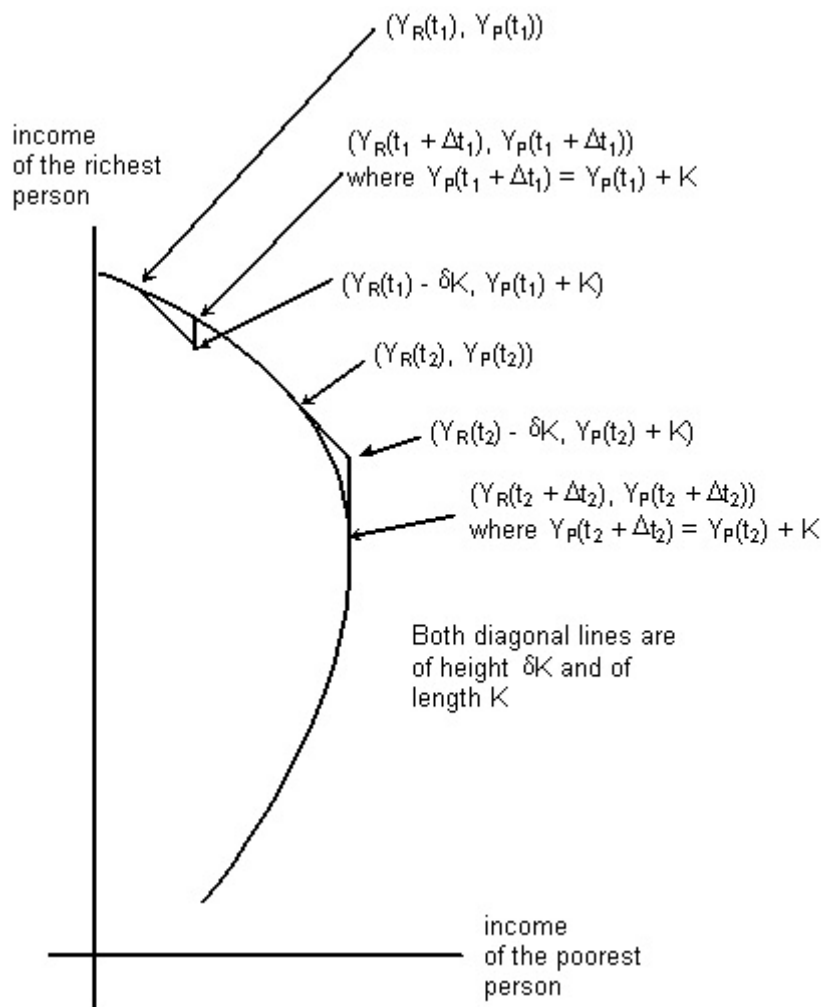
This is illustrated in figure 4, an extension of figure 2 above. Once again the curved line is the production possibility frontier, the locus of all tax-induced combinations of net incomes of the richest and the poorest persons under the original legal regime. The higher the tax, the lower the net income of the richest person and the higher the income of the poorest person up to some maximal amount. The slope at any point on the is the price of additional income to the poorest person with income to the richest person as the numeraire. For any given t , the price is $1/(1 - 2t)$ as explained in the discussion surrounding equation (6) above.

Starting at any point on the curve, the introduction of the new redistributive but inefficient law raises the income of the poorest person by K and lowers the income of the richest person by δK , as illustrated by the two identical downward-sloping spikes of length K and height δK , beginning at points on the curve corresponding to a low tax rate, t_1 , and to a high tax rate, t_2 . For each tax rate, there is some increase in the tax rate - Δt_1 for t_1 and Δt_2 for t_2 - making the poorest person as well off without the redistributive law as he would be if the redistributive law were in force instead. Then, whether the increase in the tax rate is better for society as a whole than the introduction of the redistributive law depends on what happens to the net income of the richest person.

The story in figure 4 is that, at the low initial tax rate, t_1 where the price of additional income to the poor is low as well, the introduction of the relatively redistributive law draws the incomes of the richest and the poorest persons *below* the production possibility frontier, making the richest person worse off for any given increase in the net income of the poorest person than if that increase had been procured by an appropriate increase in the rate of the negative income tax,

but that at the high initial tax rate, t_2 where the price of additional income to the poor is high as well, the introduction of the relatively redistributive law draws the incomes of the richest and the poorest persons *above* the production possibility frontier, making the richest person better off for any given increase in the net income of the poorest person than if that increase had been procured by an appropriate increase in the rate of the negative income tax.

Figure 4: How Redistributive but Inefficient Law May Be Advantageous at High Tax Rates but Not at Low Tax Rates



The pattern in figure 4 can emerge in various ways. The principal example of the double distortion was income-contingent parking fines. Suppose instead that fines are contingent not on the income of the parking-violator, but on the value of the illegally-parked car, higher for a shiny new Cadillac than for a beat up old jalopy. The difference between expenditure-contingency and income-contingency lies in their influence on the incentive to hide income from the tax collector. As shown in figure 1, one's propensity to conceal income depends upon the tax rate exclusively and not at all on prices of goods or upon how one's residual income is spent.

As with rules about sleeping on park benches, there is no double distortion in expenditure-contingent fines because the welfare loss associated with this implicit excise tax is entirely independent of the rate of the income tax.

On the other hand, expenditure-contingent fines could be replaced by a straightforward excise tax on luxury goods. Instead of choosing a higher fine for illegal parking of a Cadillac than for illegal parking of a jalopy, their purchase prices or registration fees might be adjusted accordingly, leaving parking violations to the police department and assigning the redistribution of income to the Ministry of Finance. As Kaplow and Shavell do not discuss the excise tax, it is hard to tell whether excise taxation of luxury good would be placed under the heading of redistributive taxation or redistributive law. It is a well recognized principle of public finance that the excise tax is less efficient than the income tax. Tax evasion can reverse that. If excise taxation is more difficult to evade than income taxation, the distortion in purchasing patterns in the one must be set against the greater waste of resources from tax evasion in the other. The proverbial English window tax may well have been efficient in its day.

iii) Redistributive Law as a Modification of Pre-tax Income or as a Reassignment of Strands of Property Rights

Much of what we think of as redistributive law - land reform, responsibility for industrial accidents, minimum wage law, the right to join a union - does not easily conform to the model of a supplementary income tax levied upon fixed pre-tax incomes. Rather, law for the benefit of the poor at the expense of the rich is often more like a modification of gross, pre-tax incomes or a reassignment of strands of property rights.

To model this, suppose the new redistributive law yields an increase, T , in the gross income of the poorest person coupled with a decrease λT in the gross income of the richest person, and with incomes varying continuously in between. The new law is necessarily redistributive. It is inefficient as well as long as the value of λ is greater than 1. Suppose that to be so. The equations converting gross to net incomes become

$$Y_R(t) = (Y_R^0 - \lambda T)[1 - t(1 - t) - t^2/2] + t(1 - t)(Y_p^0 + Y_R^0 - (\lambda - 1)T)/2 \quad (22)$$

and

$$Y_p(t) = (Y_p^0 + T)[1 - t(1 - t) - t^2/2] + t(1 - t)(Y_p^0 + Y_R^0 - (\lambda - 1)T)/2 \quad (23)$$

Equations (21) and (22) differ from equations (3) and (4) by replacing $Y_R^0(t)$ and $Y_p^0(t)$ in the first part of these expressions with $(Y_R^0 - \lambda T)$ and $(Y_p^0 + T)$ and by reducing the denominator in the second part from $t(1 - t)(Y_p^0 + Y_R^0)/2$ to $t(1 - t)(Y_p^0 + Y_R^0 - (\lambda - 1)T)/2$ to reflect the fall in average income.

The price of income to the poor becomes

$$p(t) = -\Delta Y_R / \Delta Y_p \quad (24)$$

where $\Delta Y_R = -\{\lambda T[1 - t(1 - t) - t^2/2] + t(1 - t)(\lambda - 1)T/2\}$

and $\Delta Y_p = \{T[1 - t(1 - t) - t^2/2] - t(1 - t)(\lambda - 1)T/2\}$

Inspection of equation (23) shows that $p(0) = \lambda$ (the initial loss to the rich per dollar of gain to the poor) when $t = 0$, but that $p(t)$ rises steadily with t .

Whether redistribution is best undertaken by a negative income tax, a transfer of property rights or a combination of the two depends what minimizes the cost to the rich for any given benefit to the poor, but that in turn depends on how much redistribution society chooses to provide. The new redistributive law would be unambiguously preferable if the transfer T could be made as large or as small we please and if $\lambda = 1$. The question is what happens when T is fixed and $\lambda > 1$.

Table 1 supplies a counter-example to the proposition at the heart of the double distortion argument that the introduction of a new redistributive but inefficient law is always worse for rich and poor alike than an equivalent increase in the rate of the negative income tax. It is shown instead that the proposition is true at low tax rates only, but is false when high tax rates are high.

Table 1: How Relative Efficiency Depends upon the Rate of the Negative Income Tax: Redistributive but Inefficient Law vs. an Increase in the Rate of the Negative Income tax

---- prior to the introduction of the new redistributive law -----
 --- after the introduction of the new redistributive law -----

t	$Y_p(t)$	$Y_R(t)$	$p(t)$	$Y_p(t)$	$Y_R(t)$	P	
0	0	100	1	4	92	2	
.0877	4	95.61	1.21				The original law with $t = .0877$ is superior to the new redistributive law with $t = 0$
.1	4.5	95	1.25	7.94	87.58	2.16	
.1980	7.94	90.1	1.66				The original law with $t = .1980$ is superior to the new redistributive law with $t = .1$
.25	9.375	87.5	2	12.125	80.75	2.46	
.4134	12.125	79.33	5.77				The new redistributive law with $t = .4134$ is superior to the original law with $t = .25$
.478	12.475	76.08	38.5	14.52	70.49	2.73	Tax rate maximizing $Y_p(t)$ under the new law
.5	12.5	75	∞	14.50	69.5	2.75	Tax rate maximizing $Y_p(t)$ under the original law
.6	12	70	- 5	13.84	64.88	2.78	Tax rate inefficiently high under either law

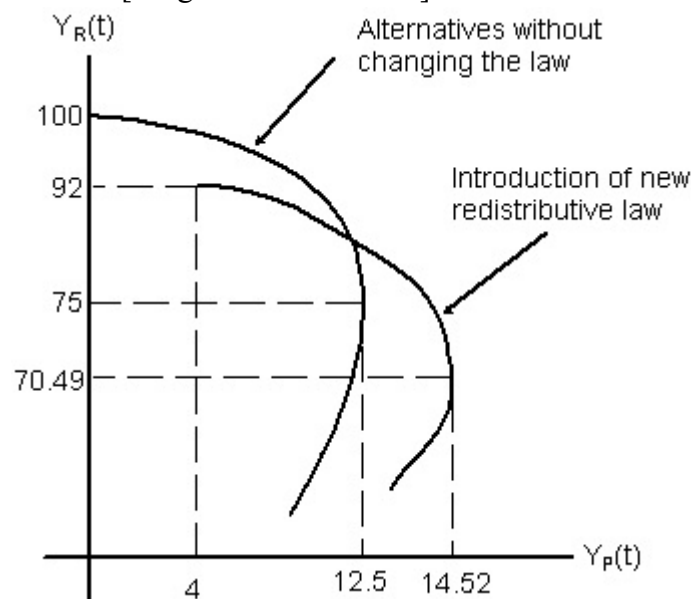
The postulated numbers in constructing the table are $Y_R(0) = 100$, $Y_p(0) = 0$, $T = 4$ and $\lambda = 2$. A set of tax rates, t , is chosen to illustrate significant features of the example. These are listed in the first column. The second and third columns, derived from equations (3) and (4), show net incomes of the poorest and the richest person, $Y_p(t)$ and $Y_R(t)$ at various rates of tax prior to the introduction of the new redistributive law. The fourth column shows the price, $p(t)$, of additional income to the poor generated, as shown in equation (6), by a slight increase in the tax

rate. The fifth and sixth columns, derived from equations (21) and (22), show net incomes of the poorest and the richest person after the new redistributive law is introduced. The seventh column shows a different price, the price, $P(t)$, of additional income to the poor generated the adoption of the new redistributive law. The price $P(t)$ is a function of t because it varies slightly depending on the initial tax rate in force when the new redistributive law is introduced. It is defined in equation (23) but is easily computed from the numbers in the table. It is $-\Delta Y_R(t)/\Delta Y_P(t)$ where $\Delta Y_R(t)$ and $\Delta Y_P(t)$ are the differences in $Y_R(t)$ and $Y_P(t)$ respectively with the new redistributive law in force.

The first row of the table shows the effect of the new redistributive law when $t = 0$; net income of the poor, $Y_P(t)$, is raised from 0 to 4, while net income of the rich, $Y_R(t)$, is lowered from 100 to 92. The other rows show that, as t rises from 0 to .5, the price p rises from 1 to infinity, and the price P rises from 2 to 2.75. It is approximately (since p is a derivative, while P is a ratio of finite amounts) where p overtakes P that the new redistributive law becomes the more efficient instrument of redistribution. The highest attainable income of the poorest person is 12.5 at a tax rate of .5 under the original law and is 14.52 at a tax rate of .478 once the new redistributive law in force. Increases in the tax rate above these limits reduces everybody's income

The superiority at low initial tax rates of an increase in the rate of the negative income tax to the introduction of the new redistributive law is illustrated in the first four rows of the table showing that a given increase in the income of the poor can be procured at a lower cost to the rich. Starting at $t = 0$ (and as shown in the first and second rows of the table), the income of the poorest person can be raised from 0 to 4 either by introducing the new redistributive law or by raising the tax rate from 0 to .0877. The poorest person is equally well off in either case. But the legal route lowers the post-tax income of the richest person by 8, from 100 to 92, while the legal route lowers the income of the richest person by only 4.39, from 100 to 95.61. A similar story can be told starting from an initial tax rate of .1. The income of the poorest person can be raised from 4.5 to 7.94 either by introducing the new redistributive law or by raising the tax rate from .1 to .1980. Initially, the income of the richest person is 95. The legal route lowers it to 87.58, while the tax route lowers it to only 90.1.

Figure 4: Combinations of Income of the Rich and Income of the Poor With and Without the Introduction of the New Redistributive but Inefficient Law
[Diagram Not To Scale]



At higher tax rates, the result goes the other way. Starting at $t = .25$, the income of the poorest person can be increased from 9.375 to 12.125 either by introducing the new redistributive law or by raising the tax rate from a switch from .25 to .4135, but the tax route lowers the income of the richest person from 87.5 to 80.75 while the legal route lowers it slightly more to 79.33 so that the legal route is superior in this case. There is a boundary at an initial tax rate of about .21 (not shown in the table) where the two routes are equivalent, in that a tax increase sufficient to keep poorest person as well off as he would be with the introduction of the new redistributive law would leave the richest equally well off too.

The story is illustrated in figure 4 with net income of the richest person on the vertical axis and net income of the poorest person on the horizontal axis. All of the numbers in figure 4 are from table 1, but the figure itself is not drawn to scale. The two curved lines are production possibility curves of net incomes, $Y_R(t)$ and $Y_p(t)$, of the richest and the poorest person before and after the introduction of the new redistributive law. On both curves, clockwise movements correspond to higher tax rates. In the absence of the new redistributive law, the curve begins at $Y_R(t) = 100$ and $Y_p(t) = 0$. As t gradually increases toward .5, the curve slopes downward to the point where the net income of the richest person is reduced to 75 and the net income of the poorest person is maximized at 12.5. Beyond that point, the curve turns back on itself because any further increase in the tax rate diminishes both Y_R and Y_p . With the new redistributive law, the curve begins at $Y_R(0) = 92$ and $Y_p(0) = 4$, but the maximum value of the net income of the poorest person is 14.52 rather than 12.5, and the corresponding value of the richest person is 70.49 rather than 75.

Figure 4 is a retelling of the story in table 1 that extra redistribution is best procured by the tax route when the initial tax is low and by the legal route when the initial tax rate is high. The efficiency-only doctrine which would have society reject the legal route regardless of the initial tax rate is clearly wrong in this case.

Additional Considerations:

i) The Labour-leisure Choice Verses Tax Evasion as the Source of Deadweight Loss

The contraction of declared income in response to taxation is, in practice, a combination of tax evasion, the labour-leisure choice, the choice between paid work and do-it-yourself activity, and so on. It is customary in the literature of public finance to focus upon the labour-leisure choice as the representative of these different ways for taxpayers to adjust behaviour to reduce the amount of tax they pay and as the source of deadweight loss in taxation. The paper makes use of tax evasion instead. The choice was justified for convenience and simplicity of exposition, but there is more to it than that.

To see what is at stake, consider once again the contrast between income-contingent and expenditure-contingent parking fines. If tax evasion were the only source of deadweight loss, a regime of income-contingent parking fines would contribute to the deadweight loss in taxation, but a regime of expenditure-contingent parking fines would not, for, as implicit in the construction of figure 1, the incentive to evade tax is independent of the prices of goods purchased with post-tax income. By contrast, if the labour-leisure choice were the only source of deadweight loss, both regimes would contribute to the deadweight loss in taxation because both would reduce the benefit to the taxpayer of additional income earned. Expenditure-contingent parking fines have both sources of deadweight loss. Income-contingent fines have only one. This in itself may be a sufficient objection to the efficiency-only criterion for the choice of legal rules. A balance between redistributive taxation and redistributive but inefficient legal rules may be warranted

because certain legal rules are free of some, though by no means all, of the sources of deadweight loss in taxation.

The matter is complicated by the possibility that the supply of labour supply is independent of the rate of the income tax because the income and substitution effects of an increase in the return to labour cancel out (Hartwick, 2000, 319). Consider a community of people with different wages, w , but with identical utility functions

$$u = h^\theta y \quad (25)$$

where h is hours of leisure, y is post-tax income and θ is a parameter that is the same for everybody. Each person chooses h to maximize u subject to a budget constraint. In the absence of taxation, the budget constraint is

$$y = (24 - h)w \quad (26)$$

When income is taxed at a rate t , the budget constraint becomes

$$y = (24 - h)w(1 - t) \quad (27)$$

Maximizing utility, u , subject to either budget constraint, the person chooses

$$h = 24\theta/(1 + \theta) \quad (28)$$

which depends on θ but is independent of the wage or the tax rate. If it just so happens that $\theta = 2$, then everybody, regardless his wage, takes 16 hours of leisure and works 8 hours a day.

When the labour-leisure choice constitutes a second source of deadweight loss, the choice between expenditure-contingent parking fines and an increase in the rate of the negative income tax becomes a choice between *two* double distortions. Three distortions would have to be considered: distortions arising from the labour-leisure choice, from tax evasion and from the inefficiency when rich and poor are provided with different incentives to not park illegally (different fines for acts with the same consequences for other people). An increase in the tax rate generates the first and second distortions. Expenditure-contingent parking fines generate the first and third. There is no presumption about which pair of distortions is the more harmful.

ii) The Productivity of Labour in the Avoidance of Accidents

Kaplow and Shavell have been taken to task by Sanchirico's (2000 & 2001) for their failure, in common with most practitioners of law and economics, to recognize the importance of equity in the design of the law. "Whatever the reason, it has of late become acceptable in law and economics to dispose of equity with a quick citation to the new-rational literature and a nonchalant gesture toward the income tax." (2001, 1069). Kaplow and Shavell are not the only guilty parties. See, for example, Hyland and Zeckhauser (1979) and Mirrlees (1971). Sanchirico emphasizes that "...whatever makes people more productive of output in the workplace also makes them more productive of precaution in potentially hazardous activities" so that "the high ability are less likely to cause an accident than the low ability". (2000, 801) "In other words, we could institute a multi-dimensional "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." (2001, 1027) A person's welfare is dependent upon the ability to avoid accidents as well as upon the ability to earn income. An ideal system of redistribution would take both into account. While

recognizing Sanchirico concerns about differences in people's ability to avoid accidents or to evade the law, and about the significance of such differences for the design of legal rules, this paper has little to say on the matter because the focus is elsewhere.

iii) Personal Goods

Suppose the only harm from an accident is that the victim must stop work for one month, losing the salary that would otherwise have been earned, \$3,000 if the victim is unskilled and \$30,000 if the victim is skilled. Suppose the original legal regime requires the person at fault to compensate the victim for lost income, whatever it may be. Similarly, if the victim's car is destroyed, the damages under the original regime are higher for a brand new Cadillac than for a beat up old jalopy. The effect of such law is to induce potential injurers to be more careful in the vicinity of high wage earners and of expensive cars. Such law may well be efficient, minimizing the dollar value of the sum of the cost of accidents and the cost of accident avoidance. An alternative, relatively redistributive law might set fixed fines for given types of harms - so much per day off work and so much for the complete destruction of a car - regardless of the victim's income or the dollar value of the injury. That societies have not adopted such laws suggests that they might be too expensive, but analogous rules have been adopted in other circumstances.

Consider the valuation of life. Normally, rich people would spend more than poor people to avoid a given risk of losing their lives. Respecting private valuations, efficient law would do the same. A negligence rule might assign responsibility for accidents if and only if the dollar value of the expected harm exceeded the cost of care, where the assigned dollar value of the expected harm in lethal accidents would have to include what the victim himself would have paid to avoid a given risk of death. And, since the amount one would be prepared to pay more to avoid a given risk of death would usually be higher for the rich than for the poor, a strict application of the negligence rule might hold the perpetrator responsible for certain types of accidents if and only if the victim is rich. Such a rule would be more efficient than the rules we actually apply. Society's unwillingness to follow the logic of efficiency to the bitter end in such situations can be looked upon as the adoption of redistributive but inefficient legal rules.

Similar considerations arise in the choice between fines and imprisonment. One person punches another person in the nose. If the penalty is a fine set independently of the wealth of the perpetrator, a situation may arise where the poor are deterred but the rich are not. "It gives me great satisfaction", says the rich man to his poor neighbour, "to punch you in the nose, and my satisfaction far outweighs the money value of the penalty imposed by the law for doing so". The social imbalance from this consideration may be a part - though certainly not the whole - of the reason why some crimes are punished by imprisonment rather than by fines, even though the monetary equivalent of a given number of days in prison is surely greater for the rich than for the poor.

These examples have a common theme. In any democratic society people have two partly overlapping and partly conflicting sets of rights: equal civil rights as citizens and unequal property rights as holders of different amounts of resources. People with large incomes can buy more than people with small incomes, but everybody has one and only one vote, and the punishment for murder is the same regardless of whether the victim is rich or poor. There is a domain within which all men are equal, a domain within which all dollars (or valuations in dollars worth) are equal and a fuzzy line in between. Most people would place rules about optimal care to avoid life-threatening accidents in the domain where all men are equal, even though rules about optimal care for property damage may depend upon the value of the property itself. The efficiency-only doctrine represents a potentially-dangerous shifting of the boundary between civil rights and

property rights.⁵

iv) Taxation vs. Law

Two propositions must be carefully distinguished: i) the *empirical* proposition that redistribution through a change on the law is, for several reasons, *likely* to be quite expensive, and ii) the *theoretical* proposition that redistributory but inefficient law is *never* preferable to a redistributionally-equivalent change in tax rates. The empirical proposition implies that the marginal cost of redistribution through taxation needs to be quite high before changes in the law become preferable. The theoretical proposition rules blocks redistributory but inefficient law altogether because such law bears the full cost as redistributionally-equivalent changes in taxation and more besides (the double distortion argument). Objections to the second proposition need not apply to the first. There are good reasons why, in practice, redistribution through taxation has much to be said for it, at least until the marginal cost of public funds becomes very high.

Foremost among these reasons is that redistribution should be comprehensive. Any two people with the same pre-tax, pre-transfer income should pay the same tax or receive the same transfer. The rationale for this principle is in part a reflection of the citizens' reason for redistributing income at all. Altruism toward the poor is typically directed to all poor people equally rather than to poor people in one industry or one location. Also, redistribution favouring this or that group of relatively poor people is likely to be wasteful, creating distortions of the sort described in Figure 3 above and, more importantly, generating rent-seeking contests among groups of poor people seeking public largess. This latter consideration is the basis of Friedman's support for the negative income in the quotation at the beginning of this paper.

These considerations are reinforced by the more general principle that the law ought not to be changed unless there is a strong reason for doing so. "An old law is a good law." because people will have had time to arrange their affairs and property values will have adjusted accordingly. Changes in the law upset property values, enhancing the values of some bits of property while reducing the values of others. Uncertainty about the content of the law creates a disincentive to invest and a misdirection of investment by comparison with what it would be if the law were secure. Better to redistribute through taxation and leave the law alone.

There are considerations on the other side too, reasons why redistribution through law may be more costly than the model of taxation discussed so far would lead one to believe. The distinction between comprehensive redistribution through the tax system and haphazard redistribution through redistributive changes in the law is by no means as sharp in practice as has so far been assumed. No country has ever instituted a negative income tax. The "proof" of the efficiency-only doctrine may not apply otherwise. Even if an appropriate increase in the rate of a negative income tax were invariably superior as a redistributor to inefficient legal rules, such rules might still be desirable within the tax system as it is today, with no demogrant and with a multitude of earmarks exempting this or that activity from taxation. Justification of the efficiency-only doctrine is based on a comparison of actual and ideal, where, for one reason or another, the ideal may be unattainable.

The tax system can be no less haphazard than the law. Some people acquire types of income that are especially easy to hide from the tax collector or to appropriate in forms subject to low tax rates. Also, though haphazardness is a relevant side-effect of much redistributory policy, it

⁵For a more extensive discussion of personal goods, see Usher (2001)

is only one of many considerations to be taken into account. Agricultural policy benefitting thousands of poor farmers *may* be socially-desirable on balance even though a few wealthy farmers are beneficiaries too. Haphazardness may be a fair price to pay in any particular instance of redistribution. The argument that redistribution may be haphazard is unlike the double distortion argument. The latter, where valid, blocks all redistribution through the choice of legal rules. The former must be balanced against deadweight loss in taxation in deciding whether any particular law or policy is advantageous on balance.

A negative income tax cannot be reserved for the demogrant alone. At a minimum, the government must provide for roads, schools and defense. That being so, the price of the first dollar of extra income to the poor must be considerably greater than 1. The story in table 1 was that an increase in the rate of a negative income tax is unambiguously superior to the introduction of redistributive but inefficient law at low tax rates but not at high tax rates. The story may be irrelevant because other indispensable uses of public funds must push up the tax-price of the first dollar of additional income to the poor.

In the extreme, prior redistribution of income together with other uses of public funds may drive the tax system to the top of the Laffer curve where no additional revenue can be acquired by further increases in the tax rate, so that additional redistribution can only be acquired by cutting back on other "essential" public services. Whether taxation has already pushed the economy beyond the point where tax increases yield no additional public revenue is a matter of some dispute. Feldstein (1995) has argued that this is so. Goolsbee (2000) has argued that it is not.

Regardless of the intentions of the advocates of the efficiency-only doctrine, objections to the doctrine may be based upon the fear that its ultimate impact is not just to redirect redistribution from law to tax, but to block redistribution altogether except in the unlikely case that it is (absolutely) efficient too. The efficiency-only doctrine transports redistribution to the tax system, but with no guarantee that it will survive there. If public expenditure is already high enough to place the economy at the top of the Laffer curve, there can be no room for additional taxation to finance additional redistribution. If so and if redistributive legal rules bear the same distortions as an increase in the rate of a negative income tax, then one way or another the poor are simply out of luck. It is the contention of this paper that redistribution is not blocked in this way because it can be brought about by measures with costs that are independent of, rather than additive to, the cost of redistribution through the tax system.

Concluding Observation

As redistribution through the tax system becomes progressively more expensive - as the marginal cost of public funds and the price of income to the poor increase - the importance of the legal system as a second redistributor either grows or shrinks depending upon the strength of the double distortion argument. Where there is a double distortion, a rise in the cost of redistribution through the tax system becomes an impediment to all redistribution, no less through the legal system than through taxation. At the top of the Laffer curve, the impediment becomes an absolute barrier. Attempts to supply additional redistribution through taxation or through the choice of legal rules are equally doomed to failure. But where there is no double distortion, the importance of redistribution through the legal system is enhanced, as it becomes the surviving route to redistribution when the other is blocked.

The story in this paper is about the range of applicability of the double distortion argument. The argument is valid when and in so far as redistribution through the choice of legal rules is like a second and relatively expensive income tax on a single tax base. The argument is valid for income-contingent fines, valid but largely superfluous because the main reason why

income-contingent fines are not imposed is that they would be costly and cumbersome to administer. The double distortion argument collapses when and in so far redistribution is like a reassignment from rich to poor of pre-tax income or of strands of property rights. Most of the items on the list of redistributive laws at the beginning of this paper fall within these categories. Very little of what proponents of redistributive legal rules would seem to have in mind is endangered by the double distortion argument.

Bibliography

Cooter, Robert and Ulen, Thomas, *Law and Economics*, fifth edition, 2008.

Cowell, Frank, A, *Cheating the Government: the Economics of Tax Evasion*, 1990.

Feldstein, Martin, "The Effects of Marginal Tax Rates on Taxable Income: A Panel Study of the 1986 Tax Reform", *Journal of Political Economy*, 1995, 551-72

Friedman, Milton, *Capitalism and Freedom*, 1982 edition, originally 1962.

Goolsbee, Austin, "What Happens when You Tax the Rich? Evidence from Executive Compensation", *Journal of Political Economy*, 2000, 352-78.

Hartwick, John, "Labour Supply under Wage Uncertainty", *Economic Letters*, 2000, 319-25.

Hyland, Aanund and Zeckhauser, Richard, "Distributional Objectives should Affect Taxes but not Program Choice or Design", *Scandinavian Journal of Economics*, 1979, 265-284.

Kaplow, Louis and Shavell, Steven, "Why the Legal System is Less Efficient than the Income Tax in Redistributing Income", *Journal of Legal Studies*, 1994,

Kaplow, Louis and Shavell, Steven, "Should Legal Rules Favour the Poor? Clarifying the Role of Legal Rules and the Income Tax in Redistributing Income", *Journal of Legal Studies*, 2000, 821-835.

Mirrlees, James, 'An Exploration in the Theory of Optimal Income Taxation', *Review of Economic Studies*, 1971, 175-208.

Sanchirico, Chris William, "Taxes Versus Legal Rules as Instruments for Equity: A More Equitable View", *Journal of Legal Studies*, 2000, 797-820.

Sanchirico, Chris William, "Deconstructing the New Efficiency Rationale", *Cornell Law Review*, 2001, 1005-1089.

Usher, Dan, "Tax Evasion and the Marginal Cost of Public Funds", *Economic Inquiry*, 1986, 563-586.

Usher, Dan, "The Marginal Cost of Public Funds is the Ratio of Mean to Median Income" *Public Finance Review*, 2006, 687-711.

Usher, Dan, "Personal Goods, Efficiency and the Law", *European Journal of Political Economy*, 2001, 673-703.