

**Reading:** Odomirok - Chapter 26  
**Model:** 2018.Spring #14  
**Problem Type:** tax-basis income

(taxes - practice 01) a-Question

**Given**

policy effective date	Jan 1, CY
loss date	Dec 31, CY
payment date	Dec 31, CY+1

*<== reported & recorded on the same day*

*<== 1 year after loss occurred*

policy premium	5,000
estimate of loss	3,350
investment rate	8.0%
IRS discount rate:	7.0%

= EP (assume this is on a SAP basis)

= L (undiscounted)

= i

= d

assume there is no UEP (*Unearned Premium*)

assume the policy is not renewed

**Find**

tax-basis income for CY and CY+1

**Further  
Notation**

<b>TBI</b>	<b>Tax-Basis Income</b>
TBEP	Tax-Basis Earned Premium
InvInc	Investment Income
PL	Paid Loss ( <i>during year</i> )
IL	Incurred Loss ( <i>during year</i> )
L <sup>D</sup>	Losses after Discounting

*<== this is what we want to calculate*

Believe it or not, this is actually an easy problem. You just have to put the right numbers into the formulas.

(taxes - practice 01) b-Answer

TBI	=	TBEP	+	InvInc	-	TBIL
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Let's start with the calculations for CY:

TBEP is calculated by applying the 'revenue offset':

TBEP	=	EP	+	20%	x	chg(UEP)
	=	5,000	+	20%	x	0
	=	<u>5,000</u>				

For InvInc, we assume the EP was invested on the policy effective date and earns interest for 1 year.

InvInc	=	EP	x	( 1 + i )	-	EP
	=	5,000	x	1.08	-	5,000
	=	<u>400</u>				

For IL, use the formula below and discount the loss back 1 full year from payment date:

TBIL	=	PL	+	chg( L <sup>D</sup> )		
	=	0	+	L	/	( 1 + d )
	=	0	+	3,350	/	1.07
	=	<u>3,131</u>				

Substitute these values into the formula for TBI given at the top:

TBI	=	5,000	+	400	-	3,131
<b>TBI</b>	<b>=</b>	<b>2,269</b>				<i>&lt;== final answer for year CY</i>

Now let's do the calculations for CY+1:

Following sample answer 1, we'll assume there was no more EP for CY+1:

<b>TBEP</b>	<b>=</b>	<b>0</b>
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For InvInc, calculate the **additional** InvInc accrued over year CY+1

InvInc	=	[ 2 years of compounding ]	-	[ 1 year of compounding ]
	=	[ EP x ( 1 + i ) <sup>2</sup> ]	-	[ EP x ( 1 + i ) ]
	=	5,000 x 1.1664	-	5,000 x 1.08
	=	<u>432</u>		

For IL, chg(L<sup>D</sup>) is calculated differently for CY+1 because the claim was closed and the reserve went to 0:

TBIL	=	PL	+	chg( L <sup>D</sup> )		
	=	3,350	+	0	-	3,131
	=	<u>219</u>				

So

<b>TBI</b>	<b>=</b>	<b>212.84</b>				<i>&lt;== final answer for year CY+1 (if &lt; 0 then it's a loss)</i>
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