National Income Accounting

2

Unit highlights:

⇒ **Measurement of National Income**

⇒ **Gross domestic Product (GDP)**

⇒ **Measurement of inflation**

Lesson-1: Measurement of Economic Activity: The Concept of GDP and Related Issues

Lesson Objectives:

After studying this lesson, you will be able to

w   understand the importance of measuring macroeconomic performance

w   to see how the GDP is used as an indicator of total output produced in the country in a given period

w   appreciate why some practical compromises are usually made in GDP computation.

Measurement of Economic Activity & Economic Performance -I

Introduction:

In Unit 1, we have seen that macroeconomic analysis depends heavily upon concepts like national output and general price level which are basically abstract constructions. We have also emphasized that these constructions have been invented because they represent useful theoretical categories the interaction among which can throw light on how the entire macroeconomic mechanism functions. But it would be poor comfort if for these theoretical concepts, however well-defined, corresponding quantitative measures could not be devised measures which would faithfully, if not perfectly, represent these concepts.

Empirical counterparts of theoretical categories are needed

In fact, when Keynes' *General Theory of Employment Interest and Money* appeared in 1936, his conclusions could not immediately be subjected to empirical tests, because the required data corresponding to his theoretical notions did not exist. Several years later, a system of measurement (considerably influenced by Keynes' theoretical structure itself) was desired. This framework came to be known as National Income Accounting. The leading figure in this immensely important enterprise was professor Simon Kuznets of Harvard University who was awarded the Nobel Prize in Economics in 1971 for his contribution. The task has undoubtedly been painful and arduous, because many tricky conceptual issues had to be solved before translating theory into numbers. Solutions to many of these questions had to be arbitrary and based on conventions. The results have not always been satisfactory, but despite its many limitations, the framework of national accounts has proved quite useful not only for testing existing theories, but for the construction of more sophisticated ones.

National Income Accounting has given a tremendous boost to the development of macroeconomics

Measuring Levels of Economic Activity

Recall form Unit 1, that one major concern of macroeconomics is why economic activities sometimes surge up and slow down at other times. In other words, the macroeconomist wants to know why the national product fluctuates around the potential level form time to time. Carefully note that before we try to explain *why* this has happened, we must know at first that this has *indeed happened*. For otherwise there is nothing which has to be explained and accounted for. More precisely, we want to know whether and how far the national output has gone up or down; we need a measuring rod for the nation's economic activity or its output.

The Gross Domestic Product (GDP)

The Gross Domestic Product is the most comprehensive measure of a country's output in a given period. It is defined as
the sum of the money values of all currently produced goods and services produced within a country during a specified period of time, usually a year.
Several important features of this definition should be carefully noted.

Gross domestic Product defined

First, GDP represents the money value of goods and services (customarily called product). There could be a mind-bogling variety of goods and services- milk, oranges, dance performance, hair cut, transport services, aeroplanes, tanks, missiles and so on. Varieties as such would not have mattered if all of them could meaningfully be expressed in a common unit. To appreciate the problem involved, try to add 10 hours of dance performance to 15 hours of transport service. Both are expressed in units of hours so that in total you get 25 hours of service. But service of what? You may be tempted to say: 25 hours of music-travel service. Humour apart, you soon see how misleading and meaningless this characterization is. As another example, try to add 10 litres of kerosine to 15 metres of a road. Here the unit problem looms large, the characterization problem still remaining. Examples of difficulty involved can be easily multiplied. The basic point, however, is clear; straightforward addition across goods and services will not work, and we must bring all goods and services to a common unit. The problem is solved quite naturally, but not most satisfactory (guess why?), by using market prices. The quantity of each kind of goods and services is multiplied by its market price and then the money values are added together to get the GDP. Now you have a meaningful total (at least not as meaningless as before). Note that the use of market prices is not quite arbitrary, because under certain circumstances (e.g. absence of externalities and uncertainties), market prices represent the relative value of commodities i.e. the willingness to pay at the margin.

GDP represent money values

Secondly, the GDP of a particular period includes goods and services produced during that period only. Since GDP is supposed to be a measure of production

rather than of sale, sales of items produced in previous periods are explicitly excluded. This implies that many market transactions of the current period are excluded from the calculation of current period's GDP. For example, sales of stocks, bonds and real estate are excluded, because they do not represent any new production. The purchase of a used car does not represent any new production and should therefore, be excluded from current GDP (its original value was included in the GDP of the period in which it was produced); however, if the sales value included some costs of renovation or repair, these could in principle be part of the current GDP.

Thirdly, not all currently produced goods and services are included in current GDP. Only that part which represents **final** goods and services will find place in the GDP. This raises two question. First, why should a part of the currently produced goods be excluded? Secondly, even if the principle is admitted to be right, how would the national income accountant tell final goods and services form those which are not? In order to answer these questions, we first distinguish between intermediate goods and final goods. Final goods are those which are purchased by their ultimate users. On the other hand, the intermediate goods are those which are purchased for resale, or for use in producing another good and therefore get 'used up` in the production process. The intermediate goods are excluded because their inclusion will unduly inflate the value of GDP and thus give a misleading (and rosy!) picture of the macroeconomic health of the country. To see why, think of a loaf of bread (currently produced) that you have purchased for consumption for $ 1.00. This price obviously includes the costs of wheat, flour and dough that went into the making of bread. Inclusion of these costs would involve double (even multiple) counting. In short, it is to avoid the type of double counting noted above that the national income accountant includes (wisely!) the value of only final goods and services in the calculation of the gross domestic product. But while the principle is valid, its practical application poses some difficulties, because some categories of goods would seem to possess the attributes of both final and intermediate goods. One way of going around the difficulty is to use the method of value added in GDP calculation as explained later.

Fourthly, if we ignore some imputations which are sometimes successfully made, usually goods and services that pass through organized markets get counted in the GDP. Often the national income accountant fails to include in GDP such activities as household work done by members, the do-it-yourself repairs work and the value of leisure. These very much belong in GDP, but any attempt to include them faces two problems. First, it is hard to get accurate record of the amount of work done in these categories. Second, often no meaningful prices are available for their valuation. The consequences of excluding these non-market activities can

Intermediate goods are excluded to avoid multiple

Some goods & services are not sold in organized mankets; for want of suitable prices, these are usually excluded from GDP

sometimes be quite serious, especially when we compare the standard of living between developing and developed countries on the basis of measured per capita output.

Finally, it should be noted that GDP is a flow variable, because it carries a time dimension (so much per period).

Computation of GDP: Problem of strict conformity with definition

Actual computation of GDP has to make some compromises with the strict requirement of its definition.

Government outputs have no market prices; they are valued at cost.

First, the national income accountant has to face the problem of valuation of government output. The output of the private sector is valued at market prices. No such prices are available for government output. 'Output' produced in government offices, services of the fire fighters, police and defence personnel do not pass through organized markets. (Indeed in some cases, it is difficult to define what the government output is!). In the absence of market prices, the national income accountant has no alternative but to depend on input prices. He calculates the costs of inputs used in the production of government output and substitute them for the value of government output. You may ask: why doesn't he impute a market price to government services in the same way as he imputes a market price for the services of owner-occupied houses? Cann't he get a price more comparable with valuations used in the private sector? This is a complex issue. A short and simple answer is that, in the private sector, valuation includes the productivity of capital and entrepreneurship, while in the government sector neither is recognized. Of the two, the treatment of public entrepreneurship is especially problematic, because these is no way in which one could impute a value to public entrepreneurship.

Imputations of market based prices for government output in problematic

Secondly, the way the investment goods are actually treated in national accounts may not appear to be strictly in accordance with the definitional regour. The definition says that only final goods should be included in the GDP (and intermediate goods excluded). Investment goods (factories, generators, machine tools and the like) might appear to be intermediate goods, because they are purchased for use in producing other goods, not because they have any inherent value in themselves. And yet they are included in the GDP. Why is this? To understand the rationale behind this practice, remember that these items are never sold to final consumers. So, where do they belong? Can they simply be excluded as intermediate goods? A little reflection will convince you that these items cannot be treated as intermediate goods in the same sense as flour is in the production of bread, a final good of consumption. Flour is completely used up in the production of bread, but machine is a durable good and is not entirely 'used up' in the production of whatever it is used to produce. Only a part, called depreciation, is

Investment goods are treated as final goods demanded by firms

used up, and can logically be treated as an intermediate good. The value of the machine minus depreciation should then he treated as the value of final good demanded by the firm buying it.

Finally, there is another category of goods which are not actually sold, though produced in the current period. The value of these goods are included in GDP as inventory investment. These goods may or may not be final goods in the strict sense. Consider the example of a miller who purchased 100 tons of wheat for the production of flour at the beginning of the period. Suppose further that his opening inventory was 30 tons of wheat, but at the end of the period the inventory goes up to 70 tons. What this means is that the miller could not use the entire amount of wheat he purchased at the beginning of the period- he used only 60 tons, the rest going to swell his inventory of wheat. The question is how to treat this unused stock of wheat. It is clear that the unsold stock represents current production and hence, in some way, should find place in the GDP. There is a further problem here. Wheat is an input in the production of flour which itself is an input in the production of bread (a final good). So wheat as well as flour is an intermediate good. Can an intermediate good be included in the GDP under special circumstances? And what are those circumstances?

Note that if the unused stock of wheat were actually used for producing flour and the flour for producing bread, the value of wheat would have been included in the GDP as part of consumption expenditure in the form of the price of bread. But the wheat has actually gone to swell the inventory and therefore should be regarded as part of investment (or, else it would escape counting altogether, resulting in an undervaluation of the final product). By similar reasoning, if the millers as a group experience an inventory accumulation of flour (now an end product) the addition to inventory should be recorded as inventory investment (a demand for final goods by firms). Why call it investment? If you like you may think along the following lines.

By definition, investment goods are those which are purchased for expanding capacities to produce other goods, including final consumption goods. If that is so, the accumulated inventory of raw materials, semi-finished or finished goods can be thought of as something that enhances the capacity to produce in the following period. In this sense, inventory increase is like investment in plant and equipment. Incidentally, it should be clear from the discussion above that *final* products need not be identical with *finished* product (e.g. wheat is not a finished product in any conventional sense).

Questions for Review

MCQ's (Tick the correct most nearly correct answer)

1. Intermediate goods are excluded from GDP because
   A. doing so will involve double counting
   B. they are not produced in the current period
   C. they do not contribute to the production of final product
   D. they do not use up country's productive resources

2. Which of the following transactions (items) would not be included in GDP?
   A. the purchase of some shares of IBM stock
   B. the purchase of flour by a baker
   C. the repair by a carpenter of his own garage
   D. none of the above

3. GDP is
   A. a flow variable
   B. a stock variable
   C. a constant
   D. none of the above

4. Imputed prices are normally used for calculation of GDP, when
   A. market prices do not reflect costs of production
   B. market prices do not reflect willingness to pay
   C. market prices do not exist
   D. market prices are not liked the national income accountant.

5. Government output is
   A. valued at market prices
   B. valued at shadow prices
   C. valued at cost
   D. excluded from GDP calculation

6. Investment goods are treated as
   A. intermediate goods
   B. final goods demanded by firms
   C. final goods demanded by consumers
   D. useless for expansion of productive capacity

Short Questions

1. How does the National Income Accounting framework help in the development of macroeconomic theory and practice?

2. Why are market prices used in the calculation of a country's GDP?

3. How would you justify exclusion of intermediate goods from GDP?

4. How are unused stock of raw materials treated in national income accounting? Explain.

5. A car produced in an earlier period is sold as a used car in the current period. As a national income accountant would you include its value in current year's GDP? Why? Why not?

6. How are unpaid services of housewives treated in GDP calculation?

7. Why are investment goods treated as final goods demanded by firms in national income accounts?

8. "Are all 'final' goods are not finished goods too". Give examples.

Questions

1. Define GDP. Bring out its essential features.

2. Why is it not possible to strictly adhere to the definition of GDP in actual computation? What compromises are generally made in this regard?

3. Examine the logic of valuing government output at cost.

MCQ Answers

1. A , 2. D,   3. A, 4. C, 5. C, 6. B

Lesson 2: Measurement of Economic Activity: Need for Refinement of the GDP Concept

Lesson Objectives:

After studying this lesson, you will be able to

w   understand the distinction between nominal and real GDP and why the distinction is important;

w   know about two different ways of measuring inflation- the GDP deflator and the Consumer Price Index;

w   appreciate the need for distinguishing between the GDP and GNP;

w   see the difference between gross and net national product.

Measurement of Economic Activity and Economic Performance -II

Introduction:

Changes in physical output cannot be understood by simple comparison of GDP figures, because price levels change over time.

Often we are interested to know by how much the physical output of a country has changed from one period to another. For this we may try by comparing GDP figures of various years as defined earlier. But this has an obvious difficulty. This arises because GDP's are money values (sum of price times quantity). If the GDP in 1997 is $98 and the same in 1998 is $196, we do not know for certain how much of the increase in GDP has been due to changes in physical output and how much due to changes in prices. Assume for simplicity that a country produces only two goods -bread and honey and consider the numbers presented in Table 2-1. We see that the increase in GDP between 1997 and 1998 has been due entirely to quantity increase; the GDP in year 1998 is double that of 1997 simply because quantities have doubled with no change in prices. Comparing the GDP of 1997 with that of 1999, we see that again the GDP in 1999 is double that of 1997; but this time the increase has been due entirely to changes in prices, the quantities remaining the same. Finally year 2000's GDP is twice that of year 1997's GDP; but now the increase is partly due to increase is price and partly to increase in quantity.

By now it should be clear that if we are interested to know by how much real output has changed from year to year, simple comparison of unadjusted GDP figures will not do, because the increase (or decrease) in raw GDP could be due to price changes only, quantity changes only or to both (the more likely case). This

brings us to the need for distinguishing between what are known as *nominal* GDP and *real* GDP.

Nominal and Real GDP

The nominal GDP is the value of a country's total output at the prices prevailing during the period in which the output is produced. The real GDP, on the other hand, measures the total output in any given period at prices prevailing in some base period. Nominal GDP is also known as GDP at current prices, while real GDP is sometimes called GDP at constant prices (and for good reasons). It should be clear that in order to ascertain to what extent the total output has changed in quantitative terms between years, one should compare real GDP figures of the relevant years. These figures are relevant because changes in real GDP do not reflect (by definition and construction) the effect of any possible price changes. When we divide nominal GDP by real GDP, we get what is known as implicit GDP deflator (on which more soon).Look at figures in Table 2-2 which shows the calculation of real GDP for years 1997-2000. These are all based on data shown in Table 2-1. The derivation of GDP deflator is illustrated in Table 2-3. For the calculation of real GDP, 1997 has been taken as the base year. That is, the prices prevailing in 1997 have been used to arrive at GDP figures for succeeding years. At base year (1997) prices GDP is $196 in 1998, $98 in 1999 and $154 in 2000. Comparing columns (1) and (2) in Table 2-3, we see that between 1997 and 1998, the real GDP has doubled (as has the nominal GDP). This had to be so, because between the years the prices are unchanged, while the quantities in 1998 are twice as much as they are in 1997. Between 1997 and 1999, however, the real GDP is unchanged, though the nominal GDP has doubled. This is due to the fact that between these two years, the quantities are unchanged (see Table 2-2).

Real GDP is obtained by adjusting for changes in the price levels

Computation of real GDP illustrated

Table 2-1: Calculation of Nominal GDP (in million dollars)

Goods	Year 1997			Year 1998		
	Price ($) (P)	Quantity (lb) (Q)	PQ($)	Prices ($) (P)	Quantity (lb) (Q)	PQ($)
Bread	10	5	50	10	10	100
Honey	12	4	48	12	8	96
			∑PQ = 98 = GDP			∑PQ = 196 = GDP

Year 1999			Year 2000		
Price ($)	Quantity (lb)	PQ($)	Prices ($)	Quantity (lb)	PQ($)
20	5	100	13	7	91
24	4	96	15	7	105
		$\Sigma PQ = 196$ = GDP			$\Sigma PQ = 196$ = GDP

Table 2-2: Calculation of Real GDP (Base year: 1997)

Goods	Year							
	1997			1998		1999		2000	
	Price($) (P_0)	Quantity(lb) (Q_0)	P_0Q_0	Quantity(lb) (Q_1)	P_0Q_1	Quantity(lb) (Q_2)	P_0Q_2	Quantity (lb) (Q_3)	P_0Q_3
Bread	10	5	50	10	100	5	50	7	70
Honey	12	4	48	8	96	4	48	7	84
GDP= ΣP_iQ_i	-	-	98	-	196	-	98	-	154

Table 2-3: GDP Deflators

Year	GDP ($) (Nominal) (1)	GDP ($) (Real) (2)	GDP Deflator $= \frac{Nominal GDP}{Real GDP} \times 100$ 100
1997	98	98	100
1998	196	196	100
1999	196	98	200
2000	196	154	127

Finally, comparing 1997 with 2000, we find that while the nominal GNP in 2000 is twice as much as in 1997, the real GDP is only 157% higher. This is what we should expect, because in this case both prices and quantities have changed; part of the increase in nominal GDP is due to price increases, and when they are allowed for, we have real GDP change of only 57% (rather than of 100%).

Measurement of Inflation

What the consumer price index is intended to measure

As we already know, maintaining stable prices is an important macroeconomic goal along with maintaining stable employment. This goal is attained, if the overall price level can be prevented from rising or falling too rapidly. The common measure of the price level is a price index known as the Consumer Price Index

(CPI). It measures the cost of a fixed basket of goods consumed by a typical urban household. The contents of this basket are determined usually by conducting periodic household surveys among urban consumers. Price indexes are then constructed by calculating the cost of this basket of goods (and services) for different years as prices change. Each of the index numbers expresses the cost of the market basket of goods relative to the cost of the same basket in some base period. Suppose that the base period is year 1990 and that the cost of the fixed basket of goods in 1990 prices is $550. Assume further that the cost of the same basket in year 1995 is $600. This means that the cost of the basket of goods is 20% higher in 1995. The index number for the base year is conventionally set at 100. Therefore, to reflect a 20% increase in prices (since the quantities are unchanged between 1990 and 1995), the index for 1995 must be set at 120. The following relationship may be used to calculate CPI for any given year.

$$\text{CPI in the given year} = \frac{\text{Cost of the basket in the given year}}{\text{Cost of the basket in the base year}} \times 100$$

Applying the above rule to our example,

$$\text{CPI for 1995} = \frac{\text{Cost of the basket in 1995}}{\text{cost of the basket in 1990}} \times 100$$

$$= \frac{\$ 660}{\$ 550} = 120$$

Notice that CPI is a pure number (unit free).

Not all prices rise or fall in the same proportion, and besides, not all households buy the same combination of goods in the basket. As a consequence, no two households suffer precisely the same rise in the cost of living (unless, of course, all prices rise at the same rate). For example, the price index of 120 in 1995 indicates that the price level has gone up by 20% relative to that of 1990 *on the average.* That is, some prices may have gone up by more than 20%, some by less 20%, and some none at all (some in fact, may have declined too!). If you buy more of those goods whose prices are higher by more than 20% and I buy more of those whose prices are higher by less than 20%, then you suffer more than I do. And the index of 120 does not reflect this fact. It cannot, because there is no index number that can capture this phenomenon. Economists refer to this problem as the *Index Number Problem.* It says that when the relative prices are changing, the conventional index numbers can at best represent how an 'average' household is affected; there is no perfect index number that can truly represent every household's position.

Not all groups are equally affected by inflation, when relative prices change

Measurement of Inflation: CPI Vs. GDP Deflator

Both the consumer Price Index (CPI) and the GDP deflator can be used to measure price level changes (inflation). As mentioned earlier, to get the GDP deflator for a given year we divide that year's nominal GDP by the real GDP of the same year. That is,

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

This deflator measures the change in prices between the base year and the current year. Using the example in Table 2-3, we can illustrate this. For example, between 1998 and 2000, the rate of inflation

$$\pi = \frac{\text{Deflator index (2000) - Deflator Index (1998)}}{\text{Deflator Index (1998)}}$$

$$= \frac{127\text{-}100}{100} \times 100$$

$$= 27\%$$

The price has gone up by 27%. In exactly analogous fashion, the rate of inflation can be measured by using the CPI as follows

$$\text{Rate of inflation} = \frac{\text{CPI(given year) - CPI (last year)}}{\text{CPI (last year)}} \times 100$$

If, for example, CPI (given year) = 230 and CPI (last year) = 200, then the rate of inflation is,

$$= \frac{230\text{-}200}{200} \times 100$$

$$= 15\%$$

GDP deflator is the most comprehensive measure of price level changes; it is preferred to CPI by economists.

Economists generally prefer the GDP deflator as a measure of inflation to the Consumer Price Index. Note that the two indexes are based on different market baskets. The CPI basket is based on budget of the typical urban consumer. The GDP deflator, on the other hand, includes in its basket all goods and services (including those newly produced and imported) on which the GDP is based. In addition, the latter basket includes investment goods as well government output. Therefore, the GDP deflator is the most comprehensive measure of inflation.

GDP and GNP

For some purposes a distinction is necessary between the Gross Domestic Product (GDP) and the Gross National Product (GNP). We know already what GDP represents. What is GNP? The GNP is the value of currently produced final goods and services in a given period by *domestically owned* factors of production. How does the definition of GNP differ from that of GDP? Only in one important respect. For GDP, the output refers to goods and services produced *within* the country by factors of production, domestically owned or not; some may be owned by foreigners. For GNP, the output (and hence income) output produced (and thus income received) may be within or outside the country, but the factors of production employed must be owned by the country's nationals. For instance, a part of US GDP represents profits earned by Honda Corporation of Japan from its manufacturing facilities in US. These profits are part of Japanese GNP, because they are returns to Japanese factors of production (capital & entrepreneurship) employed abroad. Similarly, the profits of US owned enterprise in Japan (a part of Japan's GDP, but not of Japan's GNP) are to be included in US GNP. In short, some domestically owned factors may be employed abroad, while some foreign owned factor may work in the home country. When these two flows of income (in opposite directions) are taken into account, we can calculate what may be called "Net Factor Income from Abroad" which can be zero, positive or negative, depending on the relative magnitudes of the opposite flows. Therefore, we can write with the following identify:

GNP = GDP + Net Factor Income from Abroad.

Another way of driving home the distinction is to say the following:

The GDP measures the *output* (hence income) *produced* in a country, while the GNP is the income *received* (not necessarily form domestic production only) by a country.

Since the difference between GDP and GNP is the net factor income form abroad, for many countries the difference is small, for others large. For instance, the difference between the two is quite small for US, while for Switzerland the difference is quite substantial.

GDP is produced by domestic and foreign owned (where applies) factor; GNP includes income by nation for factor services at home or abroad.

Net factor Income from abroad represents the difference between GDP and GNP

Gross And Net Domestic Product

To produce the volume of goods and services included in the GDP, the capital wears out or depreciates. A part of the capital get used up in producing the period's output. Domestic product will be overestimated, if no allowance is made for this wear and tear. A correction is necessary because to keep the productive capacity intact, fresh investments commensurate with depreciation are required. Or, to look at it differently, capital 'used up' in the production process should logically be treated as an intermediate good. We know that intermediate goods are to be excluded form national product in order to avoid double counting. Domestic product is 'gross' in the scense that it does not provide for depreciation of capital. Net Domestic Product (NDP) is equal to GDP minus capital consumption allowance (CCA) which is a measure of economic depreciation of capital.

NNP is obtained by subtracting depreciation from GNP

NDP = GDP - CCA (Depreciation)

Now unfortunately it is difficult to accurately estimate the depreciation of the capital stock. As a result, the NDP figures for succeeding periods will be vitiated by any inaccuracy in the estimation of depreciation. Therefore, to avoid errors, the economists and policy makers prefer to work with the GDP, though in theory NDP is recognized to be a better measure of a nation's output.

Questions for Review

MCQ's (Tick the correct /Most nearly correct answer)

1. The extent of changes in physical output can be understood by
    A. comparing nominal GDP figures for different years
    B. comparing real GDP figures for different years
    C. looking at price level changes without any reference to GDP, nominal or real
    D. consulting weather reports of various years.

2. For the 'base' year, the nominal GDP is
    A. greater than real GDP
    B. small than real GDP
    C. equal to real GDP
    D. independent of real GDP

3. If all prices double between the base year and the current year, current year's nominal GDP
    A. is equal to current year's real GDP
    B. is greater than current year's real GDP
    C. is less than current year's real GDP
    D. could be any of the above, depending on how quantities changed.

4. Current year's real GDP is equal to the base year's. It is known that prices have not changed between the years. From this, we can conclude that
    A. quantities have not changed
    B. quantities have increased
    C. quantities have declined
    D. 'A' holds, if we assume that no new goods have been introduced or old ones disappeared.

5. GDP in current dollars in 1990 was $ 495 billion; in 1995 it was $ 575 billion. The appropriate price index for 1990 was 93 and for 1995 it was 113. The real GDP between 1990 and 1995:
    A. remained unchanged
    B. increased by 10 percent
    C. increased by 15 percent
    D. declined by about 4 percent

6. Profits earned by a Japanese firm in US will be included
    A. in Japan's GDP
    B. in US GNP
    C. in Japan's GNP
    E. neither in Japan's GDP nor in its GNP.

7. If net factor income form abroad is zero, then GDP

    A. equals GNP

    B. greater than GNP

    C. less than GNP

    D. cannot be calculated

8. Net Domestic product (NDP) is obtained by

    A. adding depreciation to GDP

    B. subtracting depreciation from GDP

    C. dividing NDP by GDP

    D. dividing GDP by the price level.

Short Questions

1. "Economists like to distinguish between nominal and real GDP, because nominal GDP comparisons for different time periods cannot provide a true picture of physical output changes." Do you agree? Give reasons.

2. How would your characterize the base year used for calculation of real GDP? What makes the nominal and real GDP of the base year equal?

3. Is it possible for the real GDP to decline, even when the nominal GDP is higher ? If so, under what circumstances is that possible? Give examples.

4. "The consumer price indexes use fixed quantity weights". Do you agree? Why?

5. Why is the GDP deflator usually preferred by economists and others as a measure of inflation?

6. What is an Index Number Problem? Why does it arise?

7. In what sense are CPI's pure numbers? Why are they so?

8. Explain the general circumstances in which the GDP of a country can exceed its GNP and vice versa

9. Why do economists work with GDP figures, even though they recognize that NDP is a better measure of the national product?

Broad Questions

1. Distinguish between nominal and real GDP. Why is that distinction necessary?

2. Discuss the two important ways in which inflation is measured. Which one is preferred by economists? Why?

3. How does GDP differ from NDP? For which countries GDP is likely to exceed NDP and why?

Answers for MCQ's

1. B, 2. C, 3. D, 4.   D, 5. D, 6. C, 7. A, 8. B

Lesson 3: Measurement of Economic Activity: Three Approaches to GDP Measurement

Lesson Objectives:

After studying this lesson, you will be able to

w understand how expenditure and income flows provide the basic framework of national accounts

w see how GDP is calculated as sum of expenditure flows

w realize how GDP can be computed as the sum of earnings flow

w know how GDP can be calculated as the sum of the value added by all firms in the country

w see why all the above measures should in principle lead to the same result.

Introduction

We have so far reviewed various concepts of national product (GDP, NDP, GNP). There was hardly any discussion of how one may go about measuring national income or national product. As a step in that direction, we present first a circular flow diagram. This diagram is based on a very simple idea: the value of final goods and services produced must equal costs of production (properly defined). Or, in other words, total payments should equal total receipts (from sale). It should be noted, however, that total payments just referred to excludes one firm's payment to another for inter-firm purchases of intermediate goods. The reason for this exclusion is that at the macro level, these payments do not constitute income payments to households or government: at the aggregate level they cancel out.

The Circular Flow

In the circular flow diagram (Figure 2-1) total receipts of the producing sector (left most box) has been shown to be $1100. Of this amount $930 accrue to the household sector (rightmost box) as factor payments: wages ($750), interest ($50), rent ($30), profit ($100). A part of household income is collected by the government as direct tax ($10). Another part is saved ($20) which flows to the business sector. The remaining portion goes back to the producing sector as consumption expenditures ($900). The government collects some of the total receipt of the producing sector in the form of indirect business tax ($40), while the

Total receipts and total payments must equal

rest goes to the business sector as depreciation ($40). Therefore total payments equal $1100 [=$(930+130+40)].
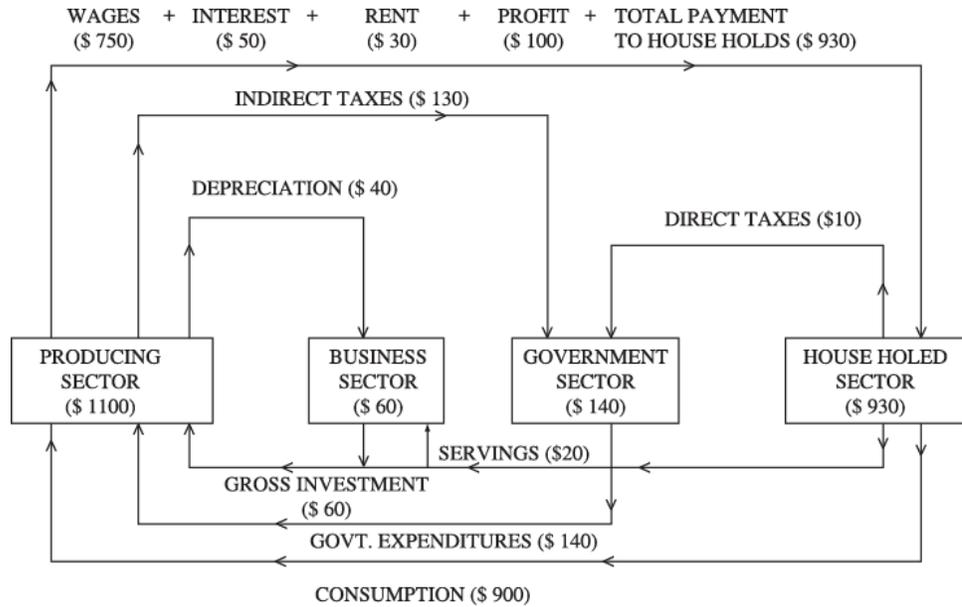
Circular Flow of Income & Expenditure

FIG 2-1: Circular Flow of Income & Expenditure

Total receipts of the government sector $140, which is the sum of direct taxes ($10) and indirect taxes ($130). When the government buys goods and services from the producing sector, this amount ($140) flows to the producing sector as government expenditure. The business sector has in its control $60 (=$20 (savings) + $40 (indirect taxes)) which as gross investment expenditure are received by the producing sector. In the end, the total receipts by the producing sector amounts to $1100 (= consumption ($900) + investment ($60) + government expenditure ($140)). We, therefore, see that total payments equal total receipts. Or, equivalently, total income generated (properly defined in the accrued sense) equals total expenditures by households, businesses and the government. This is also attested by the fact that the total of leakages from the flow equals the total of spending injections as shown below:

Total leakage = household savings + indirect taxes + direct taxes (on household

income) + depreciation

= $ (20 + 130 + 10 + 40) = $200

Total of injections = government expenditure + gross investment

$$= \$ (140 + 60) = \$ 200$$

Note incidentally that the equalities mentioned above hold in the sense that the magnitudes are realized ones. As we shall later see, the planned magnitudes (e.g. leakage and injections) may not always be equal.

GDP as the Sum of Final Goods and Services: The Expenditure Approach

To estimate GDP as the sum of expenditures on final goods and services by consumers, business firms and the government would appear to be the most natural procedure. For a while, we will assume that there is no foreign sector as the demander or supplier of final goods and services. We will later bring in the modifications which will be necessary to our calculations if exports and imports are to be accommodated. Let us use symbol C for final goods and services demanded by consumers, I (for investment) to denote final goods demanded by business firms and other investors, and G for the final goods and services demanded by government. We can, therefore, write

The lower loop of the flow diagram (Fig 2-1) illustrates the expenditure approach

$$GDP = C + I + G \dots\dots\dots\dots\dots\dots \text{(i)}$$

This relationship corresponds to the lower loop of the circular flow diagram (Fig. 2-1). Household sector's consumption demand amounts to $900, the firms' demand in the form of gross investment is of the order of $60, and the government spends $140 on final goods and services. Therefore, the GDP for the hypothetical economy depicted in the circular flow diagram is $1,100 [=$(900+60+140)]. This is known as the **Expenditure Approach** to measuring an economy's output of goods and services. (Another name for this approach is **Product Approach)**.

For the sake of concreteness, we have presented in Table 2-4 the National Income and Product Accounts of the United States of America for the year 1993. For our present purposes, we may concentrate on the left panel of this table which shows how the GDP can be calculated as the sum of the different components of expenditures on final goods and services. We see that in 1993, total

Table 2-4: Gross Domestic Product of US (1993)

(Billions of Current dollars)

Expenditure/Product Approach (Sum of final demands)		Income/Cost Approach (Sum of Incomes)	
1. Personal consumption expenditures (a+b+c)	$4,392	1. payments to factors of production (a+b+c+d)	$ 5,141
a) Durable goods $ 538		a) Compensation of employees (wages) $ 3,722	
b) Non-durable goods $ 1,350		b) Net interest $ 446	
c) Services $ 2,504		c) Rental income $ 13	
2. Gross private domestic investment (a+b+c)	$ 892	d) Corporate profits & proprietors' income $ 960	
a) Residential fixed $ 252			
b) Business fixed $ 624		2. Indirect business taxes	$ 566
c) Changes in inventories $ 16			
3. Government purchases of goods and services	$ 1,158	3. Depreciation	$ 671
4. Net exports (a-b)	$ 64		
a) Exports $ 662			
b) Imports $ 725			
Gross domestic product:	$6,378	Gross domestic product:	$6,378

personal consumption expenditures (C) amounted to $4,392 billion, gross domestic investment (I) to $892 billion, government purchases of goods and services (G) to $1,158 billion, and net export to $-64 billion. We have already explained what consumption and investment mean in the context of GDP accounting. However, some comments are in order about investment. You may wonder why three qualifiers- 'gross', 'private', 'domestic'- appear before investment. 'Private' indicates that if the government had undertaken any investment, it would be recorded in Government expenditures(G). 'Domestic' means that plant and machinery sold by US firms to foreign companies are excluded from investment (I). As discussed before, a part of the capital stock is worn out in the process of production, and to keep the productive capacity unimpaired replacement investment to the extent of depreciation is necessary. In other words, part of total investment in a given period is for replacement purposes. Gross investment includes replacement investment. When we subtract depreciation (or capital consumption allowances) from gross (total) investment we get what is known as net investment. Also note that gross investment consists of three categories: residential fixed investment (construction of new houses), business

Explanation of what 'gross' 'private' 'domestic' investment implies in national accounts

fixed investment (acquisition of new plant and machinery) and inventory investment (as explained before).

It should be carefully understood what precisely government purchases of goods and services (G) represent. It excludes all expenditures by government at various levels for which it does not receive a good or service in exchange. Expenditures for social security, unemployment compensations and veteran's benefit are good examples of such expenditures. The recipients of these benefits do not provide any good or service to the government in exchange. These expenditures are known as transfer payments. Logically, therefore, these expenditures should be excluded from G; only that part of transfer payments which is spent should be included in C. This procedure eliminates the possibility of counting the same expenditure twice: once in G and then again in C.

The item No.4 in Table 2-4 is Net Exports. Before we explain what this represents, we need to expand the GDP indentiy, making room for this item.

$$GDP = C + I + G + NX \ .... \ .... \ .... \ .... \ .... \ .... \ .... \ ... \ (2)$$

where NX = X - M i.e. net exports (NX) mean exports minus imports. Why must we include net exports? We know that GDP is intended to measure the value of output produced within the country. If an American buys a Japanese TV, the amount spent to buy it gets included in C, total expenditure on consumption. To find the amount spent by consumers on US produced goods, the price of the imported Japanese TV must be excluded. Similarly part of I is imported. Therefore to get the correct figure for US GDP the values of all imported items must be subtracted. Further adjustments are necessary, because some of the US produced goods and services are exported (and hence used for consumption and investment by foreigners). These goods are left out when we add up C + I + G, and therefore must be added back. If these two adjustments (adding exports and subtracting imports to the C+I+G total) are made, we get the GDP identity (2), which shows how GDP is computed for an open economy. Also note that in terms of the circular flow diagram, exports (X) represents a leakage, while imports implies an injection.

GDP as Sum of Earnings or Costs: The Income Approach

This approach and the expenditure approach discussed earlier are equivalent: we get the same figure for GDP, if all items are properly defined and measured. Let us look back at the upper loop of the circular flow diagram (Fig. 4-1). This loop shows how the total receipts (=total expenditures = C+I+G) get distributed as

payments to factors of production, the business sector and the government. Of the total receipts of $1100, $930 go to households as factor earnings (wages, interest, rent and profit), $130 to government as indirect business taxes and $40 to the business sector as depreciation charges. All these payments to different claimants exhaust total receipts (=C+I+G). No wonder then that the total of costs (earnings) should give an alternative and equivalent measure of a country's GDP- receipts and payments are two sides of the same transaction.

The same principle is illustrated on the right hand side panel of Table 2-4. We see that GDP

GDP = Factor Earnings (1) + Indirect Business Taxes (2) + Depreciation (3)

$ 6,378 billion = $ (5,141 + 566 + 671) billion

GDP as the Sum of Value Added:
The Value Added Approach

What value addition means

Interestingly, there is a third (equivalent) way in which a country's GDP can be measured. This is known as the value added approach. In this approach, the GDP is measured as the sum of the values added by all firms in the producing sector. What is value added? It equals a firm's revenue form selling a product minus the amount it pays for other goods and services bought from other firms (intermediate goods). As mentioned earlier, the intermediate goods represent inter-firms transactions and hence do not represent any claim on final output by firms, households or government. Therefore the value added may be represented as:

Value added = wages + interest + rents + profits = total factor payments

Value added principle explained with reference to the circular flow.

In terms of the circular flow diagram, the sum of total factor payments equals $930, or in terms of Table 2-4, it is $5,141. In both cases, the sum is not equal to GDP. Apparently this is inconsistent with the claim above that GDP is the sum of values added. In fact, there is no inconsistency. Every act of production (measuring value added) generates incomes equal to the value added inherent in the product. This is a fundamental identity which always holds. The actual factor payments do not add up to GDP in the circular flow diagram or in Table 2-1, because total receipts (C+I+G) consists partly of indirect business taxes (in the form of higher than factor-cost prices paid by demanders) and partly of depreciation (investment expenditures being 'gross'). Neither flow represents factor earnings (but payments nonethless). When, these two are added to factor payments the total must equal GDP at 'market' prices which C+I+G represents.

To elaborate on this argument, let us take an example. Suppose that a car manufacturer sells a car for $100,000 to a buyer (a final user). In the expenditure approach, this amount will be recorded as a part of C. In the income approach, the relevant question is: what income is generated from the production of the car? Assume that they are the following:

Wages to employees	$ 40,000
Interest to bondholders	$ 6,000
Rentals of buildings	$ 5,000
Profits to shareholders	$ 9,000
Total :	$ 60,000

The remaining $40,000 must have been spent on purchases of inputs like steel, tubing, rubber and so on. But if we trace back, we will find that the steel or rubber manufacturer too paid wages, interest, rents and profits and for intermediate inputs purchased from other firms (such as iron ore). In fact, for every firm the following identify must hold, no matter whether its product is a final or intermediate good:

Sales revenue = wages + interest + rental + profits + purchases form other firms

Summing over *all* firms in the economy, we can write

Total sales revenue = (Total wages + Total interest + Total rents + Total profits) + Total purchases from other firms.

But total purchases from other firms are precisely what we call intermediate goods. Subtracting intermediate good purchases from both sides of the identity, we get

Value of final goods & services = Total value added

or, GDP = Total value added.

This demonstrates that by summing up all values added we indeed get GDP.

As we have learnt before, GDP is the value of final goods and services. The question of distinguishing between final and intermediate goods in many practical application was raised in Lesson 1 of this Unit. The insistence on the final goods and services is simply to eliminate the possibility of double-counting, as explained earlier. In practice, we can easily avoid the problem of double counting by working with value added. Consider the example in Table 2-5 below.

Table 2-5: Value Added Approach

Value Added Approach Needs No Distinction Between Final And Intermediate Goods

Stage of production	(1) Sales receipts per loaf (cents per loaf)	(2) Costs of intermediate materials or goods	(3) Value added (3)= (1) - (2)
Wheat	30	0	30
Flour	45	30	15
Baked dough	68	45	23
Delivered bread	85	68	17
Total	228	143	85

Note several thing from Table 2-5. First, the end stage of production is bread making; bread is the final good. Therefore $85 form part of the GDP according the expenditure approach. Second, we can obtain the same contribution to GDP as the sum of values added in all stages of production as shown in col.(3). Here there is no need to agonize over which stage of production is the final stage. Third, the total value added ($85) can also be calculated as the difference between col.(1) total and col.(2) total. The former represents total receipts from all stages of production; the latter total costs of intermediate goods used in all stages of production. And by definition, the difference is total value added.

Questions for Review

MCQ's (Tick the correct/most nearly correct answer)

1. Which of the following is not included in gross investment?
    A. addition to business inventory
    B. expenditures on consumer goods
    C. expenditures on machinery
    D. business and residential construction

2. Which of the following is excluded from government expenditures in the calculation of GDP?
    A. purchase of a type writer
    B. purchase of a telephone directory
    C. payment of salaries to law enforcement personnel
    D. payment of unemployment compensation

3. In an open economy with household, business and government sectors, the GDP equals
    A. C+I
    B. C+I+G
    C. C+I+G+X
    D. C+I+G+(X-M)

4. In a year total government expenditure was $500,000 of which $100,000 was spent on paying unemployment benefits to 10% of the unemployed youth. The correct G component of GDP should be
    A. $ 500,000
    B. $ 400,000
    C. $ 600,000
    D. $ 450,000

5. If the total values of exports and imports are equal (but not zero), GDP should equal
    A. C + I + G + X
    B. C + I + G - M
    C. C + I + G + M
    D. C + I + G

Short Questions

1. Explain the difference between government spending and government purchases of goods and services. Which is likely to be larger?

2. Distinguish between gross and net investment. Why is the concept of net investment important in the context of productive capacity of a country?

3. Why is saving treated as a leakage from circular flow, while investment as an injection into it?

4. What are direct and indirect taxes?

5. Explain what types of investment are excluded from 'gross private domestic' investment.

6. Assume that value of exports is zero, while that of imports is positive. If you add the value of imports to the usual C+I+G total, would you overestimate the GDP? Why?

7. "If the value added method is applied to compute GDP, it is unnecessary to distinguish between intermediate and final goods". Refute or justify.

Broad Questions

1. Explain how the circular flow scheme can throw light on the possibility of computing GDP in alternative ways.

2. Why should the GDP calculated as sum of flows of expenditurs on final goods and services be equal, in principle, to the sum of earnings properly defined? Explain.

3. "The value added approach to GDP essentially boils down to the income approach". Do you agree? Give reasons.

Answers (MCQ's)

1. B, 2. D, 3. D, 4. B, 5. D

Lesson 4: Measures of Aggregate Income, and GDP as an Index of Economics Welfare.

Lesson Objectives:

After studying this lesson, you will be able to

w   see how aggregate income- measures like Disposable Income and Disposable Personal Income are derived from aggregate output measures like GDP and NDP

w   understand why these measures are necessary

w   know why GDP is a poor index of a country's welfare level

w   see how a suitably modified measure could serve as a better indicator

w   realize why international comparison of GDP per capita could be quite misleading.

Measures of Aggregate Income, and GDP as an Index of Economic Welfare

GDP accounts are useful in themselves; but they are also useful because they allow us to derive other measures which are needed to understand the behaviour of consumers and businesses. GDP and NDP (=GDP - Depreciation) are two principal measures of an economy's output. National Income (NI) is a third measure. NDP and NI, it may be emphasized, both measure the *same* amount of goods; but they value these goods differently. The NDP values output at market prices which include indirect taxes (e.g. sales taxes). National Income (NI), on the other hand, values the same output at factor costs. Factor costs represent factor incomes earned, though not necessarily received, by the factors of production. Factor costs are obtained as the sum of wages, interest, rents and profits. Therefore, NDP will exceed NI by approximately the amount of indirect taxes. We can thus write the following relationships:

Net Domestic Product and National Income both measure the some total output, but on different bases.

> GNP = GDP + Net factor incomes form abroad .... (1)
>
> NNP = GNP - depreciation .... (2)
>
> NI = NNP - Indirect Taxes .... (3)

Apart from NI, two other important measures are Personal Income (PI) and Disposable Personal Income (DPI). PI is current income of persons form all sources. Some of it has no relation to current production. Examples are all types of transfer payments in exchange for which no service is performed or no goods offered. PI, therefore, is *not* a measure of output in the sense GDP, NDP and NI

Personal Income (PI) can be higher or lower than National Income (NI)

are. DPI is derived form PI by deducting the amount taken away by government as personal income taxes. DPI is the income (from all sources) available to people to dispose of as they please.

A component of NI is profits of corporation and unincorporated enterprises. A part of these profits is taken away by the government as profit taxes, a part as payroll taxes etc. Another part is held by the firms to build up internal funds for business expansion. These undistributed profits are known as retained earnings. As a result, the national income *earned* falls short of national income *received* by people. As offsets there are all kinds of transfer payments received by households. By taking account of these deductions and additions, we can write
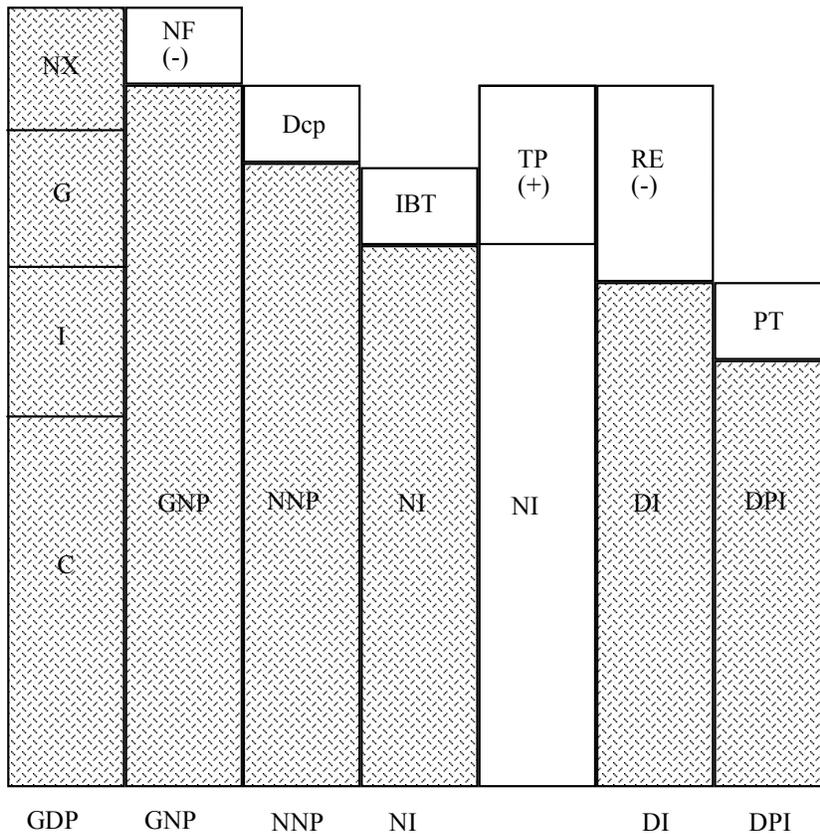
DI = NI - (Retained earnings + Profit Taxes + Payroll taxes etc.) +

Transfer Payments ... ... (4)

Finally, after deduction of personal taxes from DI, we get DPI as

DPI = PI - Personal Taxes

The relationship between various measures indicated by (1), (2), (3) and (4) can be shown pictorially as in Fig. 2-2, Representative numbers in keeping with the pictorial relationships are presented in Table 2-6.

Fig. 2-2: Relationship among defferent measures of output and income

Notes: NX = net exports = X - M

NF = net factor income form abroad

Dep= depreciation

IBT= indirect business taxes

TP = transfer payments

RE = retained earnings, corporate taxes, payroll taxes etc.

PT = personal taxes

Table 2-6 : GDP and Disposable Personal Income, 1991 (Billions of US$)

Gross Domestic Product (GDP)		5,677.5
Plus Net factor incomes		
from abroad	17.5	
Equals Gross National Product (GNP)		5,694.9
Less Depreciation	626.1	
Equals Net National Product (NNP)		5,068.8

Less Indirect taxes	524.6	
Equals National Income (NI)		4,544.0
Less Corporate profits taxes,		
Retained earnings,		
Payroll taxes etc.	8,75.1	
Plus Transfer Payments & Others	1,159.2	
Equal Personal Income (PI)		4,828.3
Less Personal taxes	6,18.7	
Equals Disposable Personal Income		4,209.6

Beyond GDP to Net Economic Welfare (NEW)

When the system of National Income and Product Accounts were set up, the GDP was intended only as a measure of output, not as a measure of welfare. Later, a welfare implication came to be attached to GDP: it measures not only the level of output of a country, but also its level of welfare. However, protests have been voiced from time to time against this later interpretation. One can claim that more GDP means more goods and services available for present and future consumption, and hence more material welfare. Few will quarrel with this. Many would, however, like to point out that the way goods and services are defined (and measured) for national income accounting purposes may not exactly correspond with how they should be defined for welfare purposes. Therefore, several attempts have been made to correct for this deficiency. One of the earliest attempt in this direction is knows as Net Economic Welfare (NEW). It tries to adjust the conventionally measured GDP figures by including only consumption and investment items which directly contribute to people's economic well-being. Let us see briefly where and why these adjustments are called for.

Output is
and meas
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measurer

When GDP Understates Well-being

Leisure: Perhaps you will readily agree that the leisure you enjoy (unless, of course, you have too much of it) adds to your well-being. So it is for many. This is, however, one of the several things which have no place in GDP as conventionally compiled. This problem is especially acute for high-income societies. As people become more and more affluent, they work fewer hours, deriving satisfaction from leisure in the same way as they desire satisfaction from goods and services. The exclusion of leisure from GDP accounting systematically understates the level of well-being.

Leisure is
welfare
increasing; but it
is excluded from
GDP

Market Activities Only: As stated earlier, the GDP tries to capture the market value of goods and services; but there are many activities which undoubtedly contribute to well-being, but are usually excluded from GDP for lack of market prices (because they are not traded in organized markets). Examples are services of housewives, do-it-yourself repairs and maintenance, educating own children and so on. More important perhaps in quantitative terms, at least for some economies, are the activities curried out by the vast underground economy. These activities include working at a second job for cash, illegal gambling, drug dealing, work done by illegal immigrants, bartering of services and so on. Activities of this kind go unreported for at least two reasons. First, some of them are illegal (such as drug dealing) and so will invite punishment if reported or detected. Secondly, some though not illegal are not reported in order to avoid payment of taxes or escape government regulations (e.g. working for tips). Some of these underground activities do increase national welfare (e.g. services provided by illegal aliens), while others may do the opposite (e.g. the services of a hired killer). To the extent that welfare increasing activities are excluded from GDP calculations, welfare significance of measured GDP has a downward bias, and this ought to be removed to obtain a better index of welfare.

market price criterion ...les from ...ctivities ... tend to ... welfare

GDP may also Overstate National Welfare

There are also reasons why the GDP may have a built-in upward bias as a measure of welfare.

Inclusion of "Bads" (as well as 'Goods')

Some of the 'bads' (e.g. cocaine production) of the underground economy may be excluded, but the 'bads' of the overground economy easily find their way into GDP. Take the case of a natural disaster like the earthquake. Few will dispute the fact that national welfare declines as results. Many homes and businesses are destroyed and many people may get killed. But the irony is that in the period of reconstruction, the GDP can show a marked increase. Why? Consumer spending will go up, for example, when clean up operations are undertaken, or when lost household possessions are replaced. Rebuilding of homes, businesses, schools, hospitals and bridges will increase investment expenditures. Additional government spending for relief and rehabilitation will tend to raise GDP. All this may give the wrong impression that the country is better of as a result of the earthquake. A more dramatic example will be the case of a war. War expenditures give a tremendous boost to the current GDP. But there is no doubt that the country

Social 'bads' are welfare reducing, though they get included in GDP

is worse off because of the destruction of properties and human lives. Unfortunately this fact cannot be reflected in the usual GDP numbers.

Ecological Costs are Ignored

This is a case in which bad are included, despite the fact that they reduce welfare. A modern industrial society produces many goods and services which may directly increase welfare, but indirectly may harm the society. Obviously, we are talking about the ecological damages caused by many activities. Automobiles provide comfortable transport, but also put noxious gases into the atmosphere. Factories produce may valuable goods; but they also pollute rivers by releasing harmful chemicals into them. These are the so-called collateral damages are called negative externalities by economists. These costs should be netted out of the GDP as usually measured to get a better index of national welfare.

Ecologic of getting are ignor GDP cal

In conclusion, we must recognize that despite its many limitations, the GDP per capita remain the best available single measure of a country's progress. It may be supplemented by a series of social indicators like life expectancy, infant mortality rates, availability of health care, the air and water quality, degree of urban crowding and so on. It's almost impossible to obtain a single ideal summary measure of economic welfare. Therefore, economists and policy makers go on relying on GDP with all its defects (at least it has a rather more precise meaning than many of the alternatives proposed to take its place).

GDP me retains i usefulnes despite n limitatio

International comparisons of GDP per head should be taken with a grain of salt.

Finally, a word of caution on international comparison of GDP per capita. This comparison has less precise meaning than that for a single country over time. For one thing, treatment of different items both with respect to valuation or inclusion may vary across countries. What is treated as part of GDP in one country may not also be treated in another, or if the treatment is the same, the basis of their valuation may be different. But most serious problem arises when we compare GDP per capita between rich and poorer countries. An American may easily be puzzled by the fact that his African counterpart can survive with an income of a few hundred dollars a year. No doubt the African is much poorer than his American counterpart. But it is only a minor part of the story. More important is the fact that a vast majority of goods and services do not pass through markets in African or other less developed countries. As a result, the GDP per capita gives a misleading picture of how well-off an African, for example, is relative to his American counterpart.

Questions for Review

MCQ's [Tick the correct (or most appropriate) answer]

1. It is more accurate to say that Disposable Income is a measure of
    A. aggregate output
    B. aggregate income
    C. aggregate factor payments
    D. both A and C.

2. The difference between DI and DPI is accounted for by
    A. indirect business taxes
    B. wealth taxes
    C. personal income taxes
    D. none of the above

3. Retained earnings are undistributed profits whose aim is to
    A. generate internal funds for future business expansion
    B. pay for worker's fringe benefits
    C. pay corporate taxes to the government
    D. pay for internal security of the business premise

4. Depending on circumstances, DI may be
    A. equal to NI
    B. greater than NI
    C. less than NI

      D. all of the above

5. NEW stands for
      A. New England Warfare
      B. North Eastern Warehouse
      C. Net Economic Welfare
      D. Not Equally Welcome

6. The GDP excludes many activities because
      A. they are illegal
      B. they are not illegal, but cannot be properly measured
      C. they are not reported to avoid tax payments
      D. all of the above may be relevant

7. The crime rate of a country falls autonomously and some policemen are retired. As a result,
      A. GDP is likely to fall
      B. national welfare will rise
      C. GDP will rise
      D. both A and B are possible

Short Questions

1. Define National Income, Disposable Income, and Disposable Personal Income. Explain their relationships.

2. "National Income and Net National Product are both measures of the same output but based on different valuations". Explain.

3. "While National Income is a measure of output, Disposable Income is not, strictly speaking". Do you agree? Explain.

4. "GDP includes as well as excludes activities which have implications for national welfare". Elaborate.

5. It is suggested that GDP should be supplemented by a number of social indicators like life expectancy, literacy etc. In what context is the suggestion relevant?

6. "If GDP per head in a poor country (P) is half that in a rich country (R), then we can assert that a person in R is twice as well-off as one in P". Is the statement valid? Explain.

Broad Questions:

1. Discuss briefly how supplementary measures of aggregate output and aggregate income can be derived from GDP. Why are they useful?

2. "Whatever the merits of the GDP as a measure of aggregate output, it has glaring defects as an index of national welfare". Comment.

Answers (MCQ`s)

1. B, 2. C, 3.   A, 4. D, 5. C, 6. D, 7. D