

ECON 1550: International Finance

Models in Economics

Bottom line to remember

“All models are wrong, some models are useful”

Example: Uncovered Interest Parity (UIP)

$$R_{\$} = R_{\text{¥}} + \frac{E_{\$/\text{¥}}^e - E_{\$/\text{¥}}}{E_{\$/\text{¥}}}$$

- Does not fit the data well
- We can still use it to determine $E_{\$/\text{¥}}$ given $R_{\$}$, $R_{\text{¥}}$, and $E_{\$/\text{¥}}^e$
- Combined with goods and money market equilibrium, we can understand (some or all) effects of monetary policy on $E_{\$/\text{¥}}$

Example: UIP (continued)

$$R_{\$} = R_{\text{Y}} + \frac{E_{\$/\text{Y}}^e - E_{\$/\text{Y}}}{E_{\$/\text{Y}}} + rp$$

- How much did we miss? Add an error term and call it **risk premium**
- If rp is independent of monetary policy, we did not miss anything
- If rp depends on monetary policy, we still captured one channel

Types of Variables

Endogenous

- Explained within the model

Exogenous

- Taken as given
- Not explained by the model

Parameters

- Exogenous; do not depend on policy

Types of Equations

Identities

- Hold by definition or construction

Behavioral

- Capture behavior that we include in a model
- Hold by assumption

Equilibrium conditions

- Supply equals demand
- Hold by “economic logic”

Solving a Model, Solving for a Variable

- “Solving for a variable” means expressing that variable in terms of exogenous variables only
- “Solving a model” means solving for all endogenous variables

Example 1

Exogenous variables		Endogenous variables			
Variable	Description	Variable	Description	Equation	Type of equation
T	taxes	C	consumption	$C = c_1 Y_D$	behavioral
Y	income	Y_D	disposable income	$Y_D \equiv Y - T$	identity
c_1	marginal propensity to consume				

Solution
and
Intuition

Example 2

Exogenous variables		Endogenous variables		
Variable	Description	Variable	Description	Equation
C	consumption	T	taxes	$Y_D \equiv Y - T$
Y	income	Y_D	disposable income	$C = c_1 Y_D$
c_1	marginal propensity to consume			

**Solution
and
Intuition**

Example 2

Exogenous variables		Endogenous variables			
Variable	Description	Variable	Description	Equation	Type of equation
C	consumption	T	taxes	$Y_D \equiv Y - T$	identity
Y	income	Y_D	disposable income	$C = c_1 Y_D$	behavioral
c_1	marginal propensity to consume				

**Solution
and
Intuition**

Shocks

- Changes in exogenous variables
- Including changes in parameters
- Usually unforeseen, unforeseeable, or random