INTERMEDIATE MACROECONOMICS IS-LM MODEL OF BUSINESS CYCLES 7. EXPENDITURE FUNCTION

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MOTIVATION FOR IS-LM MODEL: GROWTH RATE OF GDP/CAPITA



MOTIVATION FOR IS-LM MODEL: US MONETARY POLICY



EXPENDITURE ON GOODS (Z)

- expenditure on consumption goods + newly produced capital goods by
 - households
 - firms
 - government
- assumption: closed economy so exports = imports = 0
- expenditure on goods is Z = C + G + I

CONSUMPTION BY HOUSEHOLDS (C)

- consumption is an increasing function of disposable income (D)
 - C = C(D) with C'(D) > 0
- shape of consumption function: $C(D) = c_0 + c_1 \times D$
 - $c_0 > 0$: what people consume if D = 0
 - to consume without disposable income, people use their savings
 - 0< c₁ < 1: the marginal propensity to consume (MPC)
 - when D increases by \$1, consumption increases by MPC
 - 0 < MPC: people spend part of any increase in D
 - MPC < 1: people save part of any increase in D

DISPOSABLE INCOME (D)

- disposable income is the income remaining once households have paid their taxes & received transfers: D = Y T
- Y = total income
- T = taxes government transfers
 - taxes: income tax, property tax, sales tax, payroll tax
 - transfers: Social Security, Medicare, Medicaid, UI
 - T > 0: household pays more taxes than it receives benefits
 - T < 0 : household receives more benefits than it pays taxes
- T is a parameter of the model (taken as given)

CONSUMPTION FUNCTION



OTHER COMPONENTS OF Z

- recall: Z = C + I + G
 - C is given by the consumption function, describing households' behavior
- government expenditure (G > 0): parameter of the model (taken as given)
- investment (I > 0): parameter of the model (for now)
 - in the complete IS-LM model, investment will be a function of the interest rate and aggregate income

TOTAL EXPENDITURE ON GOODS

- Z = C + I + G + NX
- Z = C(Y-T) + I + G [NX=0 & C=C(D) & D=Y-T]
- $Z = c_0 + c_1 \times (Y T) + I + G \text{ [using C(D)]}$
- $Z = [c_0 + I + G c_1 \times T] + c_1 \times Y$ [algebra]

EXPENDITURE FUNCTION

- $Z(Y) = [c_0 + I + G c_1 \times T] + c_1 \times Y$
- $[c_0 + I + G c_1 \times T] > 0$: autonomous expenditure
 - with balanced government budget, G = T, and then G - c₁ × T = (1 - c₁) × G > 0; furthermore c₀ > 0 and I > 0; so autonomous spending > 0
 - autonomous expenditure is the amount of expenditure when income is 0
- $c_1 \times Y$: consumers' expenditure out of income