

## INVESTMENT ANALYSIS--PARTIAL BUDGET METHOD

Wayne A. Hayenga\*

Should I make this investment or not? How many times have you asked yourself this as you considered some change in your business that would require an unusual capital expenditure? When a decision will be made that affects *only a part of the business*, the *partial budget method* is an appropriate tool.

### Types of Investment Decisions

A partial budget considers all receipts and expenses that change if a decision is to be made to change a *part* of the business. Examples of situations where a partial budget is appropriate include:

- purchase of new machinery
- leasing of machinery
- construction of a new building
- adding a new product, service, crop or livestock enterprise

A partial budget is an excellent planning tool. Several advantages and disadvantages of this analysis method are listed below.

### Advantages

- It is a quick method of investment analysis.
- It shows results of projected changes clearly.
- It can be done easily for several alternatives.
- No detailed forms or procedures are necessary.
- It is not necessary to consider all costs in the business—*only the costs and returns that will be changed* by the investment under consideration are considered.
- It isolates the impact of a change.

### Disadvantages

- It does not account for the time value of money invested.
- It may oversimplify the problem.
- Data may not be readily available.
- It does not show the effects of the proposed investment on the firm's financial situation.

\*Extension economist-agribusiness, The Texas A&M University System.

- It is difficult to identify all components of a business that may change.
- It does not indicate benefits of increased managerial flexibility or point out increased managerial problems.

### The Method

Partial budgets include only the changes in costs and returns that will be affected if a change is made in a business. The *added costs* and *reduced returns* are summed together, and they are subtracted from the *added returns* plus *reduced costs*. This net change is the expected profit or loss from the proposed change.

Example I shows a partial budget to compare the cost advantages and disadvantages of purchasing an \$18,000 combine to harvest 150 acres of grain sorghum and 150 acres of wheat, to custom hiring the work. *Be concerned with the process rather than the data in the example.*

Step 1. *Added Costs.* Calculate the added costs of the proposed change. Which costs will increase and how much? What new costs will be incurred? In the example, added costs include depreciation, interest, repairs, taxes and insurance, as is usual for machinery investments.<sup>1</sup> Also, operating expenses of fuel and labor will change in this example.

Step 2. *Reduced Returns.* Many business changes may require you to give up a usual source of income. Expanding one enterprise may force you to reduce the available resources for other enterprises thereby reducing sales of one product. Compute the receipts that will be given up when the proposed change is in effect and enter the amount in the budget.

In this example there are no reduced returns.

Step 3. *Added Returns.* New income that will result from the proposed change should be entered under the heading.

<sup>1</sup>An easy way to remember the fixed costs of depreciation, interest, repairs, taxes and insurance is with the acronym DIRT.

Here it is proposed that the farmer will do 200 acres of custom work at \$5 per acre which will bring in \$1,000.

Step 4. *Reduced Costs.* Proposed changes often eliminate some costs presently being incurred. Costs that will be eliminated or reduced are entered in this section of the budget. In this example the farmer will not have to custom hire combining of wheat and grain sorghum, thus saving \$1,500.

Step 5. *Net Change in Income.* This is the final summation of the above entries. The categories of benefits are on the right side, (B), of the example form. On the left side (A) of the form are the costs of the change. If the benefits (B) are greater than the costs (A), the proposed adjustment will be profitable. If (A) is greater than (B), however, the result is a loss of income.

The example shows the cost of owning a combine in this particular instance would be \$1,025 more than hiring custom work.

Examples II and III are other uses of the partial budgeting technique. Example II evaluates a change of a minor product line in a farm supply store. Example III considers adding a repair service to an electrical equipment sales operation.

#### Conclusions

Partial budgeting is an excellent managerial tool to help evaluate the financial considerations of changes in a business. The results should be used as a guide in conjunction with other management tools to reach a decision. Remember that with partial budgeting, as with all management tools, the assumptions in the process should be prudently evaluated.

### Example I Partial Budget Worksheet

Proposal: Purchase an \$18,000 combine to harvest 150 acres of grain sorghum and 150 acres of wheat versus custom hire the work.

Added Costs	Added Returns
Depreciation <sup>1</sup> $\frac{18,000 - 4,000}{10}$ <span style="float: right;">\$1,400</span>	Do 200 acres custom work at \$5 per acre <span style="float: right;">\$1,000</span>
Interest <sup>2</sup> $\frac{18,000 \times .08}{2}$ <span style="float: right;">720</span>	
Repairs <sup>3</sup> <span style="float: right;">600</span>	
Taxes <sup>3</sup> <span style="float: right;">135</span>	
Insurance <sup>3</sup> <span style="float: right;">45</span>	
Fuel <sup>3</sup> 500 acres $\times$ \$.50/acre <span style="float: right;">250</span>	
Labor <sup>3</sup> 15 days at \$25/day <span style="float: right;">375</span>	
<b>Reduced Returns</b> <span style="float: right;">NONE</span>	<b>Reduced Costs</b>
	Custom harvesting costs
	150 acres wheat <span style="float: right;">750</span>
	150 acres grain sorghum <span style="float: right;">750</span>
<b>A. Total Additional Costs and Reduced Returns</b> <span style="float: right;"><b>\$3,525</b></span>	<b>B. Total Additional Returns and Reduced Costs</b> <span style="float: right;"><b>\$2,500</b></span>
<b>Net Change in Income (B minus A) -\$1,025.</b>	

<sup>1</sup>Straight line depreciation with a \$4,000 salvage value.

<sup>2</sup>Interest on 1/2 the investment at 8%.

<sup>3</sup>Estimated.

**Example II**  
**Partial Budget Worksheet**

Proposal: Remove large animal veterinary equipment line from farm supply store and put in pet products line.

<b>Added Costs</b>		<b>Added Returns</b>	
New display counter		Profits from sales of pet products	
Depreciation	\$200	(\$8,000 sales @ 30% net)	\$2,400
Electricity	50		
Interest	25		
		<b>Reduced Costs</b>	
		Labor savings from setting up and delivery of veterinary equipment	\$300
		Warehouse space from storage of veterinary equipment available to other lines (value)	\$400
<b>Reduced Returns</b>			
Profits from veterinary equipment sales	\$2,000		
(\$20,000 sales @ 10% net)			
<b>A. Total Added Costs and Reduced Returns</b>	<b>\$2,275</b>	<b>B. Added Returns and Reduced Costs</b>	<b>\$3,100</b>
Net Change in Income (B minus A) +\$825			

**Example III**  
**Partial Budget Worksheet**

Proposal: Add repair service to electrical equipment sales operation.

<b>Added Costs</b>		<b>Added Returns</b>	
Labor	\$8,800	Repair services sales	
Lights, heat, etc.	600	(labor 1,200 hours @ \$8/hr.)	\$9,600
Advertising	300	Profits on parts	
Tools and equipment	2,000	(\$15,000 sales @ 28%)	4,200
<b>Reduced Returns</b>		<b>Reduced Costs</b>	
	NONE		NONE
<b>A. Total Added Costs and Reduced Returns</b>	<b>\$11,700</b>	<b>B. Added Returns and Reduced Costs</b>	<b>\$13,800</b>
Net Change in Income (B minus A) +\$2,100			

**Partial Budget Worksheet**

Proposal:

<p><b>Added Costs</b></p>          <p><b>Reduced Returns</b></p>	<p><b>Added Returns</b></p>          <p><b>Reduced Costs</b></p>
<p>A. Total Added Costs and Reduced Returns      \$ _____</p>	<p>B. Added Returns and Reduced Costs      \$ _____</p>
<p>Net Change in Income (B minus A) \$ _____</p>	

This Fact Sheet is one in a series on investment analysis. Others in the series include *Investment Analysis—Break-Even Method* (L-1093, Texas Agricultural Extension Service) and *Investment Analysis—Capital Budgeting Methods* (L-1091, Texas Agricultural Extension Service).

*Educational programs conducted by the Texas Agricultural Extension Service serve people of all ages regardless of socio-economic levels, race, color, sex, religion or national origin.*

Cooperative Extension Work in Agriculture and Home Economics, The Texas A&M University System and the United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8, 1914, as amended, and June 30, 1914.