Lecture Notes 5 Addendum

From the GDP Identity to a Macro Model

We start with the GDP identity

\[ Y = C + I + G + NX \]

As we have emphasized, there are no implications of the identity for substantive economic questions.

However, if we had theories as to the determination of \( C, I, G, \) and \( NX \), then we would have a theory of the determination of \( Y \); this follows from the identity.
Here is an example of a theory.

$I$ is exogenously determined and equals 100.

$G$ is exogenously determined and equals 100.

$NX$ is exogenously determined and equals 100

These are boring theories, they say $G, I, NX$ are exogenous.

$C = .9Y$

This is a nontrivial theory. This renders consumption endogenous.
Substitute each of these into the GDP identity:

\[ Y = .9Y + 100 + 100 + 100 = .9Y + 300 \]

Or

\[ Y = 3000 \]

This is a macro model!
More generally, we assume

$I$ is exogenous

$G$ is exogenous

$NX$ is exogenous

$C = cY$

Then,

$$Y = cY + I + G + NX$$

Which means that

$$Y - cY = I + G + NX \Rightarrow$$

$$Y = \frac{I + G + NX}{1 - c}$$

This is the income expenditure model.