IN PRAISE OF WASTEFUL SPENDING

Steven E. Landsburg
University of Rochester

Abstract. In the presence of distortionary taxation, the destruction of wealth — either by an act of government or an act of God — can be welfare improving, because it increases the supply of labor and therefore (holding government spending constant) allows distortionary taxes to be lowered. We show that this effect can occur under reasonable assumptions on the labor supply and production functions.

Taking the level of government spending as given, what fraction of that spending should be wasteful? We show that — for reasons that have nothing to do with wage or or price stickiness, nothing to do with redistribution, and nothing to do with capital accumulation — the answer is not always zero.

That's because waste (or anything else that makes agents poorer) increases the supply of labor, which (holding government spending fixed, and assuming the economy is on the rising side of the Laffer curve) means that distortionary tax rates must fall. The corresponding efficiency gain can outweigh the cost of the initial waste.

For exactly the same reasons, a destructive hurricane can be welfare improving if the labor supply response allows a sufficiently large reduction in distortionary tax rates.

It is of course unsurprising, as a general proposition, that two deviations from a Pareto optimum can be better than one. But the particular case of distortionary taxes and wasteful spending seems to have been largely overlooked. One partial exception is Pelloni and Waldmann [PW], which tells a story where waste can improve welfare through its effect on the labor supply, which in turn affects capital accumulation, which in turn affects (endogenous) growth. By contrast, in our much simpler story, growth plays no role.

To emphasize this, we illustrate the effect in a straightforward one-period model (emphasizing that the effect is not only possible, but possible under reasonable hypotheses on parameter values), though (as was shown in earlier versions of this paper) one can derive similar results in a multi-period model with capital accumulation.

The Model. A representative agent maximizes a utility function $U(C, 1-L)$ where C and L represent consumption and leisure. The government taxes production at a rate θ and transfers an amount X to the representative agent. Total government expenditures (including the transfer) are fixed. Anything that's not transferred is wasted.

More precisely, the individual, taking X and θ as given, maximizes $U(C, L)$ subject to the constraint

$$C = f(L)(1-\theta) + X \tag{1}$$

and therefore sets

$$(1-\theta)f'(L)U_1((1-\theta)f(L) + X, 1-L) - U_2 = 0 \tag{2}$$

Meanwhile, the government chooses X and θ subject to the budget constraint

$$\theta f(L) = G \tag{3}$$

where G is the exogenously determined level of government spending.

We say that the economy is *paradoxical* if $dU/dX < 0$, with L and θ varying as functions of X to preserve (2) and (3).

We say that the economy is on the *rising side of the Laffer curve* if $d(\theta f(L))/d\theta > 0$, where the derivative is computed with X (but not G!) held fixed and L varying as a function of θ to preserve (2).

Note that if leisure is a normal good, then a paradoxical economy must be on the rising side of the Laffer curve. Proof: If the economy is *not* on the rising side of the Laffer curve then an increase in X reduces labor supply, which reduces government revenue, which the government must restore to its original value by *reducing* the tax rate, leaving agents unambiguously better off.

Conversely, we have:

Theorem. Suppose that leisure is a normal good and the economy is on the rising side of the Laffer curve. Suppose that the production function is of the form $f(L) = L^\alpha$. Then the economy is paradoxical if and only if

$$\theta > \frac{1+\eta-\alpha\eta}{1+\eta}$$

where θ is the tax rate and η is the *compensated* elasticity of labor supply with respect to the after-tax wage.

Proof. Differentiating equations (2) and (3) with respect to X and solving for for $d\theta/dX$ and dL/dX gives

$$\frac{dL}{dX} = -\frac{P}{A} \tag{4}$$
$$\frac{d\theta}{dX} = \frac{\theta W P}{fA} \tag{5}$$

where

$$P = (1-\theta)WU_{11} - U_{12} \tag{6}$$
$$A = \frac{\theta U_1 W^2}{f} + (1-\theta)U_1 f'' + (1-\theta)W^2 U_{11} - (2-\theta)WU_{12} + U_{22} \tag{7}$$

and $W = f'(L)$ is the pre-tax wage rate.

Note that leisure is a normal good if and only if $P < 0$ and that the economy is on the rising side of the Laffer curve if and only if $A < 0$. (The latter can be confirmed by computing the derivative with respect to θ of $\theta f(L)$ with X held fixed.) Thus our assumptions imply

$$P < 0 \qquad \text{and} \qquad A < 0 \tag{8}$$

From (1), (4) and (5), we get

$$\begin{aligned} \frac{dU}{dX} &= U_1 \frac{dC}{dX} - U_2 \frac{dL}{dX} \\ &= U_1 \left(1 - f(L)\frac{d\theta}{dX}\right) \\ &= U_1 \left(1 - \frac{\theta W P}{A}\right) \end{aligned} \tag{9}$$

Because U_1 is positive, (9) says that the economy is paradoxical if and only if

$$1 - \theta WP/A < 0 \tag{10}$$

.

In view of (8), (10) is equivalent to

$$A > \theta WP \tag{11}$$

or equivalently

$$LU_1 \left(\frac{\theta W^2}{f} + f''(L)(1-\theta) \right) > D \tag{12}$$

where

$$D = -(1-\theta)^2 W^2 U_{11} L + 2(1-\theta) W U_{12} L - U_{22} L \tag{13}$$

is the denominator of the compensated labor supply elasticity

$$\eta = \frac{(1-\theta) W U_1}{D} \tag{14}$$

Because D is unambiguously positive, (12) is equivalent to

$$\eta > \frac{(1-\theta) W U_1}{LU_1 \left(\frac{\theta W^2}{f} + (1-\theta) f'' \right)} > 0 \tag{15}$$

When $f(L) = L^\alpha$, (15) becomes

$$\eta > \frac{1-\theta}{\alpha - (1-\theta)} > 0 \tag{16}$$

or equivalently

$$\theta > \frac{1 + \eta - \alpha\eta}{1+\eta} \tag{17}$$

as advertised.

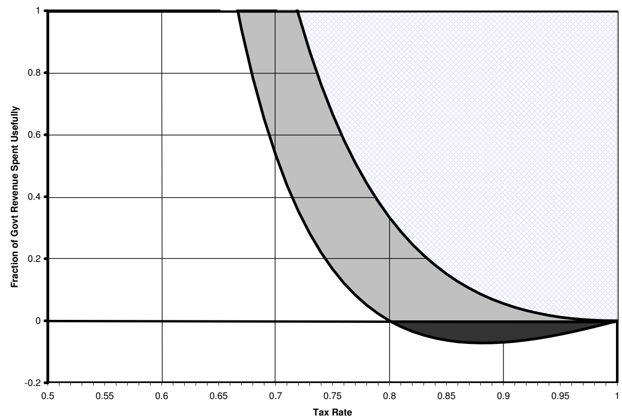
q.e.d.

Examples. If we take $\eta = .5$ and $\alpha = .67$, then the economy becomes paradoxical for tax rates above about 78% and below the rate at which the Laffer curve peaks. (The exact location of that peak depends on the utility function.)

If we consider the specific utility function

$$U(C, L) = \mathrm{Log}(C) + \frac{1}{2} Log(1-L)$$

then η varies with X and θ, but straightforward computations show that the economy is paradoxical for $(X/G, \theta)$ combinations in the shaded region of the following graph:



Here the left-hand boundary of the shaded region is the locus of equality for (17). In the cross-hatched region to the right, the Laffer curve is falling.

In particular, consider the more darkly shaded region below the X-axis, where useful spending is negative, i.e. the government imposes a head tax and discards the revenue. In this region, an increase in the head tax (or equivalently a destructive hurricane) is welfare- improving *even though 100% of the revenue is used to finance additional wasteful spending* — because a higher head tax leads to increased labor supply and allows the income tax rate to fall.

References

[PW] A, Pelloni and R. Waldmann, "Can Waste Improve Welfare?", *J. Pub. Econ.* 77 (2000), 45- 79.

Acknowledgements

Many thanks to Ryan Michaels and Mark Bils for multiple conversations, and to Henrik Kleven for helpful criticism of an earlier draft.