## Pros & Cons of Different Analysis Methodologies (adapted from Ragsdale 2004)

<table>
<thead>
<tr>
<th>Analysis Methodology</th>
<th>Pros</th>
<th>Cons</th>
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| **Point Estimate ("Base Case" Analysis)** | • Easy ("back of envelope") calculation.  
• May be sufficient if uncertainty level is low enough and impact of poor decision is low. | • Doesn’t take uncertainty into account.  
• Not easily defended if uncertainty/risk is present and/or impact of wrong decision is large. |
| **What-If Analysis** | • Relatively easy to do (with computational assistance).  
• Relatively easy to understand.  
• Can lead to additional insight, especially for the person performing the analysis. | • Values chosen for scenarios likely to be biased.  
• Difficult to integrate results of what-if analysis into a convincing argument to management |
| **Scenario Analysis (e.g., Best-/Worst-/Most Likely Case)** | • Fairly easy, even with hand calculation…supplement to a Point Estimate.  
• People can understand best/worst case estimates.  
• If worst case result is still acceptable, then no further analysis is necessary. | • Gives no information as to the probability of best or worst case actually occurring.  
• With more than two or three input quantities, the number of possibilities become overwhelming (easily hundreds or thousands of scenarios). |
| **Sensitivity Analysis** | • Relatively easy to do (with computational assistance). Tools exist to ease the mechanics of the calculations.  
• More structured than what-if analysis; results can be graphed easily and presented clearly.  
• Often leads to an identification of which inputs are the most important (i.e., which inputs cause the most variability in the output measure). | • Usually only one input is varied at a time, while holding others constant (may not be realistic, and in some cases can be misleading). |
| **Simulation** | • Explicitly takes into account the variation present in the input quantities.  
• Results in a description of the probability distribution of the performance measure(s). Probabilities of various “critical” outcomes can easily be found.  
• Facilitates a more realistic assessment of the risk involved.  
• Can be thought of as automated, unbiased, what-if analysis. Computer automatically generates hundreds or thousands of scenarios. | • Somewhat more difficult to understand/explain than other types of analysis (but results are much easier to integrate than results from a manual what-if analysis).  
• Computational requirements are higher, but much of this can be automated (especially with dedicated simulation software). |

### Possible Performance Measure Distributions Within a Range

![Possible Performance Measure Distributions Within a Range](image-url)