

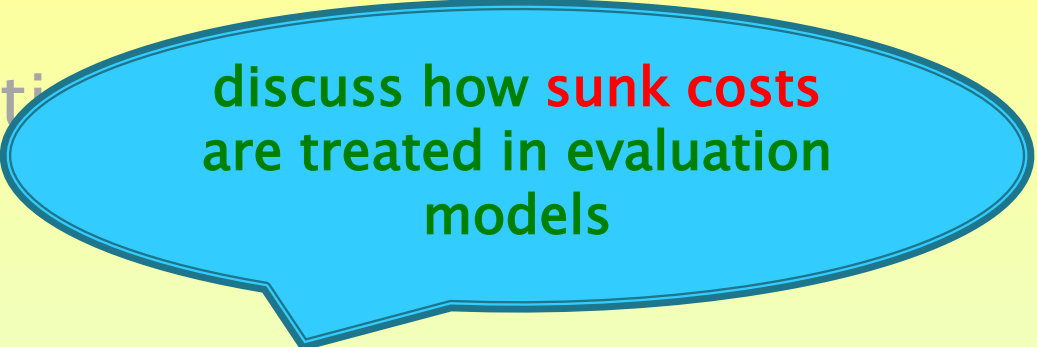
Teach Yourself: Economic Evaluation:

1 p: Sunk Costs

The purpose of this module is to ...

Level 3: Decision making

Level 2: Evaluation



discuss how **sunk costs**
are treated in evaluation
models

Level 1: Hands-on economic modelling

Are **sunk costs** included in an evaluation?
Is cash spent in the past included?

The usual answer is **“No!”** because only costs from now on are included. Frequently it is said *“The valuation does not consider how much money has been sunk into the business/ project in the past – it only worries about cash flows in the future.”*

“I understand you have invested \$10 million in setting up your business, but looking forward it is expected to generate cash flows with a net present value of only \$6 million, so that is what I think it is worth!”

Are sunk costs included in an evaluation?
Is cash spent in the past included?

But the proper answer is **“Yes!”** *“because when I compute the value of a business I include the benefit in future tax computations of any cash invested in the past which has not yet been claimed.”* So the full explanation becomes: –

*“I understand you have invested \$10 million in setting up your business, and I have included future tax deductions of \$10 million * 25% income tax rate = \$2.5 million, but even after including this benefit when I look forward it is expected to generate cash flows with a net present value of only \$6 million, so that is what I think it is worth!”*

Back in the Hands-On-Modelling modules you should have worked through the following slides →

Teach Yourself Economic Evaluation

1j. Hands On Modelling Tax deductions for capex

www.economicvaluation.com.au peter@economicvaluation.com.au

The 'Capex' section of the model has two parts...

	units	Total	2015	2016	2017	2018	2019
Cashstream 2: Capital Costs							
Initial Capex							
<small>Unit 4 P Card: Over a high level summary here, it does not matter if some "operating expenses" are included here so that the total capex is consistent with the same document. Simply make up Aug 14.0 Division "Capital Cost Estimate" with the estimate's version of</small>							
Direct							
Fixed fee study	AS 000 Real	3,000	3,000				
Site preparation	AS 000 Real	2,000		2,000			
grid plant	AS 000 Real	18,000		3,500		3,000	
infrastructure	AS 000 Real	3,800		3,300		3,000	
services	AS 000 Real	3,000		300		3,500	
Indirect							
spine	AS 000 Real	3,200			3,300	3,700	
water	AS 000 Real	0					
Initial capex		7,000	3,000	13,500	15,200	0	0
Ongoing Capex Development							
<small>Unit 4 P Card: These are expenses that are not included in the replacement capex rate.</small>							
water supply upgrade	AS 000 Real	1,500					
Sustaining							
<small>Unit 4 P Card: It is common for sustaining capex to be defined from capex estimates. If so it start off with a national percentage of the initial capex - 40% if income operations or 20% if light - and then to take many more years if each class of expenditure is done exactly according to inventory level. This is not the case for purpose as its preferable to use the</small>							
Sustaining capital costs	% of initial capex		4%	4%	4%	4%	4%
sustaining capex	AS 000 Real	6,540	0	0	0	1,268	1,268
ongoing capex	AS 000 Real	0	0	0	0	1,268	1,268
Cashstream 2: Capital Costs	AS 000 Real	39,540	3,000	13,500	15,200	1,268	1,268
Tax deductions for Capital Expenditure							
<small>Unit 4 P Card: The completion of a tax return for income tax must follow the laws of the country. They almost certainly will be different from the "accounting depreciation" used by the</small>							
<small>Unit 4 P Card: This is a simple and dividing into method. This will match the accuracy of the study and take just a few rows. This is a suitable proxy for straight line deduction if</small>							
<small>Unit 4 P Card: Assume here that the country's tax legislation shows that the bulk of the above capex can be deducted over 3 years straight line and the rest mostly over 10 years. So in the</small>							
<small>Unit 4 P Card: Assume here that the country's tax legislation shows that the bulk of the above capex can be deducted over 3 years straight line and the rest mostly over 10 years. So in the</small>							
<small>Unit 4 P Card: Look inside the capex estimate and see how the capex is broken down into different classes of expenditure.</small>							
Tax Deduction for Capital Expenditure							
undeducted capex - opening balance	AS 000 Real	39,540					
undeducted capex - added to pool	AS 000 Real	39,540					
undeducted capex - available for deduction	AS 000 Real	39,540					
Tax deduction for capital expend	AS 000 Real	39,540	0	0	0	8,242	6,199
undeducted capex - closing balance	AS 000 Real	0	0	0	24,728	19,486	

Part A. Capex

Part B. Tax deductions for capex

www.economicvaluation.com.au
peter card via Linked In

Part A generates: 'Cashstream 2: Capex'

units	Total	2015	2016	2017	2018	2019
Cashstream 2: Capital Costs						
Initial Capex						
Lund 4 P-Card: Show a high level summary here. It does not matter if some 'operating expenses' are included here so that the total capex is consistent with the source document. Simply make 10 Aug 14 O Dawson "Capital cost Estimate: indicative Estimate: Version 0"						
Direct						
Feasibility study	AS 000 Real	3,000				
site preparation	AS 000 Real	2,000	2,000			
gold plant	AS 000 Real	16,000	7,000	3,000		
infrastructure	AS 000 Real	3,300	2,300	3,000		
services	AS 000 Real	500	500	1,500		
Indirect						
equip	AS 000 Real	3,200		1,500		
other	AS 000 Real	0		1,700		
Initial capex	AS 000 Real	31,000	3,000	13,500	15,200	0
Ongoing Capex						
Development						
20 Aug 14 O Dawson: small estimate of replacement capex rate						
water supply upgrade	AS 000 Real	1,500				
Sustaining						
Lund 4 P-Card: It is common for sustaining capex to be omitted from capex estimates. If so I start off with a national percentage of the initial capex - 4% - and if I have operations or 2% if light - and						
Sustaining Capital Costs % of initial capex						
Sustaining capex	AS 000 Real	6,340	0	0	1,268	1,268
ongoing capex	AS 000 Real	7,840	0	0	1,268	1,268
Cashstream 2: Capital Costs	AS 000 Real	39,540	3,000	13,500	0	0
Tax deductions for Capital Expenditure						
Lund 4 P-Card: The computation of deductions of capex for income tax must follow the laws of the country. They almost certainly will be different from the "accounting depreciation" used by the company. These computations are likely to take many, many rows if each class of expenditure is done exactly according to country laws. This is not fit for purpose as its precision is far too high. Instead use a simple pool and declining value method. This will match the accuracy of the study and take just a few rows. This is a suitable proxy for straight line deductions if the country's tax legislation shows that the bulk of the above capex can be deducted over 3 years straight line and the rest mostly over 10 years. Do to the way the study is done with commercial production and that capex can start being deducted in the year in which it is spent. Look inside 15b cell to see the logic!						
Tax Deduction for Capital Expenditure % of depreciable value						
Undeducted capex - opening balance	AS 000 Real	0	3,000	16,500	11,700	24,728
Undeducted capex - added to pool	AS 000 Real	30,540	0	13,500	1,268	1,268
Undeducted capex - available for deduction	AS 000 Real	30,540	0	13,500	1,268	1,268
Tax deduction for capital expenditure	AS 000 Real	0	0	0	8,242	6,499
Undeducted capex - closing balance	AS 000 Real	0	3,000	16,500	24,728	26,496

Part B generates: Its deductions for income tax

units	Total	2015	2016	2017	2018	2019
Cashstream 2: Capital Costs						
Initial Capex						
Lund 4 P-Card: Show a high level summary here. It does not matter if some 'operating expenses' are included here so that the total capex is consistent with the source document. Simply make 10 Aug 14 O Dawson "Capital cost Estimate: indicative Estimate: Version 0"						
Direct						
Feasibility study	AS 000 Real	3,000				
site preparation	AS 000 Real	2,000	2,000			
gold plant	AS 000 Real	16,000	7,000	3,000		
infrastructure	AS 000 Real	3,300	2,300	3,000		
services	AS 000 Real	500	500	1,500		
Indirect						
equip	AS 000 Real	3,200		1,500		
other	AS 000 Real	0		1,700		
Initial capex	AS 000 Real	31,700	3,000	13,500	15,200	0
Ongoing Capex						
Development						
20 Aug 14 O Dawson: small estimate of replacement capex rate						
water supply upgrade	AS 000 Real	1,500				
Sustaining						
Lund 4 P-Card: It is common for sustaining capex to be omitted from capex estimates. If so I start off with a national percentage of the initial capex - 4% - and if I have operations or 2% if light - and						
Sustaining Capital Costs % of initial capex						
Sustaining capex	AS 000 Real	6,340	0	0	1,268	1,268
ongoing capex	AS 000 Real	7,840	0	0	1,268	1,268
Cashstream 2: Capital Costs	AS 000 Real	39,540	3,000	13,500	1,268	1,268
Tax deductions for Capital Expenditure						
Lund 4 P-Card: The computation of deductions of capex for income tax must follow the laws of the country. They almost certainly will be different from the "accounting depreciation" used by the company. These computations are likely to take many, many rows if each class of expenditure is done exactly according to country laws. This is not fit for purpose as its precision is far too high. Instead use a simple pool and declining value method. This will match the accuracy of the study and take just a few rows. This is a suitable proxy for straight line deductions if the country's tax legislation shows that the bulk of the above capex can be deducted over 3 years straight line and the rest mostly over 10 years. Do to the way the study is done with commercial production and that capex can start being deducted in the year in which it is spent. Look inside 15b cell to see the logic!						
Tax Deduction for Capital Expenditure % of depreciable value						
Undeducted capex - opening balance	AS 000 Real	0	3,000	16,500	11,700	24,728
Undeducted capex - added to pool	AS 000 Real	30,540	0	13,500	1,268	1,268
Undeducted capex - available for deduction	AS 000 Real	30,540	0	13,500	1,268	1,268
Tax deduction for capital expenditure	AS 000 Real	0	0	0	8,242	6,499
Undeducted capex - closing balance	AS 000 Real	0	3,000	16,500	24,728	26,496

In that example the opening balance of unclaimed deductions was zero.

Part B generates: Its deductions for income tax

	units	Total	2015	2016	2017	2018	2019
Cashstream 2: Capital Costs							
Initial Capex							
<small>Unit 4 P-Card: Show a high level summary here. It does not matter if some 'operating expenses' are included here so that the total capex is consistent with the source document. Simply make 10 Aug 14 G Dawson 'Capital cost estimate - initial' the estimate version 0'</small>							
Direct							
Franchise study	AS 000 Real	3,000	3,000				
Site preparation	AS 000 Real	2,000		2,000			
gold plant	AS 000 Real	18,000		7,000	3,000		
Infrastructure	AS 000 Real	3,300		2,300	3,000		
services	AS 000 Real	3,000		500	3,500		
Indirect							
spun	AS 000 Real	3,200		1,300	1,700		
other	AS 000 Real	0					
Initial capex	AS 000 Real	31,700	3,000	13,500	15,200	0	0
Ongoing Capex							
Development							
<small>28 Aug 14 G Dawson a small estimate of replacement capex rate</small>							
water supply upgrade	AS 000 Real	1,300					
Sustaining							
<small>Unit 4 P-Card: It is common for sustaining capex to be credited from capex estimates. If so I start off with a national percentage of the initial capex - 6% if in line operations or 2% if light - and</small>							
<small>Sustaining Capital Costs</small>							
Sustaining capex	% of initial capex	6,340	4%	4%	4%	4%	4%
	AS 000 Real	0	0	0	1,268	1,268	
ongoing capex	AS 000 Real	7,860	0	0	0	1,268	1,268
Cashstream 2: Capital Costs	AS 000 Real	39,540	3,000	13,500	15,200	1,268	1,268
Tax deductions for Capital Expenditure							
<small>Unit 4 P-Card: The computation of deductions of capex for income tax must follow the laws of the country. They almost certainly will be different from the 'accounting depreciation' used by the</small>							
<small>Unit 4 P-Card: These computations are likely to take many, many rows if each class of expenditure is done exactly according to country laws. This is not fit for purpose as its precision is far too high.</small>							
<small>Unit 4 P-Card: Instead use a simple pool and declining value method. This will match the accuracy of the study and take just a few rows. This is a suitable proxy for straight line deductions if</small>							
<small>Unit 4 P-Card: Assume here that the country's depreciation period is 10 years. This is a suitable proxy for straight line deductions if</small>							
<small>Unit 4 P-Card: Assume here that the country's depreciation period is 10 years. This is a suitable proxy for straight line deductions if</small>							
<small>Unit 4 P-Card: Look inside this cell to see the</small>							
Tax Deduction for Capital Expenditure	% of initial capex	19,540	25%	25%	25%	25%	25%
	AS 000 Real	0	3,000	16,300	31,700	24,728	
undeducted capex - opening balance	AS 000 Real	0	0	13,500	14,200	1,268	
undeducted capex - available for deduction	AS 000 Real	39,540	3,000	13,500	14,200	25,994	
Tax deduction for capital expenditure	AS 000 Real	19,540	0	0	0	8,242	6,499
undeducted capex - closing balance	AS 000 Real	20,000	3,000	16,500	14,200	24,724	24,496
<small>check if deductions capex</small>							

For my present example where \$10 million has been spent by the present owner, I would go to my tax specialist or accountant and discuss which parts, could we deduct from future assessable income if we purchased the business.

After examining the detail, this specialist might tell me that:

- ▶ \$2.2 million has already been claimed by the present owner,
 - ▶ \$1.3 million is not a legitimate deduction for us,
- so that our opening balance of unclaimed deductions for capex would be \$6.5 million.

We would then discuss the mechanics of how each category of past expenditure could be claimed by our company.

I would aim to get the OK to:

- pool it with all future capex (in one or two pools) and
- deduct the aggregate on a diminishing value basis (at 150% or 200% of straight line rate) because this is so much simpler than matrices of straight line deductions. The difference is likely to have minimal impact on NPV; as discussed elsewhere.

(Remember you can spend the rest of your life doing highly accurate income tax computations as though you were completing the Company's income tax return - or you can get a fit-for-purpose result in just a few rows, with the same impact on NPV, by using diminishing value pools.)

People with commercial backgrounds are infamous for highly detailed tax computations but coarse computations, where it really matters, in production.)

Any opening balance of unclaimed deductions for past capex could go in here (Such as our \$6.5 million)

	units	Total	2015	2016	2017	2018	2019
Cashstream 2: Capital Costs							
Initial Capex							
1Jun14 P Card: Show a high level summary here. It does not matter if some 'operating expenses' are included here so that the total capex is consistent with the source document. Simply make it 10 Aug 14 G Dawson "Capital Cost Estimate: Indicative Estimates Version G"							
Direct							
Feasibility study	AS 000 Real	3,000	3,000				
site preparation	AS 000 Real	2,000		2,000			
gold plant	AS 000 Real	16,000		7,000	9,000		
Infrastructure	AS 000 Real	5,500		2,500	3,000		
services	AS 000 Real	2,000		500	1,500		
Indirect							
epcm	AS 000 Real	3,200		1,500	1,700		
other	AS 000 Real	0					
Initial capex	AS 000 Real	31,700	3,000	13,500	15,200	0	0
Ongoing Capex							
Development							
28 Aug 14 G Dawson e mail estimate of replacement capex rate							
water supply upgrade	AS 000 Real	1,500					
Sustaining							
1Jun14 P Card: It is common for sustaining capex to be omitted from capex estimates. If so I start off with a notional percentage of the Initial capex - 4%+ if Intense operations or 2% if light - and							
Sustaining Capital Costs	% of Initial capex		4%	4%	4%	4%	4%
Sustaining capex	AS 000 Real	6,340	0	0	0	1,268	1,268
ongoing capex	AS 000 Real	7,840	0	0	0	1,268	1,268
Cashstream 2: Capital Costs	AS 000 Real	39,540	3,000	13,500	15,200	1,268	1,268
Tax deductions for Capital Expenditure							
1Jun14 P Card: The computation of deductions of capex for Income tax must follow the laws of the country. They almost certainly will be different from the 'accounting depreciation' used by the							
1Jun14 P Card: These computation are likely to take many, many rows if each class of expenditure is done exactly according to country laws. This is not fit for purpose as its precision is far too high							
1Jun14 P Card: Instead use a simple pool and diminishing value method. This will match the accuracy of the Study and take just a few rows. This is a suitable proxy for straight line deductions if							
1 Jun 14 P Card: : Assume here that the country's tax legislation shows that the bulk of the above capex can be deducted over 5 years straight line and the rest mainly over 10 years. So in the ca							
1 Jun 14 P Card: : Assume here that the country's tax legislation is that deductions can start with commercial production and that capex can start being deducted in the year in which it is spent.							
1 Jun 14 P Card: : Look inside this cell to see the logic							
Tax Deduction for Capital Expenditure	% diminishing value		25%	25%	25%	25%	25%
Undeducted capex - opening balance	AS 000 Real		0	3,000	16,500	31,700	24,726
Undeducted capex - added to pool	AS 000 Real	39,540	3,000	13,500	15,200	1,268	1,268
Undeducted capex - available for deduction	AS 000 Real		3,000	16,500	31,700	32,968	25,994
Tax deduction for capital expenditure	AS 000 Real	39,540	0	0	0	8,242	6,499
Undeducted capex - closing balance	AS 000 Real		3,000	16,500	31,700	24,726	19,496
Check if deductions capex		OK					

Part B

Do a spot check that:

- 1. your total deductions over the business life = unclaimed opening balance + future capex**
- 2. the resulting tax benefit makes sense.**

Be alert for:

- ▶ some countries have limits on how many years these unclaimed amounts can be carried forward.
- ▶ Some deductions are not transferable to new owners.
- ▶ People talk about ‘unclaimed deductions’ and ‘tax losses’ as if they are the same. To me the ‘tax loss’ here would be 25% (income tax rate) of the ‘unclaimed deduction’ – so probe for exact details.
- ▶ Do not go alone but ask your tax experts and get it right!

Unclaimed deductions, and how they can be claimed by new owners, are very important when purchasing an existing business or an unfinished project.

End