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A General Model of the Behavioral Response to Taxation

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Abstract

This paper generalizes the standard model of how taxes affect the labor-leisure choice by allowing individuals to change both their labor supply and avoidance effort in response to tax changes. Doing so reveals that the income and substitution effect of taxes depend on both preferences and the avoidance technology. Econometric analysis will not in general allow one to separately identify the two influences, unless one can specify observable determinants of the cost of avoidance. The effective marginal tax rate on working must be modified by the addition of an avoidance-facilitating effect, which measures how the cost of avoidance changes with higher income. This model provides a conceptual structure for evaluating to what extent, and in what situations, the opportunities for tax avoidance mitigate the real substitution response to taxation.

Keywords: taxation, labor supply, avoidance, evasion, tax reform

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1. Introduction

Legal responses to taxation can usefully be divided into two categories: real substitution responses, in which the tax-induced change in relative prices causes individuals to seek a different consumption bundle; and avoidance responses, in which taxpayers undertake a variety of tax planning, renaming, and retiming activities whose goal is to directly reduce tax liability without consuming a different basket of goods.[1] There is much evidence that suggests that the class of avoidance behaviors is more responsive to tax changes than are real substitution responses. Certainly, the evidence about the behavioral response to the major U.S. tax changes of the 1980s and 1990s suggests such a hierarchy of response (Slemrod (1992), Auerbach and Slemrod (1997)). At the top of the hierarchy, the most responsive to tax changes, is the timing of transactions. The doubling of capital gains realizations in 1986 in advance of the tax rate increase scheduled for 1987 is the prime example of this. In the middle of the hierarchy are financial and accounting responses, exemplified by the increase in home equity loans following the restrictions placed on the deductibility of consumer interest payments in 1986. Real substitution decisions, such as labor supply and savings, appear to be the least responsive category of behavioral response. Although the evidence on this question is mixed, the weight of the evidence suggests that these variables did not change in a significant way in response to the tax changes of the 1980s.

There are many possible explanations of the small observed real substitution response. Perhaps not enough time elapsed after the tax changes for individuals and firms to exhibit their long-term reaction to the changed environment. It may be that the tax changes, particularly the Tax Reform Act of 1986, were so complicated that it is difficult to accurately measure how the relevant relative prices changed. Of course, another possibility is simply that the relevant elasticities of real substitution are close to zero, so that a correctly measured elasticity is also quite low.

In this paper I investigate another possible factor: that the availability of timing, financial, and accounting responses to tax changes mitigates the real response, so that even in the presence of significantly non-zero elasticities of substitution little real response occurs. To do so, I construct a simple and general model of behavioral response, which allows individuals to change both their labor supply and avoidance effort in response to tax changes. The simplicity of the model clarifies the circumstances under which avoidance opportunities are inframarginal and the relationship between the two kinds of response to taxation. An important message of the model is that the behavioral response to a net-of-tax price, call it $p(1+t)$, depends on whether the price change is due to p changing or $(1+t)$ changing. That message is absent in standard positive models of taxation.

The relationship of labor supply, and consumption choice more generally, to tax *evasion* has previously been explored by, for example, Cowell (1985), Cremer and Gahvari (1993) and Sandmo (1981). These analyses treat evasion as a choice under uncertainty, in the tradition of Allingham and Sandmo (1972). As Cowell (1990) and Mayshar (1991) discuss, the Allingham-Sandmo model can be converted to a certainty-equivalent model similar to the one presented in this paper, in which one of the costs of tax evasion is the certainty value of the increased risk the evader bears. The Allingham-Sandmo framework has the advantage of being explicit about the costs of tax evasion, but the emphasis on the character of risk aversion can obscure some key points which are highlighted in the framework adopted in this paper.

The interaction between the real substitution response and the other responses is a pervasive issue for tax analysis because it is rare that taxes are levied directly on a real activity. Taxes are not levied on the income from labor, but rather on the *reported* income from labor, or on the income determined by auditors. Taxes are not levied directly on future consumption, but rather on the return to some, but not all, returns to savings instruments, or on certain portfolio shifts, as in the case of capital gains taxation. Thus, there are always avoidance margins as well as real margins that can potentially be adjusted.

2. A General Model of the Behavioral Response to Proportional Labor Income Taxation

In the standard textbook model of the effect of income taxation on labor supply,[2] the individual maximizes utility, which is a function of income, or consumption of goods, and labor supply, subject to a budget constraint affected by taxes:

$$\operatorname*{Max}_{L} U(Y, L) \tag{1}$$

subject to

$$Y = (1 - t)wL + M,$$

where Y is income, L is labor supply, t is a proportional tax rate, w is the wage rate, and M is non-labor income, presumed for simplicity to be untaxed. The Slutsky equations for the response of labor supply are as follows:

$$\frac{\partial L}{\partial t} = -wL\frac{\partial L}{\partial M} + w\left(\frac{1}{S}\right) \tag{2a}$$

$$\frac{\partial L}{\partial w} = (1 - t)L\frac{\partial L}{\partial M} - (1 - t)\left(\frac{1}{S}\right), \tag{2b}$$

where $\partial L/\partial M$ is the effect of income on labor supply, holding prices constant, and S is the substitution effect (i.e., the rate of change of the slope of the indifference curve between consumption and leisure, here defined to be a negative number). Note that (2a) and (2b) are isomorphic, as (2b) is just (2a) multiplied by $-(1 - t)/w$; the net-of-tax wage rate is all that matters for labor supply, and changes in w and t that leave $w(1 - t)$ unaffected are not material.[3]

Now generalize this problem by allowing the individual to reduce income subject to tax from wL to $(wL - A)$, at a cost of $C(wL, A)$. I will refer to A as avoidance. If there were no cost to avoidance, it would be pursued by all individuals until tax liability were zero (or, with a strictly flat tax rate and refundable taxes on losses, into the negative range). In this general formulation the cost of avoidance depends, with increasing positive marginal cost, on the amount of avoidance itself.[4]

The cost of avoidance may also depend on the amount of true income earned. For example, if more gross income makes it easier to hide a dollar of taxable income from the authorities, an inverse relationship applies. However, the key results of the paper do not depend on C_1 $(= \partial C/\partial(wL))$ being negative. Indeed, one can imagine scenarios in which it would be positive, such as in an Allingham-Sandmo type model where absolute risk aversion is increasing with income. In other cases, such as if avoidance requires one's own time, the cost of avoidance might depend on $w(1 - t)$ independently of wL and A.

The individual's problem becomes

$$\underset{L,A}{\text{Max}} = U(Y, L) \tag{3}$$

subject to

$$Y = wL - t(wL - A) - C(wL, A) + M.$$

It is likely that the marginal cost of avoidance is increasing, so that $C_{22} > 0$. As long as the "avoidance-facilitating" quality of true income (C_1) has diminishing returns, then $C_{11} \geq 0$. C_{12} is a critical parameter, as it captures the interaction between true income and avoidance in the avoidance technology. I will focus on the case where $C_{12} \leq 0$, so that higher income makes avoidance less costly and therefore more attractive at the margin. This seems the most likely case, although it is ultimately an empirical question. Note, though, that $C_{12} < 0$ is a necessary and sufficient condition for A increasing with wL.[5] This seems eminently plausible, and is consistent with the observed relationship of evasion to income—it is certainly a normal good.[6]

The first-order conditions for this problem are:

$$\frac{\partial U}{\partial L} = U_1[w(1 - t - C_1)] = -U_2 \tag{4a}$$

and

$$\frac{\partial U}{\partial A} = U_1(t - C_2) = 0, \quad \text{or} \quad t = C_2. \tag{4b}$$

Expression (4b) states that avoidance should be increased until its marginal cost, C_2, equals its marginal return of t. The first-order condition (4a) is the usual one that labor supply is optimal when the marginal rate of substitution of labor for income equals the net-of-tax wage rate. The critical aspect of the general model is that (when $C_1 < 0$) the net-of-tax wage rate includes an implicit subsidy to working equal to $-wC_1$, due to the fact that working more lowers the cost of avoiding taxes by that amount. The implications of this can be drawn out by examining the equations for the response of labor supply and avoidance to the tax rate and wage rate, which are summarized in Table 1.[7]

The avoidance opportunity shifts out the individual's budget set in terms of Y and L, given optimal A as a function of wL, changing its slope from $w(1-t)$ to $w(1-t-C_1)$. Because C_1 may itself depend on L, the budget line is no longer necessarily straight. D measures the change in the slope of the budget line as L increases. $D < 0$ corresponds to the assumption that $C(\ )$ is convex in both wL and A, and the individual faces a convex budget set. For example, when the cost per dollar of avoidance depends only on the amount of avoidance as a ratio to true labor income, D is zero, and the slope of the budget line is constant.[8] Note that the more negative is D, the lower is the (generally positive) value of $\frac{\partial L}{\partial w}|_U$. This occurs because as w increases, a proportionate increase in A becomes more costly per unit of wL, making the wage rate increase that much less of an increased incentive than otherwise.

Table 1. Comparative statics results.

$$\frac{\partial L}{\partial t} = -(wL - A)\frac{\partial L}{\partial M} + w\left(\frac{1 + C_{12}/C_{22}}{S + D}\right)$$

$$\frac{\partial L}{\partial w} = (1 - t - C_1)L\frac{\partial L}{\partial M} - \left(\frac{(1 - t - C_1) + LD/w}{S + D}\right)$$

$$\frac{\partial A}{\partial t} = -(wL - A)\frac{\partial A}{\partial M} + \frac{1}{C_{22}}\left(\frac{S - w^2(C_{12} + C_{11})}{S + D}\right)$$

$$\frac{\partial A}{\partial w} = L(1 - t - C_1)\frac{\partial A}{\partial M} - \frac{C_{12}}{C_{22}}\left(\frac{SL - w(1 - t - C_1)}{S + D}\right)$$

$$\left.\frac{\partial(wL - A)}{\partial t}\right|_U = \frac{w^2(1 + 2(C_{12}/C_{22}) + C_{11}/C_{22}) - S/C_{22}}{S + D}$$

$$\left.\frac{\partial(wL - A)}{\partial w}\right|_U = \frac{(1 + C_{12}/C_{22})}{S + D}(SL - w(1 - t - C_1))$$

Note: $D = -w^2[C_{11}C_{22} - C_{12}^2]/C_{22}$. The second-order conditions that assure that a maximum is attained imply that $S + D < 0$.

For most of what follows, I will concentrate on the substitution effects of changes in w and t. Note, though, that the income effect terms are modified to reflect that the tax rate affects income by an amount proportional to the tax base, which is now $wL - A$, and the wage rate affects income proportionally to the implicit net-of-tax rate $(1 - t - C_1)$. The income derivative itself, $\partial L/\partial M$, is also altered, being $S/(S + D)$ times as large as in the standard model. The income effect on avoidance, $\frac{\partial A}{\partial M}$, is equal to $-w\frac{C_{12}}{C_{22}}(\frac{\partial L}{\partial M})$. This reflects the fact that an increase in non-labor income has no direct effect on the marginal conditions determining A. If, though, M changes L, then that will change A through its effect on C_2. Note that $dA/d(wL)$ is precisely $-(C_{12}/C_{22})$.

As C_{12} (now assumed to be negative) rises in absolute value, the compensated decline in labor supply that would otherwise occur when t increases is somewhat mitigated. This is because the increased avoidance that accompanies the higher tax rate increases the avoidance-facilitating value of labor supply. A higher absolute value of C_{12} increases the positive effect on labor supply of a wage rate increase, because any labor supply increase that occurs also increases the attractiveness of avoidance; as above, increased avoidance increases the avoidance-facilitating value of labor supply. Thus, to the extent that $C_{12} < 0$, a (compensated) increase in w will be more effective at increasing labor supply than an equal percentage (compensated) increase in $(1 - t)$: an increase in pre-tax wage rates is more effective at increasing labor supply than a concomitant decline in the marginal tax rate. This is because only the tax rate cut will directly decrease avoidance and reduce the avoidance-facilitating value of labor income.

Introducing more interaction in the avoidance technology (i.e., making C_{12} a larger negative number) reduces the value of $\frac{\partial A}{\partial t}$, because to the extent that increasing t also reduces labor supply, this increases the marginal cost of avoidance and therefore makes it less attractive.[9] Other than the income effect, the wage rate affects avoidance only if there is interaction in the avoidance technology ($C_{12} \neq 0$). The larger is the absolute value of C_{12}, the larger is the positive wage rate effect, as more work decreases the marginal cost of avoidance.

The more negative is C_{12}, the more damped is the negative response of reported income to an increased tax rate, both because it scales down the labor supply response (which is zero if $C_{12} = -C_{22}$) and because it reduces the positive avoidance response. The reported income response is increased, though, because of the avoidance response itself, which is larger, *ceteris paribus*, the larger is $1/C_{22}$. The net change is of ambiguous sign. The response of reported income to wage rate changes is, however, always lower than in the standard model, as long as $-C_{12}/C_{22}$ $(= \frac{dA}{d(wL)})$ is positive and D is non-positive, as I maintain is the usual case. To the extent that $-C_{12}/C_{22}$ is positive, an increased wage rate makes avoidance more attractive, offsetting to some extent the induced increase in true income. As discussed above, a more negative value of D makes the labor supply response more inelastic.

One intriguing special case obtains when the cost of avoidance depends only on the taxpayer's reported income $(wL - A)$, which I will denote R. In this circumstance $C_1 = -C_2$, and $C_{11} = C_{22} = -C_{12} \equiv C_{RR}$. This has the startling result of making $\frac{\partial L}{\partial w}|_U$ equal precisely to zero. As it also makes $\frac{\partial L}{\partial w}|_U$ into exactly its value in the absence of taxes, *taxation has no (compensated) effect on labor supply.* Furthermore, the compensated response of reported income $(wL - A)$ to a change in w is always zero, because the increase in actual labor income will be exactly offset by an increase in avoidance. This occurs because, at the optimal amount of avoidance, C_2 equals t. But if only reported income affects the cost of avoidance, increasing actual income will be as effective in reducing cost as reducing avoidance itself, so that $C_1 = -C_2$. This implies that $C_1 = -t$ or, in other words, there is an implicit subsidy to working equal to wt, which exactly offsets the explicit tax rate. Thus a (compensated) reduction in t reduces avoidance but leaves labor supply unchanged, and increases reported income concomitantly. Although $C(wL - A)$ is unlikely to characterize exactly the avoidance technology, examining the properties of the model in this case highlights how consideration of avoidance can alter the behavioral response one expects based only on the elasticity of substitution inherent in the utility function.

3. An Example

A concrete example nicely illustrates the important points. Consider an avoidance cost function of the form $C = \alpha(\frac{A}{wL})A$, so that thc cost per unit of avoidance increases linearly with the ratio of avoidance to true income. The first-order condition of avoidance, $t = C_2$, yields $A^* = \frac{twL}{2\alpha}$, so that optimal avoidance is proportional to t, for a given value of wL. This, though, does not imply that the tax elasticity of avoidance is one, as in general L depends on t. The cost of achieving A^* is $\frac{t^2wL}{4\alpha}$, one-half of the tax savings of tA^*, so that the net increase in after-tax income is also $\frac{t^2wL}{4\alpha}$.

To make the example even more concrete I will assign parameters to the model: $t = 0.40$ and $\alpha = 0.50$. In this case optimal avoidance is forty percent of wL. The implicit subsidy to working per dollar of the wage rate due to avoidance facilitation, which is $-C_1$, is equal to $\alpha(\frac{A}{wL})^2$, or 0.08. Thus the true marginal tax rate on working is not the statutory rate of 0.40, but rather 0.40 minus 0.08, or 0.32. Note that, in this example, D is zero. The comparative static results are presented in Table 2.

A few aspects of these calculations are worth noting. First of all, the compensated tax elasticity of labor supply is only six-tenths of what it would be in the standard model. Furthermore, the compensated elasticity of labor supply with respect to w and $(1 - t)$, which are equal in the standard model, are not in the general model; the elasticity with respect to $(1 - t)$ is significantly lower; this is because an increase in t also generates an increasing avoidance facilitation effect, dampening the pure tax effect. Note also that the tax elasticity of avoidance is less than one because of the indirect effect on the cost of avoidance via induced changes in labor supply.

Table 2. Comparative statics results when $C = 0.5(\frac{A}{wL})A$ and $t = 0.4$.

$\left.\frac{\partial L}{\partial t}\right\vert_U = \frac{0.6w}{S}$	$\left.\frac{\partial L}{\partial(1-t)}\frac{(1-t)}{L}\right\vert_U = \frac{-0.6w(1-t)}{S} = \frac{0.36w}{SL}$
$\left.\frac{\partial L}{\partial w}\right\vert_U = \frac{(1-t-C_1)}{S} = \frac{-0.68}{S}$	$\left.\frac{\partial L}{\partial t}\right\vert_U \frac{w}{L} = \frac{0.68w}{SL}$
$\left.\frac{\partial A}{\partial t}\right\vert_U \frac{t}{A} = 1 + \frac{0.24w}{SL}$	
$\left.\frac{\partial A}{\partial t}\right\vert_U = 0.4\left[L - \frac{0.68w}{S}\right]$	

Because generalizing the model dampens the standard labor supply response but adds an avoidance response, the implications for the elasticity of taxable income $(wL - A)$ are not obvious. With this avoidance cost function and these parameters, $\frac{\partial(wL-A)}{\partial t}$ is $\frac{0.36w^2}{S} - wL$ while it is $\frac{w^2}{S}$ in the traditional model. If the standard labor supply response is small $(S \rightarrow -\infty)$, then the taxable income responsiveness is likely to be larger in the general model because of the additional avoidance response. If the standard labor supply response is large, the fact that this is dampened in the general model could make the taxable income response lower.

The avoidance cost function $C = \alpha(\frac{A}{wL})(A)$ is a special case of the class of cost-of-avoidance functions $C = \alpha w L^{-\gamma} A^{1+\delta}$, which share the characteristic that there is a simple relationship between the marginal effect of avoidance on real substitution behavior—the avoidance-facilitating effect—and the fraction of the potential tax base avoided. In this case the avoidance-facilitating effect is as follows, using the fact that at an interior solution $C_2 = t$:

$$C_1 = -\frac{\gamma t}{(1+\delta)}\frac{A}{wL}. \tag{5}$$

Thus, the effective tax rate, $t + C_1$, becomes $t(1 - \frac{\gamma}{1+\delta}\frac{A}{wL})$, implying that the percentage reduction in the effective tax rate is proportional to the fraction of the tax base avoided and two parameters of the cost-of-avoidance function. A special case of this cost function is one in which the per-unit cost of avoidance is a function of the relative amount of avoidance, i.e., where $\gamma = \delta$, so that $C = \alpha(\frac{A}{wL})^{\delta} A$. In this case the effective tax rate becomes $t(1 - \frac{\delta}{1+\delta}\frac{A}{wL})$.

4. Implications for Empirical Analysis

In the framework of the standard model, the estimated response of labor supply to the tax rate, holding income constant, reveals information about the utility function (in particular S, the rate of change of the slope of the indifference curve). The general model of behavioral response makes clear that in fact this response reveals a mixture of information about individual preferences and the avoidance technology.

There are several reasons why it is important to separately identify the structure of preferences and the structure of the avoidance technology. First of all, it is likely that the avoidance technology varies across individuals in systematic and observable ways. This implies that the behavioral response of labor supply to taxation will also vary, and the differential response can potentially be related to observable characteristics. Second, while in the standard model the labor supply response to a change in the pre-tax wage rate is identical (except for a multiplicative constant) to the response to a change in a proportional tax rate, that connection breaks down in the general model. Thus, estimates of the wage elasticity of labor supply do not necessarily carry over to estimates of the tax elasticity of labor supply, and vice versa. Separate identification of the structure of preferences and of the avoidance technology is required to nail down the relationship between these two elasticities. Thus, this model forces a reinterpretation of the results of, for example, Rosen (1976), who estimates a labor supply function of the form

$$\ln L = q_0 + q_1 \ln w + q_2 \ln(1-t) + q_3 X + u, \tag{6}$$

and interprets the estimated value of $(q_1 - q_2)$ as a measure of "tax illusion," or the tendency of taxpayers to be more aware of the pre-tax wage rate than the appropriate marginal tax rate. In the general theory of behavioral response presented here, the value of $(q_1 - q_2)$ has a structural interpretation that is unrelated to tax illusion.

The key to identifying separately the structure of preferences and the avoidance technology is to specify observable influences on the latter. What are appropriate variables depends on the nature of the avoidance behavior being studied. In a slightly different context, Slemrod (1999) examines time-series data on Michigan cigarette sales which span a major tax increase and a major change in the smuggling enforcement regime, which allows the estimation of both the substitution elasticity of cigarettes for other goods, and the avoidance elasticity of taxed versus untaxed (smuggling) cigarettes.

Another application of the general model is the investment location decisions faced by a multinational corporation. The worldwide pattern of tax rates and tax systems has two conceptually distinct impacts. First, it can affect the relative return to conducting real operations in different jurisdictions, and therefore the location of real activity. Second, given the location of real activity, taxes can affect the jurisdiction to which taxable income is reported; through the careful use of intra-corporate transfer prices and financial policy, multinational enterprises can reduce their worldwide tax burden by shifting reported taxable income into countries whose marginal tax rate is relatively low. Because the cost to shifting reported income is itself affected by the pattern of real operations, the two impacts of taxation are interrelated. To the extent that the cost of shifting reported income is reduced by having real operations in a low-tax country, the shifting opportunity proves an implicit subsidy to real investment in that low-tax country. Thus, to understand the real incentives facing the multinational enterprise, one must calculate what Grubert and Slemrod (forthcoming) call an "income-shifting-adjusted cost of capital." They estimate a particular functional form of the general model of investment and income shifting applied to U.S. corporations in Puerto Rico, a notorious tax haven for certain U.S. corporations.

5. Conclusions

The insights obtained from generalizing the standard model in this way apply not only to the labor-leisure choice, but also to a wide range of other problems. As an example, how does the statutory tax rate affect the saving of a high-income individual who faces a menu of tax-preferred vehicles for saving? The key lies in whether the cost of avoiding taxation depends on the volume of saving. If it does, then the true marginal tax on saving is less than the statutory rate.

In all these settings the standard model of the behavioral response to taxation is a special case of a more general model in which individuals or firms can, at some cost, reduce the amount of income that is taxed by means other than altering variables that enter the utility, or production, function. In the model of labor supply, as long as the marginal cost of avoidance depends on true labor income the real behavioral response to wage rates or tax rates depends on a mixture of the elasticity of substitution and the avoidance technology. The response of the tax base also depends on both factors.

This model provides a conceptual structure for evaluating to what extent, and in what situations, the opportunities for avoidance mitigate the real response to large tax reforms such as the kind implemented in the United States in 1981 and 1986. It may help explain why the observed real response was not as large as many economists might have predicted in 1980. Whether it can do that will depend on the empirical success of this model in explaining the behavioral response to taxation.

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Notes

1. Although, as elaborated on below, one's consumption basket may affect the marginal cost of avoidance.
2. Although in what follows, I illustrate the general model with the problem of how income taxation affects labor supply, the formulation applies to all varieties of behavioral response. Using labor supply to illustrate the general model may seem surprising because, for individuals whose only source of income is employee compensation for which tax is withheld by the employer, the opportunities for avoidance are very limited. The general model has richer implications for individuals with more opportunities for avoidance, such as the self-employed and those with more complicated financial situations, to most firms, and to non-income-tax situations where there is not practically costless observability of the tax base by the tax enforcement agency.
3. The income effects would not be isomorphic if the tax system was not presumed to be proportional.
4. To the extent that one input to avoidance is the taxpayer's own time, the after-tax wage rate would affect positively the cost of compliance, holding constant labor income and the amount of avoidance. In this paper I do not pursue the implications of this even more general formulation of the avoidance cost technology, as it would complicate the analysis without altering the fundamental insights of the model that I am trying to emphasize. Also, in practice some of the costs of avoidance may be tax deductible. Modeling this would also alter the comparative statics without altering the critical insights.
5. $C_{12} + C_{22} > 0$ is a necessary and sufficient condition for $wL - A$ increasing with wL.
6. See Christian (1994).
7. The derivations of these expressions, and the other comparative static results from the general model, are collected in an appendix to this paper available from the author.
8. Note that when D is zero, the wage rate effect on labor supply (though not the tax rate effect) is essentially the same as in the standard model. The only difference is that the impact of w is dampened by $1 - t - C_1$, rather than $1 - t$.
9. There are two other cases when only the avoidance technology matters. One is when C is a function only of R, so that $C_{11} = -C_{12} = C_{22}$. In this case D is zero and $\frac{\partial A}{\partial t}|_U = \frac{1}{C_{22}}$. The other case is when the elasticity of substitution is zero, so that $S = \infty$. In this case as well $\frac{\partial A}{\partial t}|_U = \frac{1}{C_{22}}$. What these two cases and the one noted in the text have in common is that there is no compensated labor supply response to a change in t; thus there is no interaction between labor supply and the attractiveness of avoidance.

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