

Table 1 (billions of dollars)

Durable goods consumption	144
Nondurable goods consumption	200
Services consumption	286
Business fixed investment	108
Residential construction	45
Inventory investment	5
Federal government purchases	96
Provincial and municipal government purchases	100
Exports	370
Imports	354
Excess of GDP over GDP	35
Depreciation	125

- National accounting. According to Table 1,
  - what were consumption expenditure, investment expenditures, government purchases, net exports and GDP (**Gross Domestic Product**)?
  - what were GNP (**Gross National Product**) and net national product?
- Economic growth. Consider an economy described by the production function:  $Y = F(K, L) = K^{0.3}L^{0.7}$  where  $Y$  refers to output (income),  $K$  to capital and  $L$  to labour.
  - What is the per-worker production function?
  - Assuming no population growth or technological progress, find the steady-state capital per worker, output per worker, and consumption per worker as a function of the saving rate and the depreciation rate.
  - What saving rate maximizes consumption per worker?
- Unemployment. What are the four institutional factors (variables) that explain the **natural rate of unemployment** being higher in Europe than in the USA, generally speaking? (Write one short paragraph for each institutional variable.)
- Money. The official annual inflation rate in Zimbabwe is now 100,000% or 77.8% monthly.
  - Define a **hyperinflation**.
  - Is Zimbabwe suffering a hyperinflationary episode according to the definition of a hyperinflation?
  - Explain the problems related to hyperinflation and to inflation in general.
- Macroeconomic policy Explain the lags involved in fiscal and monetary policy. These lags are long and variable. Discuss the relative advantage of fiscal versus monetary policy regarding these lags.
- The closed economy in the long run. Suppose a government education program succeeds in getting households to save more. In the model used in chapter 3 of your textbook, determine the effects this will have on consumption, aggregate output, national saving, investment, and the real interest rate? (Your answer should include both a graph and a written argument.)
- Closed economy in the short run Assume that the long-run aggregate supply curve is vertical at  $Y = 3,000$ . The velocity  $V$  is 2 and the amount of money  $M = 1,500$ 
  - Write the aggregate demand curve  $Y = AD(P)$  (output as a function of the price level).
  - If the economy is initially in long-run equilibrium, what are the values of  $P$  and  $Y$ ?
  - If  $M$  increases to 2,000, once the economy adjusts to long-run equilibrium, what are  $P$  and  $Y$ ?

8. The small open economy in the long run. Governments around the world are beginning to engage in expansionary fiscal policy in order to stimulate economic activity in their countries.
- (a) Illustrate graphically the impact of this expansionary fiscal policy by foreigners on the Canadian exchange rate and the Canadian trade balance. Assume that the country starts from a position of trade balance, i.e., exports equal imports.
  - (b) Based on your graphical analysis, explain the predicted long-run impact of the foreign expansionary fiscal policy on the Canadian exchange rate and the Canadian trade balance.

9. The small open economy with flexible exchange rates in the short run. As the aftermath of the sub-prime mortgage crisis, the US economy went into "a period of very slow growth", to use Bernanke's words, in the last quarter of 2007 (an example of the *effectiveness lag*). As a consequence the Federal Reserve Bank has decreased the Fed Funds rate by 3% since the prime rate peaked in August 2007 and consequently the prime rate charged by Banks has decreased by 3% as well.

Explain the effect of this decrease in US interest rates in the Canadian economy using an AD/AS graph. What will be the effect on output and employment. What will happen to the composition of the aggregate demand, specifically to investment and net exports? What will happen to the real exchange rate?

10. The small open economy with fixed exchange rates in the short run. Assume the following consumption function:

$$C = A + b \cdot (Y - T),$$

where  $A$  refers to autonomous consumption,  $b$  to the marginal propensity to consume, and  $T$  to taxes. Write an expression for equilibrium  $Y$  in the short-run model for a small open economy with fixed exchange rates. If  $b = 0.5$ , what are the multipliers for  $G$  and  $T$ ?