Overview

• Differences between large-scale and niche market producers
  – Strategies of both
• Price behavior & Inelastic demand
• Strategies to work with inelastic demand
• Break-Even analysis
• Scenario analysis
Strategies of Large-Scale Producers

• Developing products that add value and profitability to the operation is the goal of all food and agricultural product producers/manufacturers

• Large-scale producers accomplish this through strategies such as:
  – Using market research to identify large segments of the market to serve as potential customers
  – Establishing brand recognition through advertising and promotion
  – Establishing trademark and product protections

• Typically expensive strategies, require a sizable sales volume to be profitable
  – Large firms are able to do this because they are able to enter markets that are large enough to allow them to sell a high volume of product
    • Which allows them to produce at low cost
      – This is called “economy of scale”
Strategies of Niche Market Producers

• Smaller producers generally have higher per-unit costs of production
• Makes competition with large firms nearly or completely impossible
• Smaller firms often find more success in smaller (niche) markets
  – Large firms ignore these because small markets do not allow them to take advantage of their economies of scale in production, processing, and marketing
• Niche markets usually allow for higher prices than larger markets due to the lack of competition and the specialized (differentiated) product
  – This enables small firms to charge prices that are in line with their costs of production
Goals of Niche Market Producers

• Although firms in niche markets are competing on a smaller scale, their job is the same:
  – Defining a market (customers) for the product
    • Could be based on consumer income, location of production, unique product characteristics, etc.
  – Establishing a recognizable product
  – Using this product to effectively compete in against similar products in the market
• All of this needs to be done profitably
Niche Market Price Behavior

• The prices of niche products behave differently than prices of other products
• Niche markets are small (fewer customers)…
• …but those customers are generally willing to pay above the market price for the differentiated product
• In economics, this is called “inelastic demand”
  – The people buying the product are not “price sensitive” (they are not as influenced by price as other consumers)
  – And/or, they will purchase about the same amount of the product even as the price fluctuates
• These conditions also mean:
  – A tool other than price must be used to expand the market
  – Competition from a new competitor with a similar or the same product may cause prices to drop considerably
  – In order for firms to increase their sales, the price would need to drop dramatically—maybe all the way down to zero—or the market would need to be expanded
Niche Market Demand

- This figure helps to show the relationship between price and units sold in a niche market.
- The demand curve shows how much (quantity) can be sold of the product at each price.
- Point A shows that 8 units can be sold at $10/unit.
  - Total sales: $(10 \times 8) = 80$
- Point B shows that 10 units can be sold at $5/unit.
  - Total sales: $(5 \times 10) = 50$
- In this example, a 50% price cut increases sales 25%.
  - Resulting in lower total sales.
Niche Market Demand & Supply

- This figure builds on the last by adding supply curves.
- The supply curve at A represents this market with only one producer:
  - Demand would allow firm to sell 8 units at $10/unit.
- The supply curve at B shows what would happen if a second supplier entered the market:
  - In order for the price to stay at $10/unit, demand would need to increase as well, to the dashed Increased Demand curve.
  - With the original demand, in order to sell 8 units, the price would need to be about $4/unit (where the vertical line coming down from Point A intersects the Increased Supply curve).
Because of inelastic demand, producers in niche markets must find ways to keep prices and sales stable or growing, through either:

- Keeping competitors out of the market
- Continuing to increase demand

There are numerous examples of niche markets that started small with high price premiums

- Became more mainstream as other producers entered the market
- Eventually this drove the price down

It is important for producers considering niche marketing to understand this price behavior.
Strategies to Keep Prices/Sales Stable, cont.

• Keep current customers loyal by getting them to view your product as different from the competition
  – Patents, trademarks, and branding are used by larger firms to accomplish this
    • Costs of this may be infeasible for small producers
  – Less costly options include:
    • Unique production practices (ex. organic, natural, humane, etc.)
    • Location of production (ex. local, regional, state)
    • Story of the producer/product
  – These strategies define the product as unique and communicate to customers that your product is different than similar products
  – Example: Roquefort cheese
    • Can only be Roquefort cheese if aged in the Roquefort caves in France
      – Defined by production and location
      – Cannot be duplicated
Strategies to Keep Prices/Sales Stable, cont.

- Innovate to stay ahead of the curve by finding new products the niche market will value
  - New varieties of produce (ex. Heirloom tomatoes)
  - A new/different production practice applied to an existing product
  - Different packaging/processing (ex. pre-washed produce, packaging individual servings)
- It is easier and less costly to find new products an existing customer base will value than to find a new customer base
• Grow the market at a rate that keeps it ahead of new entrants
  – Find new customers who want the product
  – If awareness of the product spreads and new customers are found at the same rate that new suppliers enter the market, prices will be stable
• However, even with new customers, their pace of consumption must meet or exceed increasing supplies or prices and/or price premiums will still decrease
Analyzing Profit and Risk

• In order to develop successful strategies, producers need to consider the options and examine potential profit.

• As with any type of planning, the future is unknown.

• Two common types of profit analysis:
  – Break-even analysis
    • Quick analysis to determine if a strategy has merit.
  – Scenario analysis
    • Compares the results of different scenarios and how different assumptions affect the bottom line.
Break-Even Analysis

• This type of analysis answers the questions
  – “How much needs to be sold to break even?”
    • If the quantity is a realistic amount, then the idea should be analyzed further
  – “What would the price need to be to break even?”.
    • If the price that would need to be charged is unrealistic, then the idea is not feasible

• These same questions can be answered using a set level of profit

• If an idea looks like it has merit after performing this initial analysis, a more detailed analysis should be undertaken
Calculating Profit

Revenue - TVC - FC = Profit

- **TVC** = total variable costs
  - Costs that come directly from producing each unit of the product, like seeds
  - Change depending on the quantity produced

- **FC** = Fixed costs
  - Costs that will be incurred regardless of how many units are produced, like rent for land
  - "Overhead"

- Profit may also be calculated as (where Q is quantity sold):
  \[(\text{Price} \times Q) - (\text{VC} \times Q) - \text{FC} = \text{Profit}\]
Implications of Calculated Profit

• Insight on how to increase profit can be found just by looking at the equation:
  – To increase profit, the options are to either increase revenue or decrease costs

• Decreasing costs is pretty straightforward, but how can revenue be increased?
  – Sell more to existing customers: this increases quantity, and therefore profit
  – Find more customers to sell to: this also increases the quantity sold
  – Find a sales outlet that will increase the per-unit price.
    • For example, selling at a farmers’ market may allow a producer to charge a higher price than the commercial or retail price

• Without even working with numbers, asking if these options are possible can often provide insight
The sample production budget at right represents a tomato operation, and will be used in the following example:

Profit for this example is calculated below:
- Where the quantity of 20,000 lbs comes from dividing revenue ($4800) by per unit price ($0.24)
- Profit is $1,635
- Calculation:

\[ ($0.24 \times 20,000) - (0.06 + 0.07) \times 20,000 - 565 = 1,635 \]

<table>
<thead>
<tr>
<th>Cost/Income</th>
<th>Total</th>
<th>Per unit (pound)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>$4,800</td>
<td>$0.24</td>
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<td><strong>Expenses</strong></td>
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<tr>
<td>Inputs</td>
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<td>$0.07</td>
</tr>
<tr>
<td>Labor</td>
<td>$1,200</td>
<td>$0.06</td>
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<tr>
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<tr>
<td><strong>Net Income before taxes</strong></td>
<td>$1,635</td>
<td></td>
</tr>
<tr>
<td>Income taxes</td>
<td>$605</td>
<td></td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>$1,030</td>
<td></td>
</tr>
</tbody>
</table>
Break-Even Point

• The break-even point is calculated using the profit formula, rearranged

• First, set profit to zero, because the break-even point assumed zero profit

\[(\text{Price-VC})\times Q - FC = 0\]

• Next, rearrange to solve for quantity:

\[
\frac{FC}{(\text{Price-VC})} = Q
\]

• Using the example numbers, we find that the break-even quantity is 5,136 pounds of tomatoes:

\[
\frac{\$565}{($0.24/lb-$0.13/lb)} = 5,136 \text{ lbs}
\]
Solving for Specified Profit

- This formula can also be adjusted to solve for the quantity that must be sold in order to achieve a specific profit level.
- Just add the profit to the fixed costs:
  \[
  \frac{(FC+Profit)}{(Price-VC)} = Q
  \]
  - This can give you an idea of how large your enterprise will need to be to earn the profit that you want.
  - If the quantity is unreasonable, you need to rethink your plan.
- Using the example numbers, we find that 20,000 lbs of tomatoes would need to be grown and sold to achieve the pre-tax profit of $1,635:
  \[
  \frac{($565+$1635)}{($0.24/lb-$0.13/lb)} = 20,000 \text{ lbs}
  \]
Taxes and Other Payments

• Often an owner cannot withdraw the entire profit amount from a business
  – Must pay taxes, reinvest in the business, make principle payments, and cover withdrawals

• Taxes
  – Most states have around 7-8% income tax rates
  – Self-employment tax is around 15%
  – Federal income tax is usually 10%-15%
  – Considering these taxes with a Federal rate of 15%, gives a total tax rate of 37%
Solving for Profit with Taxes and Other Payments

- Consider again the tomato example-imagine the operator needs:
  - $5,000 for the family
  - $1,000 to buy new machinery for the family
  - $500 to pay a loan
  - A total of $6,500 is needed

- To calculate the pre-tax income needed to meet these financial needs, divide the amount needed ($6,500) by one minus the tax rate (1-0.37)
  - This gives a pre-tax income of $10,317
The profit equation can be rearranged once more to take pre-tax income into consideration.

Just add the profit and taxes to fixed costs in the previous equation:

\[
\frac{(F{C}+\text{Profit}+\text{Taxes})}{(\text{Price}-\text{VC})} = Q
\]

Using the numbers from the example, we see that 98,931 pounds of tomatoes would need to be grown and sold to meet these financial goals:

\[
\frac{($565+10,317)}{($0.24/lb-$0.13/lb)} = 98,931 \text{ lbs}
\]
Solving for Profit with Taxes and Other Payments, cont.

• If this amount is higher than what can be produced, the idea is not feasible
  – In this case, either the idea should not be pursued further, or other ways to increase per-unit profit should be explored
  – Often, even small changes in price can lead to larger changes in net income

• One possibility is to find new markets in which to sell the product (farmers’ markets, roadside stands, etc.) that will allow for an increase in the price per unit

• When looking at other alternatives, it is important to make sure that any changes in the cost are included
  – For example, if selling at a farmers’ market instead of selling commercially, you must consider:
    • The cost of getting a booth at the market
    • The time involved with setting up for and attending the market
    • The cost of transporting the product to the market
Scenario Analysis

• Before pursuing different options or strategies, it is important to look at various scenarios
  – This usually includes looking at how changes in prices, costs, and quantities of each option affect the overall profit
  – If there are a lot of unknowns, estimates or guesses can be used for some costs, potential customers, etc.

• Seeing how changes in these variables affect profit:
  – Gives an understanding of the risks and potential profit
  – Better decisions can be made

• Since this involves a lot of calculations, it is easier to use a spreadsheet in a computer program
  – For this example, a spreadsheet was created in Excel
Scenario Analysis, cont.

• It is important to look at not just an option, but how different assumptions affect the profitability and risk of the option

• Often, small percentage changes in price will have larger percentage changes in net income
  – Conversely, the effect of potential increases in costs of production can also be examined

• The first step is to create a base scenario
  – Then look at what happens when different assumptions are changed
The first step is to create the base scenario

For this example, imagine a garden center

- For every $100 in sales, incur input costs of $50 and $15 in labor, with $20 in overhead (fixed costs)
### Base Scenario Cell References

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<thead>
<tr>
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<th>New Result</th>
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<tr>
<td><strong>Revenue</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>$ 100.00</td>
<td>=+C2*(1+D2)</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inputs</td>
<td>$ 50.00</td>
<td>=+C5*(1+D5)</td>
</tr>
<tr>
<td>Labor</td>
<td>$ 15.00</td>
<td>=+C6*(1+D6)</td>
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<tr>
<td>Overhead</td>
<td>$ 20.00</td>
<td>=+C7*(1+D7)</td>
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<tr>
<td><strong>Total Expenses</strong></td>
<td></td>
<td>=SUM(C5:C7) =SUM(E5:E7)</td>
</tr>
<tr>
<td><strong>Net Income before taxes</strong></td>
<td>=+C2-C8</td>
<td>=+E2-E8</td>
</tr>
<tr>
<td>Income taxes</td>
<td>37.3%</td>
<td>=+C10<em>B11 =+E10</em>B11</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td></td>
<td>=+C10-C11 =+E10-E11 =+(E12-C12)/C12</td>
</tr>
</tbody>
</table>

- This figure shows the formulas used in Excel to generate the figure on the previous slide
- Can make your own using this as a template
Sales Volume Increases 10%

- Volume of sales increase by 10%
  - In this case both revenue and the cost of labor and inputs would increase by 10%. So 10% would be typed into the yellow cells for those three things, resulting in net income increases from $9.41 to $11.60, a 23% increase.

<table>
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<tr>
<td>Inputs</td>
<td>10%</td>
<td>$55.00</td>
</tr>
<tr>
<td>Labor</td>
<td>10%</td>
<td>$16.50</td>
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<tr>
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<td>Income taxes</td>
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<td>$6.90</td>
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<tr>
<td>Net Income</td>
<td></td>
<td>$11.60</td>
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### Prices Increase 10%

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<th>New Result</th>
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</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>10%</td>
<td>$ 110.00</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
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<td></td>
</tr>
<tr>
<td>Inputs</td>
<td></td>
<td>$ 50.00</td>
</tr>
<tr>
<td>Labor</td>
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<td>$ 15.00</td>
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<tr>
<td>Overhead</td>
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<td>$ 20.00</td>
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<tr>
<td><strong>Net Income</strong></td>
<td></td>
<td>$ 15.68</td>
</tr>
</tbody>
</table>

**Percent change in net income**: 67%

- **Prices increase by 10%, but nothing else changes**
  - This may arise if the owner decides to increase prices under the assumption that the same volume can still be sold.
  - Type 10% in the top yellow box corresponding to revenue and clear all the other boxes. The result is that revenue increases by $10 to $110 and net income increases by 67%.
### Cost of Inputs Increases 10%

<table>
<thead>
<tr>
<th></th>
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<th>New Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td>$100.00</td>
<td>$100.00</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inputs</td>
<td>$50.00</td>
<td>$55.00</td>
</tr>
<tr>
<td>Labor</td>
<td>$15.00</td>
<td>$15.00</td>
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<td>$90.00</td>
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<td>$10.00</td>
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<tr>
<td>Income taxes</td>
<td>37.3%</td>
<td>$3.73</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>$9.41</td>
<td>$6.27</td>
</tr>
</tbody>
</table>

- **Costs of inputs rise by 10%**
  - This might be due to higher gas prices, transportation cost increases, etc.
  - Leave all the yellow cells blank except for the one for inputs. In the yellow cell for inputs type 10%. The result is that net income would go down by a third (33%).
Limitations of Scenario Analysis

• The scenario analysis tool is meant to provide a quick overview of the potential risks and profits
  – It is not meant to be the end of the analysis
• If something is really sensitive (results change dramatically with small changes in assumptions), a more detailed analysis may need to be conducted
• It is also important to be realistic and include all costs
  – Ex. if a big increase in volume is considered, it may also increase overhead due to a need for different equipment
Conclusion

• Niche markets have unique characteristics that can affect the price (premiums) of the product over time
• Under good conditions prices can be quite high, but small changes in the supply of the product can cause much larger decreases in price
  – So over time, as more suppliers enter the market, price premiums usually go down
• Strategies that small producers might consider include:
  – Product differentiation
  – Growing the market by continuing to find new customers at an equal or greater rate than the supply expands
  – Continuing to innovate
• Regardless of the strategies or ideas that are pursued, it is important to look at potential profitability and how different assumptions affect the profitability of the product
Thank you!