

## MACROECONOMICS

## Homework # 7

Due: May 12, 2026

1. 若在 Solow 的成長模型下，假設總合生產函數為  $Y = AK^\alpha L^{1-\alpha}$ ，商品市場均衡條件為  $Y=C+I$ ，其中  $Y$  為總合產出， $C$  為總合消費， $I$  為總合投資， $K$  為總合資本， $L$  為總合勞動， $A$  代表技術水準， $0 < \alpha < 1$ 。假設人口成長率為  $n$ ，資本折舊率為  $\delta$ ，儲蓄率為  $s$ ，而所有市場都是完全競爭。我們定義平衡成長路徑 (*balanced growth path*, BGP) 為每人產出成長率和每人資本成長率相同的狀態。請參考我的講義，<sup>1</sup> 或任何其它資料來源，回答以下問題：
  - (1) 若技術進步率為 0，請求出 BGP 之下的每人產出水準 (以各參數表示)。(30%)
  - (2) 儲蓄率上升會產生 Lucas 所謂的水準效果 (level effect)，還是成長效果 (growth effect)?<sup>2</sup> 為什麼?(20%)
2. Adam Smith 在國富論中說：“China has been long one of the richest... countries in the world. It seems, however, to have been long stationary. Marco Polo, who visited it more than five hundred years ago, describes its cultivation, industry, and populousness, almost in the same terms in which they are described by travellers in the present times.” (Bk. I, Ch. VIII)，他接著又說：“China seems to have been long stationary, and had probably long ago acquired that full complement of riches which is consistent with the nature of its laws and institutions... A country which neglects or despises foreign commerce... cannot transact the same quantity of business which it might do with different laws and institutions.” (Bk. I, Ch. IX)
  - (1) Smith 認為中國從 1275 年馬可波羅造訪大都，到 1776 年國富論成書這五百多年，是處於經濟發展過程中停滯 (stagnation)、轉換 (transition)、成長 (growth) 的哪一個階段？為什麼？(20%)
  - (2) Smith 認為中國處於上述階段五百多年的主要原因是什麼？你認為他說的是否有道理？試說明之。(30%)

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<sup>1</sup> <https://web.ntpu.edu.tw/~guan/courses/GrowthABC.pdf>

<sup>2</sup> Robert E. Lucas, Jr., “On the Mechanics of Economic Development,” *Journal of Monetary Economics*, 1988, 3-42.