



## APPLIED MACROECONOMIC ISSUES (MND9XO2)

**FINAL ASSESSMENT: NOVEMBER 2017**

**APK CAMPUS**

**DATE:** 17/11/2017

**MARKS:** 100

**TIME:** 3h00 HOURS

**ASSESSOR:** Prof. Kevin Nell

**EXTERNAL MODERATOR:** Prof. Manoel Bittencourt

**INTERNAL MODERATOR:** Dr. Sean Muller

**Instructions:**

- 1) The exam consists of 5 questions
- 2) Answer all the questions

SURNAME	
INITIALS	
STUDENT NUMBER	
CELL NUMBER	

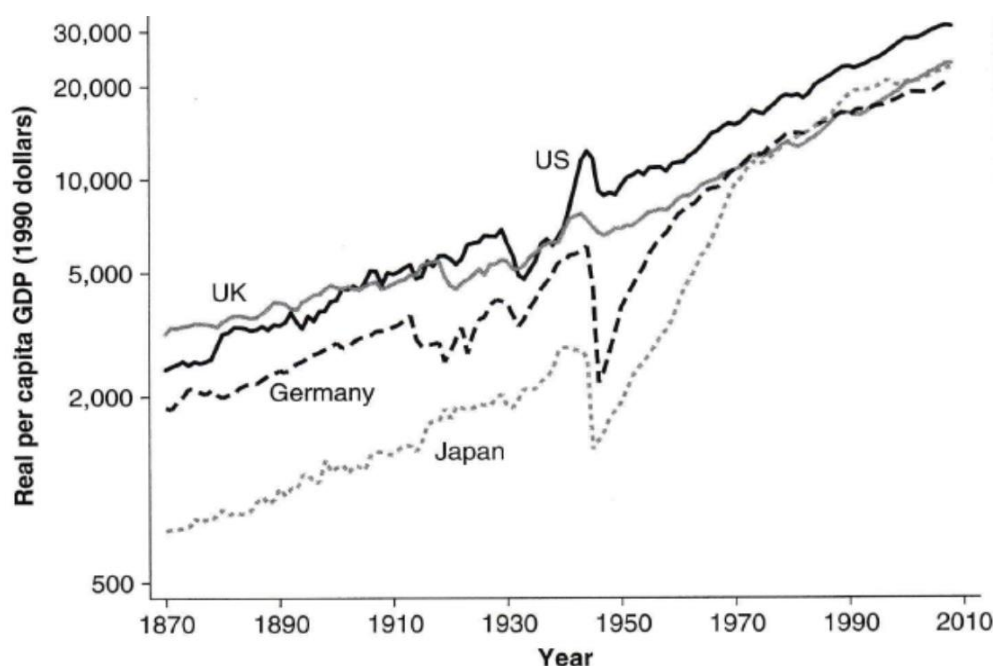
**Mark schedule**

	Mark		Mark		Mark		Mark		Mark
Q1		Q2		Q3		Q4		Q5	
(a)(15)		15		(a)(4)		(a)(15)		15	
(b)(10)				(b)(6)		(b)(10)			
				(c)(10)					

**Total mark :**

### QUESTION 1 (The Solow Model)

- (a) Suppose a developing economy experiences a permanent decrease in its saving rate at time  $t = 0$ . Assuming that the economy is in an initial steady-state position, use the Solow (1956) diagram to model the effect of a decrease in the saving rate. In addition, sketch a graph of how the natural logarithm ( $\ln$ ) of output per worker evolves over time with and without the decrease in the saving rate. Does the decrease in the saving rate permanently affect the growth rate or level of output per worker? (**Hint:** The Solow diagram has the output-technology ratio ( $y$ ) on the vertical axis and the capital-technology ratio ( $k$ ) on the horizontal axis). **(15 points)**
- (b) The Figure below plots the per capita incomes of a group of industrialised countries over the period 1870-2008.



Use Solow's diagram of transition dynamics to illustrate and explain the empirical observation that the per capita incomes of the United Kingdom (UK) and Japan have been converging from 1870 until 2008. [**Hint:** the relevant equation for the transition dynamics diagram is  $\dot{k}/k = s(y/k) - (n + g + \delta)$  ] **(10 points)**

### **QUESTION 2 (Structural Change and Development)**

Structural change (labour flows from low-productivity activities to high-productivity activities) has the potential to raise living standards on a sustainable basis. With specific reference to the findings in McMillan *et al.* (2014) {“*Globalization, Structural Change, and Productivity Growth, with an update on Africa*”} and Rodrik (2013) {“*Unconditional Convergence in Manufacturing*”}, critically evaluate the growth potential of structural change in developing countries. **(15 points)**

### **QUESTION 3 (Balance-of-payments Growth model & Exchange Rate)**

Consider the balance-of-payments growth model with zero capital flows ( $t$  is a time subscript):

$$y_{Bt} = \frac{(1 + \eta + \psi)(p_{dt} - p_{ft} - e_t) + \varepsilon(z_t)}{\pi}, \quad (1)$$

where  $y_{Bt}$  is the balance-of-payments constrained growth rate;  $\eta (< 0)$  is the price elasticity of the demand for exports;  $\psi (< 0)$  is the price elasticity of the demand for imports;  $(p_{dt} - p_{ft} - e_t)$  is the real terms of trade;  $\varepsilon$  is the income elasticity of the demand for exports;  $z_t$  is world income growth; and  $\pi$  is the income elasticity of demand for imports.

- (a) With reference to equation (1), distinguish between the growth effect of the pure terms of trade effect and the volume effect. **(4 points)**
- (b) Assuming zero relative price effects ( $p_{dt} - p_{ft} - e_t = 0$ ), equation (1) can be written as:

$$y_{Bt} = \frac{x_t}{\pi}, \quad (2)$$

where the growth of exports,  $x_t$ , is equal to  $\varepsilon(z_t)$ . Explain the export-led nature of equation (2) with specific reference to the following **(6 points)**:

- The unsustainable nature of a consumption-led, government-led and investment-led growth strategy.
  - The direct and indirect effects of export growth on output growth.
- (c) Draw on Rodrik (2008) {*The Real Exchange Rate & Economic Growth*} to discuss how an undervalued real exchange rate may lift the balance-of-payments constraint on growth in equation (2). **(10 points)**

**QUESTION 4 (Geography versus Institutions)**

- (a) With an appropriate diagram, explain Sachs *et al.*'s (2004) poverty trap theory of sub-Saharan Africa (SSA), and how foreign aid can lift SSA out of its poverty trap. Assume the saving trap version of the model. **(15 points)**
- (b) Do the results in Rodrik *et al.* (2004) ("*Institutions rule: the primacy of institutions over geography and integration in economic development*") support Sachs *et al.*'s poverty trap theory in (a) above? Discuss by giving a detailed account of the results and methodology in Rodrik *et al.* (2004). **(10 points)**

**QUESTION 5 (Centre-Periphery Models)**

With the use of a diagram, explain the New Economic Geography (NEG) model of Krugman and Venables (1995). Make sure that you relate the predictions of the NEG model to some of the historical stylised facts of the 'world economy' since 1750. **(15 points)**