About Costs: Examples
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About Costs: Examples

Background

► Consider the following example on costs:

Cindy rents one knitting machine for $25/day.

As machines do not operate themselves, she hires labour to produce sweaters, at a cost of $100/day for every worker hired.

If, for example, Cindy hires ten (10) workers to produce 100 sweaters per day, her total daily cost is $1025.

Total Cost

► In our example of Cindy’s sweater-making business:

$1025 (TC) = $25 (TFC) + 10x$100 (TVC)

► Consider the table below.

<table>
<thead>
<tr>
<th>Labor (workers per day)</th>
<th>Output (Sweaters per day)</th>
<th>Total Fixed Cost (TFC)</th>
<th>Total Variable Cost (TVC)</th>
<th>Total Cost (TC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>0</td>
<td>25</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>25</td>
<td>100</td>
<td>125</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>25</td>
<td>200</td>
<td>225</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
<td>25</td>
<td>300</td>
<td>325</td>
</tr>
<tr>
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<td>25</td>
<td>400</td>
<td>425</td>
</tr>
<tr>
<td>F</td>
<td>5</td>
<td>25</td>
<td>500</td>
<td>525</td>
</tr>
</tbody>
</table>

Using this information, we can produce the following total cost curves:
Marginal Cost

Building from the previous table, consider the table below.

<table>
<thead>
<tr>
<th>Labour (workers per day)</th>
<th>Output (sweaters per day)</th>
<th>Total Fixed Cost (TFC)</th>
<th>Total Variable Cost (TVC)</th>
<th>Total Cost (TC)</th>
<th>Marginal Cost (MTC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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<td>0</td>
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<td>25</td>
<td>100</td>
<td>125</td>
<td>14.29</td>
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<tr>
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<td>25</td>
<td>200</td>
<td>225</td>
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<tr>
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<tr>
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<td>5</td>
<td>25</td>
<td>500</td>
<td>525</td>
<td></td>
</tr>
</tbody>
</table>

So, to clarify, consider the difference between an output of 6 sweaters and an output of 13 sweaters. The total cost increases from $125 to $225, meaning a net increase of $100. On the same token, the number of output sweaters increases by 7. As such, each one of these additional sweaters costs $100/7 or $14.29.

Average Cost

As before, the table below draws on our original table.

Examining the values for an output of 6 sweaters, we find that average fixed cost is equal to $25/6, or $4.16. Likewise, the average variable cost is equal to $100/6 = $16.67. Summing these values, we find that the average total cost should be equivalent to $20.83. Taking $125/6, we find the value to be $20.83, meaning our calculated values are correct.
Using the information above, we can plot the following curves:

This graph demonstrates that the distance between the average total cost and average variable cost is equivalent to the average fixed cost, which always holds.

In addition to the distance, average total cost will always be greater than average variable cost and average fixed cost, as these values are summed to arrive at the average total cost.