

Partial Budgeting

Evaluating small but important decisions...

Chapter Outline

- **Uses of a Partial Budget**
- **Partial Budgeting Procedure**
- **The Partial Budget Format**
- **Partial Budgeting Examples**
- **Factors to Consider when Computing Changes in Revenue and Costs**
- **Sensitivity Analysis**
- **Limitations of Partial Budgeting**
- **Final Considerations**

Chapter Objectives

1. **To discuss the purpose of a partial budget**
2. **To emphasize the many possible uses of a partial budget**
3. **To illustrate the format of a partial budget**
4. **To show what types of entries are made on a partial budget**
5. **To note the importance of including only changes in revenue and expenses**
6. **To demonstrate the use of partial budgets with several examples**

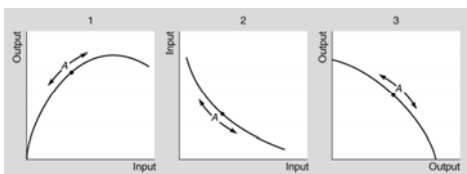
Uses of a Partial Budget

✓ A partial budget is often the best way to analyze a change in operations involving several different enterprises.

✓ A partial budget provides a formal and consistent method for calculating the expected change in profit from a proposed change in the farm business.

✓ It is a form of marginal analysis.

Figure 11-1
Partial budgeting and marginal analysis



Partial Budgeting Procedure

1. What new or additional costs will be incurred?
2. What current costs will be reduced or eliminated?
3. What new or additional revenue will be received?
4. What current revenue will be lost or reduced?

The Partial Budget Format

- **Additional Costs:** costs that do not exist at current time but will be incurred if the change is made
- **Reduced Revenue:** revenue that is currently received but which will be lost or reduced if the change is made
- **Additional Revenue:** revenue to be received only if the alternative is adopted
- **Reduced Costs:** costs that are now incurred which would be eliminated if the change is made

**Table 1
Partial Budget Form**

Problem:	
Additional Costs:	Additional Revenue:
Reduced Revenue:	Reduced Costs:
A. Total additional costs and reduced revenue \$ _____	B. Total additional revenue and reduced costs \$ _____
	Net Change in Profit (B-A) \$ _____

Partial Budgeting Examples

Table 2 is a fairly simple budget analyzing the profitability of purchasing a combine to replace the current practice of hiring a custom combine operator to harvest 1,000 acres of wheat.

Table 3 looks at a proposed change of adding 50 beef cows to an existing herd. To accommodate the additional cows, 100 acres currently in grain production would need to be converted to forage production.

**Table 2
Partial Budget for Owning Combine
Versus Custom Hiring**

PARTIAL BUDGET	
Problem: Purchase combine to replace custom hiring (1,000 acres wheat)	
Additional Costs:	Additional Revenue:
Fixed costs	None
Depreciation \$10,000	
Interest 8,000	
Taxes 100	
Insurance 300	
Variable costs	
Repairs 2,500	
Fuel and oil 1,300	
Labor 550	
Reduced Revenue:	Reduced Costs:
None	Custom combining charge 1,000 acres @ \$20 per acre \$20,000
A. Total additional costs and reduced revenue <u>\$22,750</u>	B. Total additional revenue with reduced costs <u>\$20,000</u>
	Net Change in Profit (B-A) <u>(\$2,750)</u>

**Table 11-3
Partial Budget for Adding 50 Beef Cows**

PARTIAL BUDGET	
Problem: Add 50 beef cows and convert 100 acres from grain to forage	
Additional Costs:	Additional Revenue:
Fixed costs	5 cull cows \$2,500
Interest on cows/bulls \$2,500	23 steer calves 9,775
Bull depreciation 200	500 lbs @ \$.85
Taxes 100	18 heifer calves 6,458
	460 lbs @ \$.78
Variable costs	
Labor 600	
Vet and health 500	
Feed and hay 2,000	
Hauling 300	
Miscellaneous 200	
Pasture fertilizer 1,500	
Interest on variable costs 320	
Reduced Revenue:	Reduced Costs:
Grain Production 5,000 bu @ \$3.00 \$15,000	Fertilizer 2,750
	Seed 1,400
	Chemicals 1,200
	Labor 1,500
	Machinery 1,000
	Interest on variable costs 470
A. Total additional costs and reduced revenue <u>\$23,220</u>	B. Total additional revenue with reduced costs <u>\$27,053</u>
	Net Change in Profit (B-A) <u>\$3,833</u>

Factors to Consider when Computing Changes in Revenue and Costs

- ❖ Costs may not change proportionately when you are changing the size of an existing enterprise.
- ❖ Fixed costs, in particular, may not change much, if any, if the change in size of the enterprise is relatively small. It is also important to be careful not to overlook changes in opportunity costs.
- ❖ The unit of change used in a partial budget should be consistent throughout. Some alternatives can be analyzed on a per acre basis, but others can only be analyzed for the entire farm.

Sensitivity Analysis

Sensitivity analysis involves computing the partial budget several different times, using different price and yield figures each time.

One way to do this is to use low, average, and high values for prices and yields.

Another way is to look at prices or yields which are 10, 20, and 30 percent higher and lower than expected.

Limitations of Partial Budgets

- ✓ Partial budgets are easy to use and require minimal data.
- ✓ However, partial budgeting can only compare the present management plan with one alternative at a time.
- ✓ If there are many alternatives to consider, the manager will need to develop many partial budgets.
- ✓ Also, partial budgeting uses one set of price and yield expectations. If these are variable, cash flow may be a problem in some years.

Final Considerations

Before adopting a proposed change that appears profitable, additional risk and capital requirements should be considered.

Summary

A partial budget is an extremely useful type of budget.

Partial budgets analyze the profitability of a proposed change in the operation.

Data requirements are small.

The sum of additional costs and reduced revenue is subtracted from the sum of additional revenue and reduced costs to find the expected change in profit from making the change.

Problem #1

<u>Added Costs</u>	<u>Added Returns</u>
<u>Reduced Returns</u>	<u>Reduced Costs</u>
Sub Total	Sub Total
	Change in Net Income

Problem #1

- Malcolm Garrett, a Montana farmer needs to know if it would be economically advantageous to have his 1,000 acres of wheat custom sprayed.
- Use the following information to complete a partial budget:

Problem #1

- Custom Spray Rate = \$4 per acre
- Additional Labor Costs for John to show where to spray = \$.15 per acre
- Increase in yield due to spraying is 2 bu. Per acre
- Wheat is expected to be \$3.60 per bu.
- John's Sprayer Wheels will cause 1/2 bu/acre loss of crop.

Problem #1

- Should John Custom Spray?

Problem #1

<u>Added Costs</u>	<u>Added Returns</u>
1,000 x 4 = \$ 4,000	2 x \$3.60 x 1,000 = \$7,200
1,000 x .15 = 150	
<u>Reduced Returns</u>	<u>Reduced Costs</u>
.5 x 3.60 = \$ 1,800	None
Sub Total \$ 5,950	Sub Total \$7,200
	Change in Net Income
	+\$1250

Partial Budgets

- A management tool for examining two alternatives and deciding which one is the most profitable.
- It should be used for "simple" changes affecting only one part of the business
- Only costs & returns that change need be considered

Partial Budgets don't address:

- The effect of the change on financial solvency
- The Impact of income taxes & SS taxes
- It does not necessarily identify the "most profitable" use of resources

Partial Budget should:

- Use a fairly short planning horizon (usually one year)
- Use realistic coefficients of production
- Use relative price ratios supported by history.

**Table 1
Partial Budget Form**

Problem:	
Additional Costs:	Additional Revenue:
Reduced Revenue:	Reduced Costs:
A. Total additional costs and reduced revenue \$ _____	B. Total additional revenue and reduced costs \$ _____
	Net Change in Profit (B-A) \$ _____

Partial Budgeting Examples

Table 2 is a fairly simple budget analyzing the profitability of purchasing a combine to replace the current practice of hiring a custom combine operator to harvest 1,000 acres of wheat.

Assume: New combine costs 80,000 and a salvage value of 10,000

500 Acres of Wheat

- New Combine costs \$130,000
- Salvage value estimated to be \$65,000 in 10 years
- Insurance \$200
- Repairs \$800
- Fuel \$1,200
- Labor \$1,000
- Current Custom combining fees are \$20/acre
- Anticipated additional harvest do to better timeliness 2bu/acre
- Wheat price ~ \$3.00/bu

Annual Depreciation

- (Purchase Price – Salvage) / years of use
– (\$130,000-\$65,000)/10 = \$6,500
- Annual Interest Charge
– (Purchase Price + Salvage Value)/2 * int. rate
- Example:
– (\$130,000+\$65,000)/2 * .0585%=\$5,700

Added Expenses	Added Income
Reduced Income	Reduced Expenses

Partial Budget for Owning Combine Versus Custom Hiring

- Added Costs
 - Dep 6500
 - Int 5700
 - Rep 800
 - Labor 1000
 - Fuel 1200
 - Total 15,400
- Added Revenue
 - 2*\$3.00*500=\$3,000
- Reduced Expenses
 - 500*\$20=\$10,000
- Reduced Receipts
 - None
- Total \$15,400
- Total added \$ 13,000

Partial Budgeting Example 3

- adding 50 beef cows to an existing herd.
- To accommodate the additional cows, 100 acres currently in grain production would need to be converted to forage production.

Table 11-3
Partial Budget for Adding 50 Beef Cows

PARTIAL BUDGET		
Problem: Add 50 beef cows and convert 100 acres from grain to forage		
Additional Costs:		Additional Revenue:
Fixed costs		5 cull cows
Interest on cows/bulls	\$2,500	23 steer calves
Bull depreciation	200	500 lbs @ \$.85
Taxes	100	18 heifer calves
		460 lbs @ \$.78
Variable costs		
Labor	600	
Vet and health	500	
Feed and hay	2,000	
Hauling	300	
Miscellaneous	200	
Pasture fertilizer	1,500	
Interest on variable costs	320	
Reduced Revenue:		Reduced Costs:
Grain Production		Fertilizer
5,000 bu @ \$3.00	\$15,000	Seed
		Chemicals
		Labor
		Machinery
		Interest on variable costs
A. Total additional costs and reduced revenue	\$23,220	B. Total additional revenue with reduced costs
		\$27,853
		\$23,220
		\$3,833
		Net Change in Profit (B-A)