

**ECO 2121 A: Economics of Globalization**  
**28 May 2015**  
**Answers to Mid Term Exam**

*Time: 2.5 hours*

**QUESTION 1 (20 Points)**

**a. What is the difference between gross national expenditure (GNE) and gross national disposable income (GNDI)? Explain all components that separate them.**

(1)  $GNE = C + I + G$

(2)  $GNDI = C + I + G + TB + NFIA + NUT$

(3)  $GNDI = GNE + TB + NFIA + NUT$

where C is consumption by private sector, I is investment by private firms, G is consumption and investment by the government.

Three factors separate GNDI and GNE. Trade balance (TB) is exports (X) *minus* imports (M) of goods and services. Net factor income abroad (NFIA) is the difference between incomes received by domestic factor services abroad (receipts for exports of services in foreign countries, XFS) and domestic payments to factors services owned by foreigners (as payments to imports of foreign factor services, MFS). The NUT is the net unilateral transfer (the amount that is received as gifts and remittances to the domestic country) minus transfer on these items to foreign countries.

**b. If a country has negative current account (CA), what does it mean in terms of GNE and GNDI and in terms of lending and borrowing?**

Since,  $TB + NFIA + NUT = \text{current account (CA)}$ , equation (3) can be written as

(4)  $GNDI = GNE + CA$

From this expression, it is clear that if a country has negative CA, then its GNDI is less than GNE, that is, income is less than expenditure. This country must be borrowing from outside to finance its expenditure.

**c. How is negative CA financed if we consider that capital account for that country is negligible? What happens to that country's foreign wealth and why?**

The balance of payment equilibrium implies that

$$CA + FA + KA = 0$$

Where FA is financial account and KA is capital account. As  $KA = 0$ , this equation takes the form of:

$$CA = -FA$$

Since CA is negative, the value of FA must be positive to satisfy the above equation (then only with negative sign in front, the right-hand side will be negative to be equal to negative CA).

Positive FA means the sales of domestic assets to foreigners (exports) which enter with positive in the account should be more than purchase of foreign assets (imports) by Home country which enters as negative sign. The former is liability to home country (because it has to be paid back in the future) and the latter is asset (as foreigners will pay later). Since liabilities are greater than assets, this country's is selling assets to finance its expenditure. This country's, foreign wealth is falling or its foreign debt is rising.

**d. What is happening to Canada's foreign wealth over time? Among the three components of FA, what has been the role of foreign direct investment in shaping Canada's foreign wealth?**

Canada's foreign wealth is falling over time. To be precise, Canada's foreign debt is rising over time. In 2013, Canada has total foreign net debt of \$260 billion, the highest ever in history. Since Canada is a net exporters of foreign investment (Canada's FDI outside is larger than its inward FDI), it is helping to raise Canada's foreign wealth. It's the portfolio investment that more than compensates net FDI to get the foreign debt growing.

**QUESTION 2**

**Question 2 (40 points)**

Suppose there are only two countries and only one factor of production, labor, and these two countries produce only two goods, Ipad and cloth. The labor productivity (output per unit of labor) in two countries for the production of two goods is as given below.

Labor productivity (output per labor

	Ipad	Cloth
Home	$LP_I = 4$ units/labor	$LP_C = 12$ units/labor
Foreign	$LP^*_I = 2$ units /labor	$LP^*_C = 8$ units/labor

- a. Note that labor productivity is denoted by LP and Ipad and cloth are indicated by subscripts of I and C, respectively. The variable with an asterisk is a foreign variable.

**a. How do you define opportunity cost? What is the opportunity cost of Ipad and cloth production for Home and Foreign countries? Using Home country's numbers, explain clearly what these opportunity costs mean?**

The opportunity cost (OC) of producing a good  $x$  in terms of  $y$  is the number of  $y$  that could have been produced with the resources used to produce a given number of good  $x$ .

The OC of Ipad (in terms of cloth) for Home country can be written as:

$$- LP_C / LP_I = 12/4 = 3 \text{ (or 3 units of cloth per unit of ipad)}$$

It means Home has to give up 3 units of cloth to produce 1 unit of Ipad.

The OC of cloth for Home country can be written as:

$$- LP_I / LP_C = 4/12 = 1/3$$

It means Home has to give up one-third unit of Ipad to produce 1 unit of cloth.

Similarly for the Foreign,

$$\text{The OC of Ipad} = LP^*_C / LP^*_I = 8/2 = 4$$

$$\text{The OC of cloth} = LP^*_I / LP^*_C = 2/8 = 1/4$$

Summary sheet (It is not required by students to show)

	OC	
	Ipad	Cloth
Home	3	1/3
Foreign	4	1/4

**b. What is comparative advantage and which country has comparative advantage in the production of which good?**

A country has a comparative advantage (CA) in a good when it has a lower OC of producing it than does the other country. In that sense, comparing CA in two countries by products, Home has the CA in the production of Ipad (OC of 3 at Home vs. 4 in Foreign) and foreign has CA in the production of cloth (OC of  $\frac{1}{4}$  in foreign compared to  $\frac{1}{3}$  at Home).

- c. Suppose that in both countries there is perfect competition in the sense that nominal wage of a unit of labor is equal to its value of production, and both goods are produced. Show that in pre-trade situation, relative price of Ipad in terms of price of cloth ( $P_I / P_C$ ) must be equal to the opportunity cost of producing Ipad. Show it for both countries.**

If we denote wage in Ipad industry by  $W_I$  and wage in cloth industry by  $W_C$ , perfect competition implies that wage = value of production

$$(1) \quad W_I = P_I \times LP_I$$

$$(2) \quad W_C = P_C \times LP_C$$

If both goods are produced then the wage should be the same in both industries.

$$(3) \quad W_I = W_C$$

Equation (3) implies that  $P_I \times LP_I = P_C \times LP_C$ , which can be written as

$$(4) \quad P_I / P_C = LP_C / LP_I = 3 \text{ (or price of one unit Ipad is three-times higher than price of 1 unit of cloth or 3 units of cloth for 1 unit of ipad)}$$

The left-hand side is the relative price of Ipad and the right-hand side is the OC of Ipad, which are equal. Similarly, for the foreign, we have

$$(5) \quad P^*_I / P^*_C = LP^*_C / LP^*_I = 4$$

This proves that for both countries, relative price of the product is equal to the OC of that product.

- d. Using these pre-trade relative prices in two countries, explain why Home producers have incentive to export Ipad.**

At home, the pre-trade relative price of Ipad to cloth ( $P_I / P_C$ ) is 3, meaning that one unit of Ipad can buy 3 units of cloth, whereas in the foreign country, the pre-trade relative price is 4, meaning that one Ipad can be exchanged for 4 units of cloth. Therefore, the Home producers have incentive to export Ipad to foreign country.

- e. If opened for trade, the world relative price (one price for both countries) will be between two countries' pre-trade relative prices. Let us suppose that the world relative price of Ipad ( $P^w_I / P^w_C$ ) is 3.5 (= \$3.5/\$1). Show that Home is better off producing only Ipad and exporting it and Foreign is better off producing only cloth and exporting it.**

If Home does not trade, it can use 1 unit of labor to produce 12 units of cloth. With trade, it can use 1 unit of labor to produce 4 Ipad, sell this amount to the foreign country at current prices (\$3.5) and obtain \$14 and buy 14 units of cloth (in price \$1 per unit). If the foreign country does not trade, it can use 1 unit of labor to produce 2 Ipad. With trade, it can use 1 unit of labor to produce 8 cloth, sell this amount to the Home country at current prices (\$1) to obtain \$8 and buy 2 plus something Ipad. So, Home is better off producing only Ipad and exporting whereas Foreign is better off producing only cloth and importing.

- f. If specialization occurs what would be the wages in two countries? Why (despite the fact that goods prices are equalized) wages are not equalized between two countries?**

Note that when specialization occurs: Home will produce only Ipad and Foreign will produce only cloth. So there will be only one wage equation in each country. Using the wage equation as given in equation (1) above for Home country

$$(1) \quad W_I = p_I^w \times LP_I$$

As price of Ipad at the world market is \$3.5 (assuming the price of cloth is \$1), we have

$$W_I = \$3.5 \times 4 = \$14$$

Wage in the Foreign country, as it produces only cloth, we have

$$W^*_C = p_C^w \times LP^*_C$$

$$W^*_C = \$1 \times 8 = \$8$$

Prices are equalized because prices are determined by comparative advantage and each country has comparative in the production of each good. Wages are not equalized because wages in this model are determined by absolute advantage (one country being more efficient in the production of both goods) and Home country has absolute advantage in the production of both goods. The wage at Home is almost double of that in foreign (\$14 vs. \$8).

**g. Based on this theory, what determines per capita level among countries? How can Canadian firms improve their position in the global markets?**

The per capita income level, according to theory depends on the productivity of that country. Higher the productivity, the richer will be the people of that country. The way Canadian firms can improve their opportunities is by being more productive. That is the only way that despite paying higher wages than in developing countries, they can still be competitive because of larger productivity differences.

**h. Based on this theory, does a country have to be more productive than the other to benefit from trade? Explain.**

According to this theory, one country does not have to be more productive than the other to benefit from trade. For example, in this case, Home country is more productive than Foreign country in the production of both goods, still then, the foreign country benefits by being engaged in trade.

**Question 3 (15 Points)**

- a. In its basic form, what is gravity model of trade and what is the rationale of this model?**
- b. Can you think of any factors that determine trade flows between Canada and US except the basic gravity variables?**
- c. What are the main forces of globalization? What has been their pace in recent decades?**

(a) In its basic form, the gravity model assumes that only size and distance are important for trade in the following way:

$$T_{ij} = A \times [(Y_i \times Y_j)/D_{ij}]$$

where

$T_{ij}$  is the value of trade (measured by exports and imports) between country  $i$  and country  $j$

$A$  is a constant term that represents the relation between gravity terms and trade

$Y_i$  the GDP of country  $i$

$Y_j$  is the GDP of country  $j$

$D_{ij}$  is the distance between country  $i$  and country  $j$   
The term inside the square bracket is called gravity term.

This says that trade between two countries is proportional to their relative sizes, measured by the product of their GDPs (the greater the size of the country, the larger is trade), and inversely proportional to the distance between them (the smaller the distance, the larger is trade).

(b) Except this gravity simple two factors, size and distance, there are other factors that contribute to Canada-US trade. These positively contributing gravitas are:

- *Presence of Multinational*: there are multinationals working from both countries in each markets which drive more trade than in countries that do not have multinationals.
- *Cultural affinity*: as two countries have cultural ties, it is likely that they also have strong economic ties.
- *Trade agreements*: Because of NAFTA as it has reduced the formalities and tariffs, the amount of trade between Canada and the US is larger than a simple model would predict.

(c) The main forces of globalization are: (1) trade in goods and services (2) flow of capital (3) flow of people or flow of high skill people. The collapsed of integration that happened due to two World Wars and Great Depression started to regain its strength in the 1950s. With tariff fallings, technological improvement and other market access arrangement made expansion in trade uninterrupted until the financial crisis hit in 2008. From 2011 again we are in the rising phase of trade expansion. All three forces of globalization are rising in healthy pace.

#### **Question 4 (20 Points)**

- What are the arguments for free trade?**
- What are the arguments against free trade?**
- What is deindustrialization; why is it a concern and how can developed countries address this issue the best?**
- What is the difference between the three stages of economic integration: free trade, custom union and economic union between two countries?**
- In general, how is social welfare measured and what should the policymakers aim while making policy changes?**

- The arguments for free trade are: (1) In free trade, producers and consumers allocate resources most efficiently. (2) It allows firms or industry to take advantage of economies of scale (3) Free trade provides competition and opportunities for innovation and (4) Free trade is the best feasible political policy, even though there may be better policies in principle. Any policy that deviates from free trade would be quickly manipulated by political groups, leading to decreased national welfare.
- The arguments against free trade are: (1) For a “large” country, a tariff or quota lowers the price of imports in world markets and generates a terms of trade gain. (2) Domestic market failures may exist that cause free trade to be a suboptimal policy. Free trade is desirable only if all other markets are working properly. Otherwise, there is a possibility that national welfare may rise with no free trade as it might offsets the consequences of market failures elsewhere.

- (c) The falling share of manufacturing in employment in developed countries that we have witnessed in recent years, is called deindustrialization. This has been a great concern for developed countries because manufacturing is the most innovative sectors that provide most high paying jobs. Besides, as manufacturing is the most research and development concentrated sectors, falling share of this sector may lead to lower R&D and less innovation to the overall economy. The best way to deal with it is to have very skilled labor that can move and adjust to other industries as needed. A good education policy, jobs training and employment benefit for people who lose the jobs till they find another one are the best policies to address this issue, not the obstruction of trade.
- (d) In free trade, two countries have same zero tariffs between themselves but have separate trade policies with other countries (2) in custom union, not only they have zero tariffs between themselves, they use the same trade policies to other countries (3) in economic union, they have not only the same trade policies among themselves, they also have similar monetary policy among themselves.
- (e) In general, social welfare is the sum of consumer surplus and producer surplus. The society consists of consumers and producers, nothing else. While making policy, the policymakers should aim for positive changes—net benefit—in the social welfare. There might be losers and gainers but the gains should be more than loss. If desired, the gains can be shared with losers using another policy.