

**Attention:** Graphics and equations should be accompanied with **short and precise** comments; it is often the only way to make a difference between a calculation mistake and deficient comprehension. However, comments that have nothing to do with the question will be interpreted as a lack of understanding.

The exam is marked on **100 points**. This questionnaire has **1 page**. GOOD LUCK!

### A. (60 points) Economic Policy in an Open Economy: The IS Model

A country's open economy is presently suffering from a slowdown and its government would like to boost its output level. Its trade is presently perfectly balanced, that is, the trade surplus is zero.

You have just graduated successfully from the economics program at U of Ottawa and the president of that country hires you to **explain** to him on how to go about increasing the output. The only condition that he imposes is that the proposed policy does not turn the trade balance into a trade deficit. (NB This question refers to chapter 7. Therefore, it must be answered within the framework of the IS model only.)

**(a) (20 points) Explain** to the president, with the use of graphic(s), why trade is presently balanced. (NB Make sure that each curve is well identified by its corresponding equation but **do not** explain the equations and **do not** explain why output is too low.)

BALANCED TRADE MEANS THAT EXPORTS ( $X$ ) ARE EQUAL TO IMPORTS ( $\epsilon Q$ ):  $X = \epsilon Q$ . DEFINING NET EXPORTS AS  $NX = X(Y^*, \epsilon) - \epsilon Q(Y, \epsilon)$ , THE PRESENT OUTPUT LEVEL IS SUCH THAT  $NX = 0$ , AS SEEN ON THE GRAPHIC A2 (IGNORE THE DOTTED CURVES FOR NOW). ON GRAPHIC A1, THIS CORRESPONDS TO THE POINT WHERE THE DOMESTIC DEMAND FOR GOODS (CURVE DD) IS EQUAL TO THE TOTAL DEMAND FOR DOMESTIC GOODS (CURVE ZZ). THOSE CURVES ARE DEFINED AS:

$$DD : Z = C(Y - T) + I(Y, i) + G$$

$$ZZ : Z = C(Y - T) + I(Y, i) + G - \epsilon Q(Y, \epsilon) + X(Y^*, \epsilon)$$

**(b) (20 points)** Propose your policy and explain how it works with the use of graphics.

THE POLICY THAT I WOULD PROPOSE IS TO DEPRECIATE THE REAL EXCHANGE RATE ( $\Delta^+ \epsilon$ ). BY THE MARSHALL-LERNER CONDITION, NET EXPORTS WILL INCREASE: BOTH THE  $NX$  AND  $ZZ$  CURVES SHIFT UP. IN THE NEW EQUILIBRIUM AT POINT A', THE OUTPUT LEVEL HAS INCREASED WHILE THE TRADE BALANCE IS NOW POSITIVE.

(c) (10 points) Suppose now that the main trading partners of this economy are also suffering from the same economic slowdown. **Explain, in words only**, how it would facilitate matters if you could coordinate your policy with that of those trading partners.

SINCE ONE COUNTRY'S REAL DEPRECIATION IS ANOTHER'S REAL APPRECIATION, ALL COUNTRIES CANNOT SIMULTANEOUSLY DEPRECIATE THEIR CURRENCIES. HENCE, THE SOLUTION PROPOSED ABOVE, WHILE POSSIBLE FOR ONE COUNTRY ALONE, CANNOT BE USED BY ALL TRADING PARTNERS AT THE SAME TIME. ONE SOLUTION WOULD BE FOR ALL COUNTRIES TO SIMULTANEOUSLY INCREASE THEIR LEVEL OF PUBLIC SPENDING. WITH PROPER COORDINATION, THIS WILL BOOST OUTPUT IN ALL COUNTRIES WITHOUT ANY EFFECT ON THEIR RESPECTIVE TRADE BALANCES. INDEED, THE NEGATIVE EFFECT ON THE TRADE BALANCE THAT AN INCREASE IN DOMESTIC PUBLIC SPENDING CAN HAVE IS COMPENSATED FOR BY THE POSITIVE EFFECT OF AN INCREASE IN FOREIGN PUBLIC SPENDING BECAUSE IT INCREASES FOREIGN OUTPUT.

(d) (10 points) Is the coordinated policy often used in real life? Why?

COUNTRIES SELDOM COORDINATE THEIR POLICIES IN PRACTICE. ONE REASON IS THAT THEIR ECONOMIC SITUATIONS ARE USUALLY SO DIFFERENT THAT THEY DON'T AGREE ON WHO SHOULD DO WHAT SACRIFICE. ANOTHER REASON IS THAT ONCE OTHER COUNTRIES AGREE TO INCREASE THEIR PUBLIC SPENDING, EACH COUNTRY HAS AN INCENTIVE NOT TO DO SO; EACH WILL TRY TO *free-ride* ON THE OTHERS. MOREOVER, THOSE AGREEMENTS ARE QUITE DIFFICULT TO MONITOR AND ENFORCE.

## B. (40 points) Economic Policy in a Closed Economy: The IS-LM Model

In 1993, a new government was elected in Canada that inherited a difficult macroeconomic situation: low GDP growth, high unemployment, and a large budget deficit. Explain, with the help of graphics, what the government did to improve on that situation. (NB Assume a closed economy.)

IN ORDER TO REDUCE THE DEFICIT, THE GOVERNMENT DECIDED TO REDUCE ITS SPENDING ( $\Delta^-G$ ) AND/OR INCREASE TAXES ( $\Delta^+T$ ). ON THE IS-MODEL GRAPH B1, WE SEE THAT THIS HAS THE UNDESIRABLE EFFECT OF FURTHER REDUCING OUTPUT, AND THUS GROWTH, AS THE  $ZZ$  CURVE SHIFTS DOWN (NEW EQUILIBRIUM AT POINT  $A'$ ).

$$ZZ : Z = C(Y - T) + I(Y, i) + G$$

SO IN ORDER TO ATTENUATE THOSE ADVERSE EFFECTS ON OUTPUT, THE CB (BANK OF CANADA) DECIDED TO INCREASE THE SUPPLY OF MONEY ( $\Delta^+M$ ), THAT IS, REDUCE INTEREST RATES ( $\Delta^-i$ ). THIS SHIFTS THE  $ZZ$  CURVE BACK UP SINCE INVESTMENT  $I(Y, i)$  DEPENDS NEGATIVELY ON INTEREST RATES.

THE COMBINED EFFECTS ARE SUMMARIZED IN THE IS-LM GRAPHIC B2. INITIALLY, THE ECONOMY IS AT POINT  $A$ .  $\Delta^-G$  AND/OR  $\Delta^+T$  SHIFTS THE IS CURVE TO THE LEFT, THUS REDUCING OUTPUT (POINT  $A'$ ).  $\Delta^+M$  MEANS THAT FOR ANY OUTPUT LEVEL  $Y$ , INTEREST RATES ARE LOWER: THE LM CURVE SHIFTS DOWN (POINT  $A''$ ). THIS WAY, IT IS POSSIBLE TO LOWER THE BUDGET DEFICIT WITHOUT CAUSING A MORE SEVERE RECESSION. IT SEEMS THAT THIS POLICY MIX WORKED WELL IN CANADA IN THE 1990'S.