









Your pizzeria restaurant has done well and is earning a gross profit (sales – cost of sales) of \$110 per year, and you have some earning saved up for extension. Current overhead is \$50/year. You have the choice between either putting up a new shop of your restaurant in a city far away or simply setting up a small shop in a nearby town.

If you set up a new shop, there's a 37% chance that the economy in the neighbouring city does well, a 29% the economy remains the same, and a 34% chance that city's economy does bad. If the neighbouring city's economy does well, there's a 71% chance your new shop will earn a huge gross profit of \$400 and a 29% chance it will earn a gross profit of \$207. If that city's economy stays the same, you'll probably earn a gross profit of \$85. If that city's economy goes bad, you'll probably earn a gross profit of \$25.

Or you may choose to just expand your current restaurant with a new small shop in a nearer city. There are equal probabilities that the economy will either do well, stay the same or be bad. If the economy does well, your new shop's gross profit will be 70% higher than your current shop. If economy stays the same, there's a 62% chance that gross profit will increase to \$166 and 38% chance it will increase to \$156. If economy does bad, your new small shop's gross profit will only be 50% of your current branch.

The cost of running the new shop in the far city is \$30 per year, and the overhead of a small new shop in the nearer city is 40% of your current shop.

**Using Decision Tree Analysis, which is a better option?**

**Snap a photo of your decision tree +  
calculations and submit through ulearn.**

END









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# BMFG 4623

## Engineering Economy & Management

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