

AAE101: Intro to Ag. & Applied Econ.

Discussion Section 1

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Logistics

Discussion sections:

- Fridays 9:55-10:45am – 121 Babcock Hall.
- Fridays 11:00-11:50am – 119 Babcock Hall.
- Fridays 1:20-2:10pm – 150 Russell Laboratories.
- Fridays 2:25-3:15pm – 150 Russell Laboratories.

Office hours: I will hold office hours on Wednesdays from 12pm to 1:15pm in 314 Taylor Hall. Also, I am available by appointment on Thursdays at 11am. In case you cannot make it to my office hours, we can arrange an appointment to discuss your questions. In those cases, please email me with your questions in advance.

Email policy: This is the preferred way to contact me. You can email me whenever you want – my email is at the top right of this page. I will try to answer in the next 24 hours. I will not be answering emails after 10pm or on Sundays.

*This handout is based on the corresponding handouts from previous years by Felipe Parra Escobar, Matt McKetty & Talita Silva. Modifications and additions in this version by Erick.

Tips:

- Ask any questions you have. Sometimes several students have the same question, but no one asks it. So, by asking, you are probably answering someone else's question.
- Give feedback as to what you would like me to focus on.
- Try to plan ahead.

Today's goal

- Learn how to draw a **budget line** and see how it changes when prices or income change, including special cases like discounts or limits on buying.
- Understand how prices and quantities are connected and find the point where they balance.

Plotting the Budget Line

Imagine you have \$40 to spend on two goods: books and coffee. Books cost \$10 each, and a cup of coffee costs \$4.

The budget line is defined as:

$$10B + 4C = 40,$$

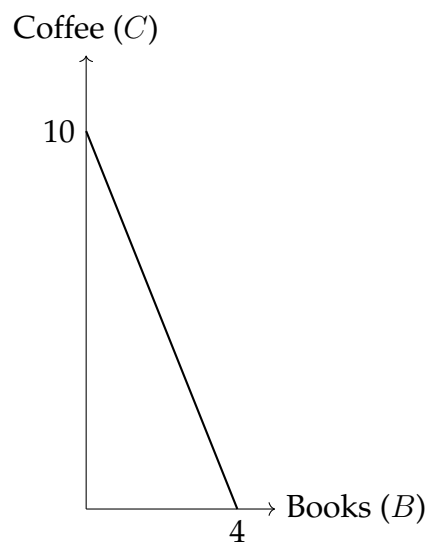
where B is the number of books and C is the number of cups of coffee.

The intercepts of the budget line are:

$$B = \frac{40}{10} = 4,$$

$$C = \frac{40}{4} = 10.$$

Graphical Representation:



Changes to the Budget Line

a. Price of Books Cuts in Half

Now, books cost \$5 each. The budget equation becomes:

$$5B + 4C = 40.$$

Write the equations for the intercepts and the graphical representation.

b. Price of Both Goods Doubles

Now, books cost \$20 each and coffee costs \$8. The budget equation becomes:

$$20B + 8C = 40.$$

Write the equations for the intercepts and the graphical representation.

c. Income is Cut in Half

Now, you only have \$20 to spend. Books cost \$10 each and coffee costs \$4. The budget equation becomes:

$$10B + 4C = 20.$$

Write the equations for the intercepts and the graphical representation.

Budget Line with Coupons

Imagine you have \$200 to spend on two goods: food and entertainment. Food costs \$10 per unit, and entertainment costs \$20 per unit. You also have a coupon that gives you 50% off on food, up to a total value of \$100 (i.e., for the first 10 units of food). After the coupon is used, the price of food returns to \$10 per unit. Write the equations for the intercepts and the graphical representation.

Budget Line with Rationing

Imagine you have \$100 to spend on two goods: fuel and groceries. Fuel costs \$5 per unit, and groceries cost \$10 per unit. Due to rationing, you can only purchase a maximum of 12 units of fuel. Write the equations for the intercepts and the graphical representation.

Inverting Supply and Demand Equations

Suppose the demand and supply for apples are given as:

$$Q_d = 50 - 2P,$$

$$Q_s = 3P - 10.$$

Express P as a function of Q .

Solving for Market Equilibrium

Use the equations given in the previous section to solve for the market equilibrium.