money multiplier

used in monetary policy

calculated by

1/reserve ratio

Currently, our reserve ratio is .10

What is the money multiplier?
This means that for every dollar the Fed adds to the economy, $10 of real GDP will be created.
If the Fed wanted to add 10B in real GDP into the economy, what dollar amount of bonds should they buy?

\[ X \times 10 = 10B \]

\[ X = \frac{10B}{10} \]

\[ X = 1B \]

Ben should buy 1B worth of bonds.
If the reserve requirement is 20% and there is a recessionary gap of 100M, by how much should the Fed expand the money supply?

\[
\text{MM} = \frac{1}{0.20} = 5
\]

\[
100 \text{M} / 5 = 20 \text{M}
\]

increase the money supply by 20M
If the reserve requirement is 25% and there is an inflationary gap of 100M, by how much should the Fed decrease the money supply?

\[
\frac{1}{0.25} = 4
\]

\[
\frac{100M}{4} = 25M
\]

decrease the money supply by 25M
Suppose the Fed buys 50B in bonds and the reserve requirement is 10%. What is the total effect to the economy?

\[ 50B \times 10 = 500B \]
Suppose a bank has 250M in deposits and is holding 50M in reserves. The reserve requirement is 15%. If the bank loaned out its excess reserves, how much economic activity could be generated?

Excess reserves of 12.5M

MM=6.67

6.67*12.5 M=83.375M
Keynes also believed that people did two things with their income (Y):

Consume
Save

Another of Keynes formulas is:

\[ Y = C + S \]

Income = Consumption + Savings

What is Marginal Propensity to Consume?

**Marginal** -- means additional

**Propensity** -- means tendency

**Consume** -- means to satisfy wants

**MPC** -- means the additional tendency to satisfy wants.
\[ \text{MPC} = \frac{\text{change in } C}{\text{change in } Y} \]

\[ \text{MPC} = \frac{\text{change in consumption}}{\text{change in income}} \]

If you receive an additional $1 and you spend 80 cents and save 20 cents, the \textit{change in income} is $1.00

\[ \text{MPC} = \frac{\text{change in } C}{\text{change in } Y} = 1.00 \]

\[ \text{MPC} = \frac{\text{change in consumption}}{\text{change in income}} \]

If you receive an additional $1 and you spend 80 cents and save 20 cents, the \textit{change in income} is $1.00 and the \textit{change in consumption} is 80 cents.
\[ MPC = \frac{\text{change in } C}{\text{change in } Y} = \frac{0.80}{1.00} \]

This means that the Marginal Propensity to Consume is 0.80

\[ MPC = \frac{\text{change in } C}{\text{change in } Y} = \frac{\$670}{\$1,000} \]

If people's incomes go up by $1,000 and their consumption increases by $670, what is the MPC?

\[ MPC = 0.67 \]
If people's incomes go up by $500 and their consumption increases by $400, what is the MPC?

$400/500 = 0.8$
MPS -- means the additional tendency to reserve for future use.

If the MPC is .80, what do you think the MPS is?
MPS = .20

If the MPC is .75, what do you think the MPS is?
MPS = .25

If the MPC is .80, what do you think the MPS is?

MPS = .20

If the MPC is .75, what do you think the MPS is?

MPS = .25

So is this a true statement?

MPC + MPS = 1
Government Spending Multiplier:

\[ 1 / \text{MPS} \]

If a recessionary gap of 100M exists and the government wants to increase spending to close it, how much will they have to spend if the MPC is .8?

\[
\frac{S}{MPK} = .20 \\
1/.20 = 5 \\
100M/5 = 20M
\]
Suppose an increase of G of 1B. The MPS=.10. What is the total effect on RGDP?

\[
\frac{1}{.10} = 10 \\
10 \times 1B = 10B
\]
An inflationary gap exists of 20B. The government wants to reduce spending to close it. MPC=.95

By how much should the govt reduce spending?

\[ \frac{1}{.05} = 20 \]

\[ \frac{20B}{20} = 1B \]

Reduce Spending by 1B.
The **KEYNESIAN TAX CUT MULTIPLIER** = \(-\frac{MPC}{MPS}\)

Why is the tax cut multiplier negative?
Suppose there is a recessionary gap of 100M and the government wants to cut taxes to close it. The MPS is .20. By how much the taxes need to be lowered?

\[-\text{mpc/mps} = \frac{.80}{.20} = -4\]

\[100M/4 = 25M\]

A tax cut of 25M would close the gap.
Balanced Budget Multiplier = 1

If the government increases government spending by 50M, increases taxes by 50M, and the MPC=.80, what is the net effect?
Balanced Budget Multiplier = 1

If the government increases government spending by 50M, increases taxes by 50M, and the MPC = 0.80, what is the net effect?

G multiplier = 5

5 * 50M = 250M

tax mult = -4

Net effect? Increase of 50M!!

-4 * 50M = -200M