

# ECON 1550: International Finance

## Models in Economics

Bottom line to remember

“All models are wrong, some models are useful”

# Example: Uncovered Interest Parity (UIP)

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

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

## Example: UIP (continued)

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

- 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**

Variable	Description
$T$	taxes
$Y$	income
$c_1$	marginal propensity to consume

**Endogenous variables**

Variable	Description	Equation	Type of equation
$C$	consumption	$C = c_1 Y_D$	behavioral
$Y_D$	disposable income	$Y_D \equiv Y - T$	identity

**Solution  
and  
Intuition**



# Example 2

**Exogenous variables**

Variable	Description
$C$	consumption
$Y$	income
$c_1$	marginal propensity to consume

**Solution  
and  
Intuition**

**Endogenous variables**

Variable	Description	Equation	Type of equation
$T$	taxes	$Y_D \equiv Y - T$	identity
$Y_D$	disposable income	$C = c_1 Y_D$	behavioral

# Example 2

## Exogenous variables

Variable	Description
$C$	consumption
$Y$	income
$c_1$	marginal propensity to consume

## Endogenous variables

Variable	Description	Equation	Type of equation
$T$	taxes	$Y_D \equiv Y - T$	identity
$Y_D$	disposable income	$C = c_1 Y_D$	behavioral

**Solution  
and  
Intuition**

# Shocks

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