Estimating Enterprise Cost Of Production

The Process and Using Your Results

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Estimating or Measuring

- Estimating
 - Preproduction
 - Estimate what income and expenses might be
 - Useful for decision making and management
- Measuring
 - Track and use actual historic costs
 - Actual Operating Cost
 - Actual Fixed Costs
 - Requires very detailed records
 - Imagine allocating repair costs for each piece of equipment between enterprises



Time Frame for Decision Making

- Costs considered depend on the planning horizon
- Short run (one production period)
 - Some costs are fixed
 - Taxes, depreciation, insurance, interest
 - Some costs can vary
- Long run (more than one year)
 - All costs can vary



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Two Types of Costs

- Operating costs = Variable Costs
 - Fuel, Repairs, Seed, Fertilizer, Chemicals,...
- Ownership costs = Fixed Costs
 - Depreciation, Interest, Taxes, Insurance, (DITI)



Relevant Short Run Costs

- Operating or Variable costs are the only relevant short run costs
 - Vet and Med, Feed, Fuel, Oil, Repairs, Interest on operating, etc.
- Operating costs vary with the level of production
 - Per unit (per horse, per acre, per cow) costs are typically the same
 - Each additional unit costs money, so greater total costs
- When you start production, costs are incurred



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Long Run Costs

- Ownership costs are those associated with owning a capital asset
 - (DITI) Depreciation, Interest on investment, Taxes, Insurance
 - In the short run, ownership costs are of a fixed nature and should be ignored for short run decisions
- Can avoid Operating Costs but will still pay DITI
- Fixed costs <u>should not be included</u> in short run decision making
- In the Long Run, All costs are variable



We Have Been Using the Word Costs

- Tend to be very <u>careless</u> with terminology
- Can result in very misleading information
 - Business:
 - Income and Expenses
 - Loan principal payments for business assets
 - Is an <u>outflow</u>, not an <u>expense</u>
 - Depreciation = noncash expense
 - Nonbusiness
 - Family living, retirement planning, etc.



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How We Use The Word "Costs"

- Cost = Cash Outflow = Expense
 - Vet & Med, Repairs, Fuel, etc.
- Cost = Cash Outflow ≠ Expense
 - Principal portion of loan payments
 - Cash to purchase a capital asset
 - Machinery & Equipment, Breeding stock
- Cost = Expense ≠ Cash Outflow
 - Depreciation, Accounts Payable



The Revenue Side of Terminology

- Revenue = Cash Inflows = Income
 - Cash sales of animals, feed, grains
- Revenue = Income ≠ Inflows
 - Accounts Receivable

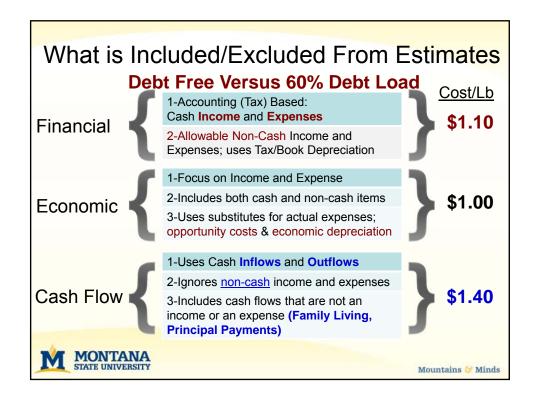


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Three Ways to Estimate/Measure Costs

- Economic Approach
- Financial Approach
- Cash Flow Approach





Economic Cost of Production

- Calculated using <u>estimates</u> for <u>cash</u> and <u>non-cash</u> *income* and *expense*
 - Not the same as cash inflows and outflows nor "financial" analysis
 - Does not include principal payments
 - Enterprise budgeting approach
- Estimates used for <u>some</u> expenses:
 - Interest on operating
 - Interest on real estate



Financial Cost of Production

- Uses <u>actual income</u> and <u>expenses</u> incurred as determined by accounting/tax practices
 - Cash and non-cash income and
- Examples:
 - Actual cash interest, fuel expense, repairs, etc.
 - Actual tax depreciation claimed
 - Etc., etc.
- Calculated after production takes place
- Provides historic measure of business performance



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Cash Flow Cost of Production

- Only cash inflows and outflows are used
- Excludes depreciation and other non-cash costs such as Opportunity costs
- Cash flow includes items that are not income or expenses
 - Principle payments (Debt Load)
 - Family living/contributions (Family Units/Size)
- Can be estimates or actual inflows and outflows
- Different than income and expense



Which Method To Use?

- What are objectives in making a cost of production calculation?
 - Family decisions, (what can operation support)
 - Optimize enterprise mix,
 - Satisfy your lender(s)
- What is the time frame (short or long run)?
- What information is available to make the calculations?



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Decision Making: Simple Versus Complex

- Short Run
 - Retained ownership for calves
 - Cover debt load obligations
- Long Run
 - Cost of production practices (tillage systems)
 - Change enterprise mix
 - Bring kids back to operation (or get rid of some)
 - Retirement and/or estate planning



Procedures/Tools for Cost Estimation

- Whole Farm/Ranch budgeting
 - What is your entity or reporting unit
 - Acre, Enterprise, Whole Farm
- Enterprise budgeting
- Analysis of specific activities
 - Machinery costs and custom rates
 - Own versus lease
 - Land, Machinery, Other Capital Assets
 - Risk protection strategies/effectiveness
 - Marketing Alternatives for Commodities



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Software Available to Help With Estimates

http://www.montana.edu/softwaredownloads/

- Financial and Risk Management
- Machinery Management
- Crop Production, Finance & Marketing
- Livestock & Forage Production
- Marketing
- Energy



