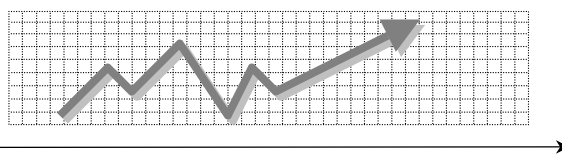


主題一



GDP的定義與衡量

題型1-1 經濟變數之類型

【重點指引】

1. 流量與存量變數：

- (1) 流量變數 (flow variable)：指在一定時間內衡量其數量或金額的經濟變量。
- (2) 存量變數 (stock variable)：指在某特定時點上衡量其數量或金額的經濟變量。

2. 外生與內生變數：

- (1) 外生變數 (exogenous variable)：在模型分析中其值已知，由體系外因素所決定的變數。
- (2) 內生變數 (endogenous variable)：在模型分析中其值未知，有待經濟體系內生決定者。

1. When dealing with anything that is measured as a flow, one must
(A) make sure the thing can be measured accurately. (B) specify a time period. (C) use dollar values. (D) specify the point in time one is using.

【112、104中山財管】

►(B)；

流量變數的衡量必須指明特定的期間。

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2. 下列何者總體變數是存量 (stock) 變數？

- (A) 居住性投資支出 (residential investment) (B) 全國儲蓄 (national saving) (C) 政府移轉收入 (government transfer) (D) 勞動投入 (labor input)。

【110中山企管】

►(D)；

(A)、(B)、(C)皆為定義在某段期間內（一年內）的流量變數。

3. 請問下面有關於流量與存量的描述何者正確？

- (A) 政府固定投資為流量 (B) GDP為存量 (C) 貨幣供給為流量 (D) 儲蓄為存量。

【106中正經濟】

►(A)；

(B)GDP為流量。

(C)貨幣供給為存量。

(D)儲蓄為流量。

4. Saving \$100 will:

- (A)increase wealth by \$100. (B)increase wealth by \$100 only if the \$100 is used to purchase an asset. (C)increase wealth by \$100 only if the \$100 is used to repay a debt. (D)decrease wealth by \$100.

【109成大企管】

►(A)；

儲蓄 (saving) 為流量；財富 (wealth) 為存量，是泛指所有可做為價值儲藏的資產總稱，分為貨幣資產與非貨幣資產兩類，因此儲蓄的增加將使財富增加。亦即本期財富 = 上期財富 + 本期儲蓄。

5. The production function for an economy can be expressed as $Y = F(K, L)$, where Y is real GDP, K is the quantity of capital in the economy, and L is the quantity of labor in the economy.

(⇒) If $F(\cdot) = 100 + 3K + 9L$, what is real GDP if the quantity of capital is 200 and the quantity of labor is 500?

(⇒) What is/are the endogenous variable(s) in this model?

(⇒) What is/are the exogenous variable(s) in this model? 【106中興應經】

►(⇒) 已知 $Y = 100 + 3K + 9L$ 且 $K = 200$ ， $L = 500$

則 $Y = 100 + 3 \times 200 + 9 \times 500 = 5,200$

- (二)有待模型內生決定之變數稱為內生變數，本題在給定資本存量與勞動雇用下，由生產函數求得實質GDP Y ，故內生變數為 Y 。
- (三)由模型外給定已知之變數稱為外生變數，本題之資本存量與勞動雇用皆直接給定，故外生變數為 K 、 L 。

題型1-2 GDP的計算：最終產出法

【重點指引】

計算國內生產毛額做為衡量整個國家生產活動的量化指標的三種方法：

1. 生產面 (final products approach)：加總全國境內的最終產出，稱為最終產出法。

$$\begin{aligned}\text{GDP} &= \text{所有最終產出的市場價值} \\ &= \text{農業產值} + \text{工業產值} + \text{服務業產值}\end{aligned}$$

2. 支出面 (expenditure approach)：加總所有部門的支出總值，稱為支出法。

$$\text{GDE} = C + I + G + X - M$$

3. 所得面 (factor income approach)：加總所有生產要素的報酬，稱為要素所得法。

$$\begin{aligned}\text{GDI} &= \text{薪資} (W) + \text{利息} (R) + \text{地租} (i) + \text{利潤} (\pi) + \text{折舊} (D) \\ &\quad + \text{間接稅淨額} (T_1) \\ &= \text{所有最終產出之所有生產階段的附加價值總和}\end{aligned}$$

4. 三面等值：

$$\text{GDP} \equiv \text{GDE} \equiv \text{GDI}$$

1. GDP is defined as the

(A)value of all goods and services produced within a county in a given period of time. (B)value of all goods and services produced by the citizens of a country, regardless of where they are living, in a given period of time. (C)value of all final goods and services produced within

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a country in a given period of time. (D) value of all final goods and services produced by the citizens of a country, regardless of where they are living, in a given period of time. 【112高雄經營】

►(C)；

特定期間內一國或地區所生產的最終財貨或勞務的總市值符合GDP計算之定義。

2. Who pioneers in the development of national income account that we use nowadays?

(A) D. Ricardo. (B) S. Kuznets. (C) T. Malthus. (D) A. Smith. (E) R. Solow. 【105、104交大經管】

►(B)；

Simon Kuznets於1941年出版一部極具歷史意義之鉅著《1919—1938年間國民所得及其組成》，內容對於國民所得之研究有重大貢獻。Kuznets更因其對人口趨勢、結構及經濟成長、所得分配的研究，於1971年獲頒諾貝爾經濟學獎，也因此一般稱Kuznets為國民所得之父。

3. When economists use market values to aggregate output, they sum the:

(A) number of items produced. (B) quantity of items produced. (C) price times the quantity of each item produced. (D) amount of each item produced. 【109中正企管】

►(C)；

GDP是所有最終產出的市場價值，不論計算實質GDP或是名目GDP，都先需將生產的品項轉換為貨幣計價後總和討論。

4. The total sales of all firms in the economy for a year:

(A) equals GDP for the year. (B) is larger than GDP for the year. (C) is smaller than GDP for the year. (D) Any of the above is possible. 【101政大商學】

►(D)；

“total sales”的計算有包括中間財的交易，而GDP不包括中間財，就這部分而言，會使total sales的數值高於GDP。但另一方面，由於GDP有設算自用住宅與自耕農之自用糧食等非市場產出活動的市場價值，而total sales沒有包括這些沒有透過市場交易的產出活動，因此綜合以上二因素可知，GDP

可能大於、等於或小於當期總銷售額（total sales）。

5. Which of the following is an example of an intermediate good?

- (A) A new car sold to a family. (B) A metal-stamping machine used to produce cars sold to an automaker. (C) A new CD player sold to an automaker for installation in a car. (D) A new CD player sold to a teenager. (E) A two-year-old car sold to a family. 【104中正企管】

►(C)；

CD播放器若裝在新的汽車裡以供出售，那麼此CD播放器就不屬於最終財，因為汽車銷售時還會在售價裡包含CD播放器的成本於其中。

6. Suppose there are only two firms in an economy: Cowhide, Inc. produces leather and sells it to Couches, Inc., which produces and sells leather furniture. With each \$1,000 of leather that it buys from Cowhide, Inc., Couches, Inc. produces a couch and sells it for \$2,000. Neither firm had any inventory at the beginning of 2006. During that year, Cowhide produced enough leather for 20 couches. Couches, Inc. bought 80% of that leather for \$16,000 and promised to buy the remaining 20% for \$4,000 in 2007. Couches, Inc. produced 16 couches during 2006 and sold each one during that year for \$2,000. What was the economy's GDP for the year?

- (A) \$32,000. (B) \$36,000. (C) \$40,000. (D) \$52,000. 【101台大商學】

►(B)；

$$\text{GDP} = 2,000 \times 16 + 4,000 = 36,000$$

7. 有一建案如下：某甲在2003年1月動工興建10棟透天別墅，並於2003年11月完工。為簡化起見，假設不管何時售出，每棟售價均為一千萬元。此人在2002年以預售屋方式售出3棟，在2003年售出5棟，並均於2003年12月底前完成交屋；2003年12月底留下餘屋2棟。請問以上建案對2003年GDP的貢獻為何？

- (A) 五千萬 (B) 七千萬 (C) 八千萬 (D) 一億元。 【103台北大經濟】

►(D)；

2003年興建的10棟透天別墅，為2003年的GDP創造一億元的貢獻，雖然在2002年預售賣出3棟，2003年實際才賣出5棟，但GDP的計算是以產出年度

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為標準，而非以售出年度為標準。

8. Empirical studies suggest that as real GDP per person increases the level of pollution: (A)increases. (B)decreases. (C)remains constant. (D)first increases then decreases. 【113中正企管】

►(D)；

根據環境庫茲涅茨曲線（Environmental Kuznets Curve, EKC）理論，人均實際GDP增加時，污染水平會先增加然後減少。

題型1-3 GDP的計算：支出法

【重點指引】

$$GDP = C + I + G + X - M$$

1. 投資毛額 = 固定資本形成毛額 + 存貨變動
= 投資淨額 + 折舊

2. GDP 不包括進口財。

3. 實證資料顯示，在四個部門的支出項目中，以消費支出占GDP的比例最高。

$$4. \text{貿易依存度} = \frac{X + M}{GDP}$$

1. The following table provides data for an economy in a certain year.

Consumption expenditures	50
Imports	40
Government purchases of goods and services	20
Construction of new homes and apartments	30
Sales of existing homes and apartments	40
Exports	50
Government payments to retirees	10
Household purchases of durable goods	20

Beginning-of-year inventory	10
End-of-year inventory	20
Business fixed investment	30

Given the data in the table, compute the value of GDP.

(A)130. (B)150. (C)140. (D)160. 【109成大企管】

►(B)；

GDP既不包括移轉性支付，例如對退休金支付，也不包括既有商品（非當年度生產）的銷售。此外，家庭購買的耐久財已經包括在消費支出（ C ）中，因此不能再計入。

$$C = 50 ; I = 30 + (20 - 10) + 30 = 70 ; G = 20 ; X = 50 ; M = 40$$

$$\begin{aligned} \text{使用支出面法計算：} GDP &= C + I + G + (X - M) \\ &= 50 + (30 + 10 + 30) + 20 + (50 - 40) = 150 \end{aligned}$$

2. A consumer bought a \$10,000 home-made car and a \$500 France-made lipstick. The government gave \$100,000 to people affected by an earthquake, out of which \$80,000 was spent on food produced locally and \$20,000 was saved. The government also paid \$15,000 as the salary of military personnel and bought a \$1,000 home-made missile and a \$12,000 foreign warplane. What is the country's GDP?

(A) $X < 90,000$ (B) $90,000 < X < 100,000$ (C) $100,000 < X < 110,000$
(D) $110,000 < X < 120,000$ (E) $X > 120,000$. 【106中山財管】

►(C)；

$$GDP = 10,000 + 80,000 + 15,000 + 1,000 = 106,000$$

3. Java Hut, a U.S. coffee retailer, buys \$10 million worth of coffee beans from Colombia. It also pays \$5 million for paper cups and utilities, all produced in the U.S. It sells the coffee it produces using the above inputs to U.S. consumers for \$50 million. Overall how do these expenditures affect U.S. consumptions and net exports? How do these expenditures affect U.S. GDP? 【106交大財金】

► $C = 50$ million（包含5 million的中間財和10 million的進口財）

$$NX = X - M = -10 \text{ million}$$

$$GDP = C + I + G + NX = 50 + 0 + 0 + (-10) = 40$$

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4. Assume that an economy only has two good producers: one for wheat and one for bread, and that the economy does not have a government. In a given year, the wheat producer grows 30 bushels of wheat (without using intermediate goods), of which 25 bushels are sold to the bread producer at \$3 per bushel as intermediate goods, and 5 bushels are stored as inventory to use as seed for next year's crop. The bread producer produces and sells 100 loaves of bread to consumers for \$3.5 per loaf. In addition to the bread purchased from the domestic bread producer, the consumer imports 50 loaves of bread at \$2.0 per loaf.

(→) What does GDP measure for an economy? Is GDP a stock or flow variable?

(→) Use the expenditure approach to calculate the GDP for the year. Be specific about the quantities of C (consumption), I (investment), NX (net exports), and G (government purchases). 【106中山經濟】

➡(→) GDP是指該國內在一定時間內所生產出來，供最終用途的財貨與勞務之「市場價值」。作為衡量整個國家生產活動的最主要的量化指標。

flow variable指的是在一定時間內衡量其數量或金額的經濟變數，GDP為衡量國內在「一定時間內」（通常為一年），所生產出來的最終產出與勞務市場價值，故為flow variable。

(二) 變數	定義	項目	數值
C	民間部門為了滿足其當前需求的購買支出。	(1) 消費者購買 100 loaves of bread (100×3.5) 來自國內廠商 (2) 消費者購買國外 50 loaves of bread (50×2)	450
I	民間部門及政府部門為了未來的產出而添購的資本財的支出。（固定資本形成 + 存貨變動）	小麥生產者的存貨增加 5 bushel of wheat (5×3)	15
G	政府對各種產品的購買及僱用政府人員的支出	沒有政府部門	0
NX	淨出口	進口國外 50 loaves of bread (50×2)	-100
GDP	$C + I + G + NX$	$450(C) + 15(I) + 0(G) - 100(NX)$	365

5. A car that is produced in 2004 is not sold until 2005. According to the definition of GDP, in which year's GDP should it be counted?

- (A) 2004. (B) 2004 real GDP; 2005 nominal GDP. (C) both years.
(D) 2005. 【103政大商學】

►(A)；

2004年生產出來的汽車，縱使沒有賣掉，會透過2004年的存貨增加（屬於投資項目），而計算在2004年的GDP之中。

6. When a firm sells a product out of inventory to a household, GDP _____ whereby investment expenditures _____ and consumption expenditures _____.

- (A) increases; are not changed; increase. (B) is not changed; remain unchanged; remain unchanged. (C) is not changed, decrease; increase.
(D) increases; increase; remain unchanged. (E) is not changed; remain unchanged; increase. 【103、101中正財金】

►(C)；

廠商賣存貨給消費者，投資（ I ）將因存貨減少而下降，消費（ C ）則因消費者購買而上升，因此GDP不受影響。

7. In the expenditure approach to the national income accounting, the expenditure is put in 5 categories, C, I, G, X, M. About the spending on education, the personnel, office supplies, equipment, and buildings are supported by the government and tuition paid by students. Choose a correct answer.

- (A) the spending by both the government and households belongs to I
(B) the spending by the government does not count in the national income accounting and the spending by households belongs to I
(C) the spending by the government belongs to G and the spending by the household does not count in the national income accounting
(D) the spending by the government belongs to G and the spending by the household belongs to C. 【110中山財管】

►(D)；

政府對教育人員、設備的支出記在 G ，而個人的學費支出則記在 C 。