

Lecture 3: National Income Accounting Reference - Chapter 5

3) The Income Approach

The income approach defines GDP in terms of the income derived or created from producing final goods and services.

Net Domestic Income at factor cost =
Wages, Salaries, and Supplementary
Labour Income +
Profits of Corporations and Govt.
Enterprises before taxes +
Interest and Investment Income +
Net Income from Farms and
Unincorporated Businesses +
Taxes less subsidies on factors of
production

Net Domestic Income at market prices =
Net Domestic Income at factor cost +
Indirect taxes less subsidies

Gross Domestic Product (GDP) at
market prices =
Net Domestic Income at market
prices +
Capital Consumption Allowances +
Statistical Discrepancy

OTHER NATIONAL ACCOUNTS

Gross National Product (GNP) =
Gross Domestic Product (GDP) +
Net Investment from Non-residents
= 1154.9 – 84.9 = 1070

Example – The production of cars in the Honda factory in Alliston, Ontario is included in both Canadian GDP and GNP. But GNP excludes profit sent to foreign shareholders of Honda, but this profit is included in Canadian GDP.

$$\begin{aligned}\text{Net Domestic Product (NDP)} &= \\ & \text{GNP} - \text{Depreciation} \\ & = 1070 - 155 = 915\end{aligned}$$

$$\begin{aligned}\text{Net National Income at Basic Prices} \\ \text{(NNI)} &= \\ & \text{NDP} - \\ & \text{Taxes less subsidies on factors of} \\ & \text{production} - \\ & \text{Indirect taxes less subsidies} \\ & = 915 - 53.8 - 84.4 \\ & = 776.8\end{aligned}$$

$$\begin{aligned}\text{Personal Income} &= \\ \text{NNI} &- \\ \text{Undistributed Corporate Profits} &+ \\ \text{Govt. Transfer Payments} & \\ &= 776.8 - 49.0 + 71.3 \\ &= 848.1\end{aligned}$$

$$\begin{aligned}\text{Disposable Income} &= \text{PI} - \\ &\quad \text{Personal Taxes} \\ &= 848 - 152.2 \\ &= 695.9\end{aligned}$$

Nominal GDP Versus Real GDP

Nominal GDP is the GDP measured in terms of the price level at the time of measurement (unadjusted for inflation).

Problem: How can we compare the market values of GDP from year to year if the value of money itself changes because of inflation or deflation?

- Compare 5% increase in Q with no change in P and 5% increase in P with no change in Q
- The way around this problem is to deflate GDP when prices rise and to inflate GDP when prices fall.

Real GDP is the nominal gross domestic product that has been deflated or inflated to reflect changes in the price level.

Price Index

One way to calculate real GDP is to create a price index based on data on the price changes that occurred over various years. We can then use the index in each year to adjust nominal GDP to real GDP for that year.

A *price index* is a measure of the price of a specified collection of goods and services, called a “market basket,” in a specific year as compared to the price of an identical (or highly similar) collection of goods and services in a reference year.

Price index in specific year =
(Price of market basket in specific year/
Price of same market basket in base year) *
100

Price index, year 3 = $(25/10)*100 = 250$

Divide Nominal GDP by the Price Index to
get the Real GDP

Real GDP =
(Nominal GDP / Price Index)*100

Real GDP, year 3 = $(200/250)*100$
= 80

An Alternative Method to Calculate Real GDP

- Break Down Nominal GDP into physical quantities of output and prices for each year
- Find real GDP for each year by determining the dollar amount that each year's physical output would have sold for if base-year prices had prevailed.
- Example – Table 5-6

GDP Deflator

The implicit price index, or GDP deflator can then be found by dividing nominal GDP by real GDP, and then multiplying by 100.

$$\text{GDP deflator} = (\text{Nominal GDP} / \text{Real GDP}) * 100$$

$$\text{GDP Deflator, 2002} = (1154.9 / 1074.5) * 100 = 107.5$$

$$\text{Real GDP, 2002} = (1154.9 / 107.5) * 100 = 1074.5$$

Shortcomings of GDP

It has several shortcomings as a measure of total output and of well-being (total utility).

Measurement Shortcomings

It suffers from a number of omissions which tend to understate total output

-Non-Market Transactions

- Example: the services of homemakers, the labors of carpenters who repair their own homes.

- The Underground Economy
 - Drug growers, drug dealers
 - 15% of the recorded GDP in Canada
 - GDP in 2002 was understated by over \$170 billion

- Leisure
 - Average work week declined from about 53 hours to about 35 hrs

- Improved Product Quality
 - It fails to take into account the value of improvements in product quality.
 - Difference in quality between \$3000 PC purchased today and a PC that cost the same amount just 5 years ago

Well-being Measure Shortcomings

GDP is not the only factor in measuring well-being

- GDP and the Environment
 - “Gross- Domestic by-products”
 - GDP overstates our national well-being

- Composition and Distribution of Output
 - Guns versus Computers
 - 90 % of output going to 10% of Households?

- Non-material Sources of Well-being
 - Link between GDP and Well-being not clear
 - Other factors: a reduction of crime and violence, greater civility, peaceful international relations, etc.