

系所組別：資源工程學系內組

考試科目：資源管理問題解析

考試日期：0223，節次：2

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以下三題請詳讀題目後說明 (1) 題目之主要重點及 (2) 該題在資源管理之意涵。(資料來源：Tom Tietenberg and Lynne Lewis (2012) 9th edition, Pearson International Edition.)

一、The Mayan civilization, a vibrant and highly cultured society that occupied parts of Central America, did not survive. One of the major settlements, Copán, has been studied in sufficient detail to learn reasons for its collapse (Webster et al., 2000).

The Webster et al. study reports that after A.D. 400 the population growth began to bump into environmental constraints, specifically the agricultural carrying capacity of the land. The growing population depended heavily on a single, locally grown crop—maize—for food. By early in the sixth century, however, the carrying capacity of the most productive local lands was exceeded, and farmers began to depend upon more fragile parts of the ecosystem. The economic result was diminishing returns to agricultural labor and the production of food failed to keep pace with the increasing population.

By the mid-eighth century, when the population was reaching its historic apex, widespread deforestation and soil erosion had set in, thereby intensifying the declining productivity problems associated with moving onto marginal lands. By the eighth and ninth centuries, the evidence reveals not only high levels of infant and adolescent mortality but also widespread malnutrition. The royal dynasty, an important source of leadership in this society, collapsed rather abruptly sometime about A.D. 820–822.

(占 30%)。

Increasing the fuel efficiency of oil consumption could, in principle, be accomplished by increasing either fuel taxes or fuel-efficiency standards. By raising the cost of driving, the former would encourage auto purchasers to seek more fuel-efficient vehicles, while the latter would ensure that the average new vehicle sold was fuel efficient. Does it make a difference which strategy is followed?

It turns out that it does, and economics can help explain why. Think about what each strategy does to the marginal cost of driving an extra mile. Increased fuel taxes raise the marginal cost per mile driven, but fuel-economy standards lower it. In the first case, each mile consumes more fuel and that fuel costs more. In the second case, the more fuel-efficient car uses less fuel per mile so the cost has gone down.

Following economic logic leads immediately to the conclusion that even if both strategies resulted in the same fuel economy, the tax would reduce oil consumption by more because it would promote fewer miles driven. On these grounds, a tax is better than a fuel-economy standard.

Supporters of fuel-economy standards, however, counter with a political feasibility argument. They point out that in the United States, sufficiently high gasoline taxes to produce that level of reduction could never have passed Congress, so the fuel-economy standards were better, indeed much better, than no policy at all. Indeed the \$0.30 increase estimated by Austin and Dinan represented a 73 percent increase in the tax on gasoline in the United States.

(占 35%)。

(背面仍有題目, 請繼續作答)

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三、 Perhaps, surprisingly, there is robust evidence that countries endowed with an abundance of natural resources are likely to develop less rapidly. And it is not merely because resource-rich countries are subject to volatile commodity prices.

Why might a large resource endowment exert a drag on growth? Several possibilities have been suggested. Most share the characteristic that resource-rich sectors are thought to "crowd out" investment in other sectors that might be more likely to support development:

- One popular explanation, known as the "Dutch Disease," is usually triggered by a significant increase in revenues from raw material exports. The resulting boom draws both labor and capital out of traditional manufacturing and causes it to decline.
- Another explanation focuses on how the increase in domestic prices that typically accompanies the resource boom impedes the international competitiveness of manufactured exports and therefore export-led development.
- A third explanation suggests that the large rents to be gained from the resource sectors in resource-abundant countries would cause entrepreneurial talent and innovation to be siphoned away from other sectors. Thus, resource-rich countries could be expected to have lower rates of innovation, which, in turn, results in lower rates of development.

While countries with large resource endowments may not have the significant opportunities for development that might have been expected, it is encouraging to note that lots of countries without large resource endowments have not been precluded from achieving significant levels of development.

(835%)