

HERE TODAY, GONE TOMORROW: INCOME TAXATION OF CASH FLOW REVERSALS*

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INDIVIDUALS AND FIRMS SOMETIMES RECEIVE money that they are required to partially or fully repay in a later year. If the initial receipt is subject to income tax, how should the income tax system treat the subsequent repayment? Conversely, individuals and firms sometimes make payments for which they later receive reimbursement (or a refund from the initial recipient). If the initial outlay is deductible under the income tax, how should the income tax system treat the subsequent reimbursement? Both situations, which can generally be analyzed symmetrically, involve cash flows that are later reversed.

It seems plausible that the income tax system should account for the cash flow reversal in some manner. An additional question arises, however, if the taxpayer's marginal income tax rate changes between the time of the initial cash flow and the time of its reversal. Should the adjustment for the cash flow reversal then be based on the reversal year's tax rate or the tax rate at which the initial cash flow was recognized?

Intuition suggests that the reversal should be accounted for at the initial tax rate in some cases. Suppose, for example, that a taxpayer receives a wage payment on December 31, 2007, but is required to return \$10,000 of the payment on January 1, 2008 because it is determined that the wages were mistakenly overstated. If the taxpayer is in the 35 percent bracket in 2007 and the 10 percent bracket in 2008, taxing the initial receipt at the 2007 rate and deducting the repayment at the 2008 rate results in a \$2,500 net tax. Conversely, if the taxpayer is in the 10 percent bracket in 2007 and the 35 percent bracket in 2008, this policy results in a net tax of negative \$2,500. Intuition suggests that the receipt and repayment should result in no net tax, a result that can be attained by having the 2008 repayment deducted at the 2007 tax rate. A similar argument can be made with respect to expense

reimbursements. In this paper, I investigate whether and when this intuition supporting an adjustment at the initial tax rate is economically valid.

Current law generally accounts for cash flow reversals at the tax rate in effect at the time of reversal. Reimbursements of previously deducted expenses are generally taxed at the reimbursement-year tax rate and repayments of previously taxed income are generally deducted at the repayment-year tax rate. Section 1341 of the Internal Revenue Code provides an exception to this general rule, however, effectively allowing taxpayers to deduct some income repayments at the tax rate that applied to the initial income inclusion.

This paper provides a preliminary economic analysis of this issue in a simple two-period model. Under the assumption that the payments arise from real activity that occurred at the time of the initial cash flow, I find that it is often, but not always, preferable to account for the cash flow reversal at the initial tax rate. The analysis generally suggests that section 1341 should be expanded in scope, although such conclusions must be tempered by administrative concerns and by the limitations of the current model.

CURRENT LAW

This section provides a brief discussion of current-law rules.

General Rules of Inclusion and Deduction

In general, an amount received under claim of right must be reported as taxable income, even if there is a prospect that the taxpayer may be required to subsequently repay some or all of it. The rule of initial inclusion does not apply to security deposits and certain other types of deposits.

If included amounts are subsequently repaid, the repayment is generally deductible. For business activities, the repayment is a deductible business expense. An employee's repayment of previously taxed wages can be claimed only as an itemized deduction; also, if the repayment is less than \$3,000, the repayment is combined with

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other miscellaneous itemized deductions and only the excess of such deductions above 2 percent of income may be claimed. If the initial receipt arises from personal activities, the subsequent repayment may not be deductible. Any deduction is claimed in the year of repayment at that year's marginal tax rate, unless section 1341 applies. Before turning to section 1341, however, I describe the treatment of expense reimbursements.

Expenditures for tax deductible items can generally be deducted even if subsequent reimbursement is possible, unless that possibility rises to the level of a "clear prospect." The tax benefit rule generally requires that any subsequent reimbursement then be reported as taxable income when received. Variations in tax status over time are partly recognized; the reimbursement is tax exempt to the extent that the taxpayer did not receive a tax benefit from the prior deduction (for example, because the prior deduction reduced his taxable income to zero or because part of the deduction displaced the standard deduction that he would otherwise have claimed). But, to the extent that the taxpayer received some tax benefit from the prior deduction, the reimbursement is taxable at the reimbursement-year tax rate rather than the rate at which the initial outlay was deducted.

Section 1341

Section 1341 of the Internal Revenue Code effectively allows some income repayments to be deducted at the tax rate that applied to the initial inclusion. For this section to apply, the taxpayer must have included an item in gross income for a prior year because "it appeared that the taxpayer had an unrestricted right to such income" and a deduction must be allowable for the current year because it has been established "that the taxpayer did not have an unrestricted right to such item or to a portion of such item." (Section 1341 does not itself allow a deduction; a prerequisite for section 1341 relief is the availability of a deduction under some other Code provision.) Also, the allowable deduction must exceed \$3,000. Some types of income repayments, such as returns of inventory property and bad debts, are excluded from section 1341 relief.

If the taxpayer uses section 1341, he does not deduct the repayment from the current year's taxable income. Instead, he recalculates his income tax for the prior year, excluding the initial receipt, and then subtracts the computed prior-year tax

savings from his current-year liability. (If the tax savings exceed his total current-year liability, the excess is refundable in cash.) In effect, the taxpayer deducts the repayment at the tax rate that applied to the initial receipt rather than the current tax rate. Section 1341 relief may be claimed against both individual and corporate income taxes.

A crucial feature of section 1341 is that it applies only when it saves the taxpayer money. If the taxpayer's marginal tax rate has risen, so that he prefers to deduct the repayment at the new higher rate, he is allowed to do so. But, if his marginal tax rate has fallen, he may use section 1341 to effectively deduct the repayment at the higher rate that applied to the initial receipt.

Another important feature of section 1341 is that it applies only to income repayments, not expense reimbursements. No relief is provided to the recipient of an expense reimbursement who is taxed at a rate higher than the rate at which the initial expense was deducted.

For further details about section 1341, see (Maydew, 1999) and (Raby and Raby, 2002). The provision poses administrative burdens, which prompted Congress to impose the \$3,000 threshold. Raby and Raby advise taxpayers that "getting the benefit of section 1341 can be tricky. The IRS has a tendency to challenge its application, since, from the IRS's point of view, this is a can't win situation for the government" (p. 1183). The IRS has done little to publicize the provision and most individual taxpayers are probably unaware of its existence. IRS Publication 525, "Taxable and Nontaxable Income," itself an obscure document, instructs taxpayers to enter any section 1341 tax savings on line 70 of Form 1040 and to write "I.R.C. 1341" to the right of the entry. The Form 1040 instructions for line 70 do not refer to section 1341, however, instead identifying the line solely as the place to claim various other tax credits.

ECONOMIC ANALYSIS

I use a simple two-period model to analyze the economics of the income taxation of cash flow reversals.

Model

Letting positive cash flows denote taxpayer receipts and negative cash flows denote taxpayer outlays, I assume that the taxpayer's cash flow is X in the first period and $-hX$ in the second period.

I assume that h is greater than zero and less than or equal to one, so that the first-period cash flow is partly or fully reversed. I allow X to be of either sign, as the analysis applies both to income that is later repaid (positive X) and to expenses that are later reimbursed (negative X). I assume perfect foresight, but later briefly discuss the extension to a stochastic economy.

Let t_1 and t_2 denote the taxpayer's marginal tax rates in the two periods, where each rate is nonnegative and strictly less than unity. I assume that the income tax system taxes nominal interest income and allows a deduction for nominal interest expense. Let $r > 0$ denote the nominal interest rate between the first period and the second period. A crucial determinant of r is the length of time between the two periods, i.e. (the "reversal lag" between the initial cash flow and its subsequent reversal). For example, if the nominal interest rate is 5 percent per year, then r is .05 for a 1-year reversal lag and .629 for a 10-year reversal lag.

The optimal taxation of cash flows generally depends on their underlying source. I assume throughout this paper that they arise from real transactions in the first period. Specifically, if X is positive, the cash flows reflect payments the taxpayer received for providing goods or services, possibly labor, in the first period; if X is negative, the cash flows reflect payments the taxpayer made to obtain goods or services in the first period.

Appropriate Policy

I proceed by constructing an alternative hypothetical borrowing-and-lending transaction that yields before-tax cash flows identical to the actual transaction described above. I then define the "appropriate" tax policy as the policy under which *after-tax* cash flows are also identical across the two transactions. Neutral tax treatment of transactions with identical before-tax cash flows prevents inefficient arbitrage activity. This approach does not, of course, identify the fully optimal tax treatment that might prevail if all tax parameters could be re-optimized. Notably, this approach takes t_1 and t_2 as given and does not consider whether tax rate variation over time is desirable.

The alternative transaction is constructed by replacing the income repayment or expense reimbursement with an economically equivalent borrowing or lending transaction. If X is positive (negative), the before-tax cash flows from the actual

transaction can be replicated by receiving (paying) $X\{1 - h/(1 + r)\}$ in the first period for goods or services, borrowing (lending) an additional $Xh/(1 + r)$, and making (receiving) a loan payment of Xh in the second period, consisting of $Xh/(1 + r)$ principal and $Xhr/(1 + r)$ interest. For ease of exposition, I use the terminology applicable to the income-repayment case in the discussion that follows, although the results apply symmetrically to both income repayments and expense reimbursements.

The alternative transaction would be taxed as follows. Income of $X\{1 - h/(1 + r)\}$ would be taxed in the first period at the first-period tax rate and the interest payment $X(hr/(1 + r))$ would be deducted in the second period at the second-period tax rate. There would be no tax on the borrowing proceeds in the first period and no deduction of the principal repayment in the second period. The after-tax cash flows would then be $X\{1 - t_1 + t_1h/(1 + r)\}$ in the first period and $-Xh\{1 - t_2r/(1 + r)\}$ in the second period.

If the government observes h in the first period, it can tax the actual transaction in exactly the same manner as the alternative transaction. Under this approach, only $X\{1 - h/(1 + r)\}$ of the initial cash flow is taxed as income in the first period at the first-period tax rate and only $Xhr/(1 + r)$ of the repayment is deducted in the second period at the second-period tax rate. The original-issue discount rules and loan-loss-reserve rules follow this general approach, seeking to include in income only the present value of the amount that the taxpayer is expected to retain.

In many contexts, however, it may be difficult for the government to estimate the fraction of the initial receipt that the taxpayer will retain. As noted above, general tax rules then call for taxing the entire cash flow X in the first period at the first-period tax rate. If that is done, the appropriate second-period tax savings S^* is given by

$$(1) \quad S^* = Xh \left\{ t_1 + t_2(1 - t_1) \frac{r}{1 + r} \right\}.$$

With second-period tax savings of this amount, the after-tax cash flows from the alternative transaction can be replicated. In the first period, when the taxpayer receives X and pays tax of t_1X , the after-tax cash flow from the alternative transaction, $X\{1 - t_1 + ht_1/(1 + r)\}$, are replicated if the taxpayer borrows $Xht_1/(1 + r)$. In the second period, the

taxpayer makes the income repayment of Xh , also repays the $Xht_1/(1+r)$ loan with interest of $Xhrt_1/(1+r)$, deducts the interest payment at the second-period tax rate, and receives S^* as stated by equation (1). The resulting second-period after-tax cash flow, $-Xh - Xht_1\{1+r(1-t_2)/(1+r)\} + S^*$, is then equal to $-Xh\{1-t_2r/(1+r)\}$, the second-period after-tax cash flow from the alternative transaction. It can also be confirmed (details available from the author upon request) that this tax policy allows the government to replicate its alternative-transaction net cash flows if it lends $Xht_1/(1+r)$ in the first period. Finally, since the required lending by the government equals the required borrowing by the taxpayer, this tax policy also allows third parties to replicate their alternative-transaction after-tax cash flows.

Again, the analysis is symmetrical. In the expense-reimbursement case, when X is negative, the tax savings S^* is also negative, meaning that the expense reimbursement should bear a tax equal to the absolute value of S^* .

Conventional and 1341 Policies

The above analysis suggests that cash flow reversals should be taxed in accordance with equation (1). In the remainder of this paper, however, I assume that this will not occur. I therefore examine the relative merits of the two simple policies already in use; the “conventional policy” that accounts for cash flow reversals at the tax rate in effect at the time of reversal and the “1341 policy” that accounts for them at the tax rate that applied to the initial cash flow. Note that current law applies the conventional policy to income repayments when the taxpayer’s tax rate has risen and to all expense reimbursements; it applies the 1341 policy to income repayments when the taxpayer’s tax rate has fallen. In general, S^* , as stated by equation (1), differs from both Xht_2 , the tax savings from the conventional policy, and Xht_1 , the tax savings from the 1341 policy.

The tax savings, S^* , can be decomposed into two components, both of which have the same sign. First, the taxpayer deducts the repayment at the first-period tax rate to obtain a tax savings of Xht_1 , precisely as occurs under the 1341 policy. Second, the taxpayer deducts an interest-related fraction of the repayment at a tax rate equal to the second-period tax rate reduced by an interaction with the first-period tax rate, yielding a further tax savings of $Xht_2(1-t_1)r/(1+r)$.

The first component arises because first-period income was overstated by the full inclusion of X . Part of the initial receipt was not actually income because it was ultimately repaid by the taxpayer. The first term undoes that excess inclusion by deducting the repayment at the first-period tax rate that applied to the initial overstatement of income.

The second component is a time-value-of-money term, reflecting the fact that the excess inclusion occurs in the first period and is not undone until the second period. The magnitude of the second component depends upon r and hence upon the reversal lag. As the reversal lag and r approach zero, the second component vanishes and only the first component remains.

A simple way to understand S^* is that it represents the tax savings that the taxpayer would enjoy if he was allowed to amend his first-period return and to receive a refund of his first-period overpayment with (taxable) interest. The 1341 policy effectively allows a taxpayer to amend his first-period return and to receive a refund *without* interest.

As the reversal lag and r approach infinity, S^* approaches $Xh\{t_1 + t_2 - t_1t_2\}$. Since t_1 and t_2 are less than unity, $t_1 + t_2 - t_1t_2$ is also less than unity; the tax savings from the repayment are always smaller than the repayment.

This analysis yields the following conclusion:

The 1341 policy includes the first component of the appropriate policy but omits the second component. It therefore yields too small of a tax response to the cash-flow reversal (provides too little in tax savings for income repayments and imposes too little tax on expense reimbursements). As the reversal lag approaches zero, however, the second component of the appropriate policy vanishes and the appropriate policy converges to the 1341 policy.

This result resolves the earlier hypothetical concerning a cash flow on December 31 that was reversed the following day. Because the reversal lag is extremely short, the 1341 policy provides the correct treatment of this transaction. In accord with intuition, the reversal should be accounted for at the first year’s tax rate; the change in the taxpayer’s tax rate at the turn of the year should not result in positive or negative tax.

Given the assumptions of the model, it is not surprising that the 1341 policy comprises part of the

appropriate policy and converges to the appropriate policy when the cash flow is quickly reversed. The model assumes that the underlying real activity occurred in the first period and that the resulting income or expense would therefore be recognized in the first period under the alternative transaction. Since the portion of the cash flow that is later reversed should never have been recognized in the first period, that recognition should be undone, which requires a deduction at the first-period tax rate. The second-period tax rate is irrelevant for that purpose. The 1341 policy's only flaw is that it does not properly incorporate time-value-of-money considerations, a flaw that vanishes as the reversal lag becomes short.

Another result follows immediately from the above analysis:

When the second-period tax rate is lower than the first-period tax rate, $t_2 < t_1$, the 1341 policy is superior to the conventional policy.

As noted previously, the 1341 policy provides too small of a tax response to the cash flow reversal. If the second-period tax rate is lower than the first-period tax rate, then the conventional policy provides an even smaller tax response and therefore falls further short of the appropriate response. When tax rates have declined, current law properly allows the taxpayer to apply section 1341 to income repayments, but improperly fails to impose the 1341 policy on expense reimbursements.

Now, consider the converse case, in which the second-period tax rate is higher than the first-period tax rate. When tax rates have risen, the conventional policy yields a larger tax response than the 1341 policy. The conventional policy may then be superior; it replaces the first component of the appropriate policy with something larger, which can compensate for the continued omission of the second component. If the increase in the tax rate is too large relative to the magnitude of the second component, however, the conventional policy overcompensates. The following result explains when the conventional policy is superior:

The conventional policy yields tax savings closer to S^* in absolute value than the 1341 policy if and only if $t_2 > t_1$ and $r > t_2 - t_1/t_1 + t_2 - 2t_1t_2$.

To confirm this result, note that if r equals $(t_2 - t_1)/(t_1 + t_2 - 2t_1t_2)$, then equation (1) simplifies to S^*

$= Xh(t_1 + t_2)/2$). The tax savings from the conventional policy, Xht_2 , and those from the 1341 policy, Xht_1 , are then equidistant from S^* . When r is above (below) this critical value, the tax savings from the conventional policy are closer to (further from) S^* than the tax savings from the 1341 policy.

In practical terms, this result suggests a limited role for the conventional policy. The following qualitative conclusion will be justified below:

If the increase in tax rates is significant (so that the choice between the conventional policy and the 1341 policy is important), the conventional policy is superior only if the reversal lag is relatively long.

For example, suppose the first-period tax rate is 20 percent and the second-period tax rate is 40 percent. The two policies are equally good if r is greater than .455 (which corresponds to a reversal lag of more than seven years at a 5 percent nominal interest rate) because S^* is then 30 percent of the repayment. If r is below .455, S^* is between 20 and 30 percent of the repayment and it is better to use the 20 percent first-period tax rate. As r rises above .455, S^* is greater than 30 percent and the 40 percent second-period tax rate yields better results than the 20 percent first-period tax rate. For example, if r is 1 (a reversal lag of about 14 years), S^* is 36 percent of the repayment; as the reversal lag and r approach infinity, S^* approaches 52 percent of the repayment.

When the two tax rates are relatively similar, the condition $r > (t_2 - t_1)/(t_1 + t_2 - 2t_1t_2)$ is more easily satisfied and the conventional policy is more likely to be superior. For example, if the first-period tax rate is 20 percent and the second-period tax rate is 21 percent, then the conventional policy dominates if r exceeds .0307, a reversal lag of less than one year. In such a case, however, the gain from using the conventional policy is small, simply because the two policies are so similar.

Under current law, the conventional policy always applies when the tax rate has risen. Taxpayers choose not to apply section 1341 to income repayments in that case and they are not allowed to apply section 1341 to expense reimbursements.

Policy Implications

Under the maintained assumption that the tax system must choose between the conventional and 1341 policies (rather than adopting the appropri-

ate policy), the above analysis generally supports a broader scope for the 1341 policy than that provided by current law. The analysis suggests that section 1341 should be extended to apply to expense reimbursements as well as income repayments, since the economic considerations are symmetrical across the two cases. Also, section 1341 generally should be mandatory rather than elective. Taxpayers should be required to deduct their income repayments at the prior tax rate even when it is lower than the current tax rate and therefore disadvantageous. Conversely, if section 1341 is extended to expense reimbursements, taxpayers should generally be taxed on their reimbursements at the prior tax rate even if it is higher than the current tax rate.

The above conclusions do not apply, however, when the reversal lag is lengthy and the taxpayer's tax rate has risen significantly. In that situation, taxpayers should not be required to apply section 1341 to income repayments and they should not be allowed to apply it to expense reimbursements (if section 1341 is otherwise extended to apply to reimbursements).

In practice, of course, the administrative complications of section 1341 have to be taken into account, particularly for small transactions. If its use is expanded along the lines discussed previously, it may be desirable to increase the \$3,000 threshold amount.

EXTENSIONS

The analysis can be generalized to accommodate some uncertainty concerning the fraction of the cash flow that will be reversed. If individuals are risk-neutral or if the uncertainty can be perfectly hedged with traded financial assets, then the principles set forth in Auerbach and Bradford (2004) imply that the policy described in equation (1) is still appropriate. It is sufficient to recognize the actual repayment rather than the expected repayment and to use the safe interest rate to compute the time-value-of-money term. The reason is that taxpayers

are either indifferent to the gap between actual and expected values (in the case of risk neutrality) or can offset that gap with hedging transactions. The analysis must be modified, however, in the more realistic case in which taxpayers are risk-averse and existing financial assets cannot perfectly hedge the uncertainty about the reversal amount.

A crucial assumption throughout this paper is that the underlying real activity (the provision or acquisition of goods or services) occurred in the first period. That assumption was used in constructing the alternative transaction, in which the income component of the initial payment was taxed at the first-period tax rate and the remainder was treated as a form of borrowing or lending. As explained above, the general superiority of the 1341 policy arises because the underlying income is earned in the first period and therefore should be taxed at the first-period tax rate. If the underlying real activity occurred in the second period, the second-period tax rate would play a more prominent role. It would also be fruitful to examine multi-period models.

CONCLUSION

Although restrictive, the analysis of this paper has some policy implications. A provision like section 1341 has a useful role to play in an income tax system and it may be appropriate to expand its current scope. Further analysis is necessary to fully understand how an income tax system based on annual accounting should handle these transactions.

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