

Answers to Analytical Questions

Chapter 2

The Language of Microeconomics: The National Income Accounts

- The inflation rate is the percentage change in overseas prices. The question gives us prices for all goods in 2004 and 2005 and also output for 2004. We can use the output data for 2004 to weight the various goods to arrive at an average price. Total output in 2004 is $8000 + 3600 + 2400 + 2000 = 16000$. This gives us the following weights for each good :

| Good | Weight |
|------|----------------------|
| A | $8000/16000 = 0.5$ |
| B | $3600/16000 = 0.225$ |
| C | $2400/16000 = 0.15$ |
| D | $2000/16000 = 0.125$ |

Therefore average prices in 2004 are $0.5 \times 8 + 0.225 \times 9 + 0.15 \times 4 + 0.125 \times 2 = 6.875$. Using the same weights for 2005 gives a price index of $0.5 \times 9 + 0.225 \times 6 + 0.15 \times 8 + 0.125 \times 3 = 7.425$. To calculate inflation we need the percentage change in prices which is $(7.425-6.875)/6.875 = 9.4\%$.

Would it help if we knew levels of output in 2005? We have constructed an index of prices for 2005 based on 2004 output weights. This could be misleading due to the “substitution” problem discussed in the text. B has fallen in price by a third whilst D has increased in price by a half. Consumers may respond to these price changes by buying more B and less D leading to a change in output weights and a lower estimate of inflation (as B with its price fall would get a higher weight). This is the rationale behind the shift to chain weighting.

If we did have output data for 2005 as well as 2004 then we could calculate real and constant price GDP and obtain a measure of the GDP deflator.

- Using Year 3,4 and 5 prices we have the following calculations :

| Year | GDP Year 3 Prices | Implied Growth | GDP Year 4 Prices | Implied GDP Growth | GDP Year 5 Prices | Implied GDP Growth | GDP Chain Weights | Implied GDP Growth |
|------|-------------------------|-------------------|-------------------------|--------------------------|-------------------------|--------------------------|-------------------------|--------------------------|
| 3 | 20 | | 26 | | 32 | | 20 | |
| 4 | 24 | 20% | 31 | 19% | 38 | 18.8% | 23.92 | 19.6% |
| 5 | 34 | 41.7% | 44 | 41.9% | 54 | 42.1% | 33.97 | 42% |

Chain weighting makes only a minor difference to calculated GDP growth rates in this example. Chain weighting produces a “smoother” range of GDP growth numbers. Using Year 5 prices (very high for Garlic) gives rapid growth in Year 5 but less for Year 4. Using Year 3 prices does the opposite.

- Manufacturers value added is: total sales of 500 less inputs of 200 = 300
Retailers value added is: total sales of 500 less inputs of 450 = 50
Farmers and mining companies value added is: total sales of 350 less no inputs = 350
Total value added is therefore 700.
- Income from overseas assets is worth 0.84% of GDP (7% of 12%). Income paid back overseas is worth 0.88% of GDP. Thus GNI is slightly *smaller* than GDP by 0.04% ($GNI + GDP + 0.84 - 0.88$).

5. GDP is $C+I+G+X-M = A\$418+A\$158+A\$125+A\$151-A\$156 = A\696
After the changes the figures are: $A\$459.8 + A\$162.7 + A\$128.8+X-M = A\730.8

Thus $X-M = -A\$20.5$ so the gap between exports and imports falls (it was $-A\$5$). The increase in Australian output (GDP) is not enough to meet the increase in demand for goods (from consumption, investment and the government) and so the country imports more from overseas.

CHAPTER 2: THE LANGUAGE OF MACROECONOMICS: THE NATIONAL INCOME ACCOUNTS

INTRODUCTION

This chapter is more interesting than its title implies as it offers opportunities to discuss current issues. As with several chapters, one can either give a worldwide view with lots of comparative statistics or focus on aspects of a particular economy.

Teaching Tips

ALTERNATIVE ROUTES THROUGH THE CHAPTER

This chapter takes the logical route of discussing how to measure output before going on to its time series properties – it is hard to teach any other way. Output trends and business cycles naturally combine with material from Chapters 4 and 14.

Welfare and output can be discussed either at the beginning or end of a lecture and can be extended by discussing the Human Development Index in more detail. It is useful to point out the two types of problem with GDP measures. First, it is simply a narrow measure of what is produced in the economy and so would not correspond precisely to welfare even if well measured. Second, it does not even measure output properly since it cannot include components such as non-remunerated services and the underground economy.

CHAPTER GUIDE

2.1 What Do Macroeconomists Measure? The discussion concerning output versus welfare (which reappears at the end of the chapter) is easy to motivate. The ecological damage of higher output is a current example and can be used to extend the discussion to missing markets (i.e. properly measured output could include pollution costs if these were tradeable).

2.2 How do Macroeconomists Measure Output?

URL's for National Accounts data:

USA <http://www.bea.gov/>

Euro-Area <http://sdw.ecb.europa.eu/browse.do?node=2018805>

Japan <http://www.esri.cao.go.jp/index-e.html>

UK <http://www.statistics.gov.uk/hub/economy/national-accounts/national-income-expenditure-and-output/index.html>

Canada <http://www.statcan.ca/>

2.3 Output as Value Added Figure 2.2 in the main text is worthy of discussion. By showing how rich countries tend to have small agriculture sectors (i.e. only a small proportion of value added comes from agriculture), it illustrates why many economists have argued that industrialization is the key to growth. Certainly, the Asian tigers followed this route to

success. Whilst in principle there is now reason why a country cannot transition from being poor to rich by becoming a highly efficient agricultural producer – no country in the world has managed this transition in practice (New Zealand is a rich economy that is largely dependent on agriculture, but its development was largely due to colonization).

2.4 National Income Accounts Further explanations for some of the big GNP/GDP differences shown in figure 2.5 are given in the Chart and Table tips. Students find that a practical discussion of individual countries extremely useful as a way of understanding the concepts.

2.5 How Large Are Modern Economies? A useful way of expanding this section is to discuss the data on national economies published by the World Bank

<http://www.worldbank.org/poverty/wdrpoverty/report/index.htm>

2.6 Total Output and Total Happiness. To stimulate discussion here it is worth getting hold of some Human Development Index (HDI) figures (<http://hdr.undp.org>). The tables give comparisons between the HDI and standard GDP figures. Generally speaking, the HDI and GDP are pretty similar, with some interesting exceptions -

Oil exporters: Far higher GDP than HDI

USA: Top in GDP but not in HDI.

Cuba: Far higher on the HDI than on GDP.

Brunei: Higher GDP than HDI since a large proportion of total GDP goes exclusively to the Sultan.

The Case Study “It’s the Economy, Stupid” shows how data errors and the slow dispersion of economic data influenced the 1992 US presidential election. Details on the release of US data are given in the Case Study to Chapter 15.

TABLE & CHART TIPS

Figure 2.5. GDP is generally higher than GNP for recipients of foreign investment who have to remit profits (e.g. US). As we shall see in Chapter 14, recipients of substantial foreign investment have been amongst the fastest growing economies in the world (Chile, Ireland). Ireland in particular has benefited from huge investments by US firms (e.g. Dell).

Oil exporters like Kuwait tend to be net investors in the rest of the world and therefore receive net interest profits and dividends from overseas. Norway is now an oil exporter and is rapidly moving towards a larger GNP than GDP as it uses oil receipts to invest overseas.

A significant proportion of the population of Bangladesh work overseas and their remittances back home substantially boost GNP. The Philippines is an even more extreme example of this phenomenon.

Figure 2.9 Economists have used three main methods of measuring the underground economy.

- 1) Statistical discrepancies. In most countries, figures for the expenditure measure of GDP are higher than the income measure even though they should in fact be the same. This

discrepancy arises because people tend to attempt to avoid or evade income tax and so income is under-recorded. There can be similar discrepancies between the recorded labor force (people in employment or claiming benefit) and the actual labor force as people in the shadow economy withdraw from the official labor market. However, these discrepancies tend to capture only a small part of the shadow economy.

- 2) Cash demand. As we shall see in Chapter 12, economists often analyze the relationship between cash circulating in the economy and total transactions in the economy. If cash demand is much higher than recorded output, it may be because the shadow economy prefers the anonymity of cash. In fact, a very high ratio of cash to bank deposits suggests the presence of a large shadow economy.
- 3) Physical input. Since the shadow economy still needs to use measured inputs such as electricity, it is possible to gauge the size of the shadow economy by looking at the demand for such inputs. If the demand outstrips what is necessary for official output, it is a good indication that the shadow economy is important.

The chart in the text shows figures for the electricity-input method only, as this gives the broadest sample of countries.

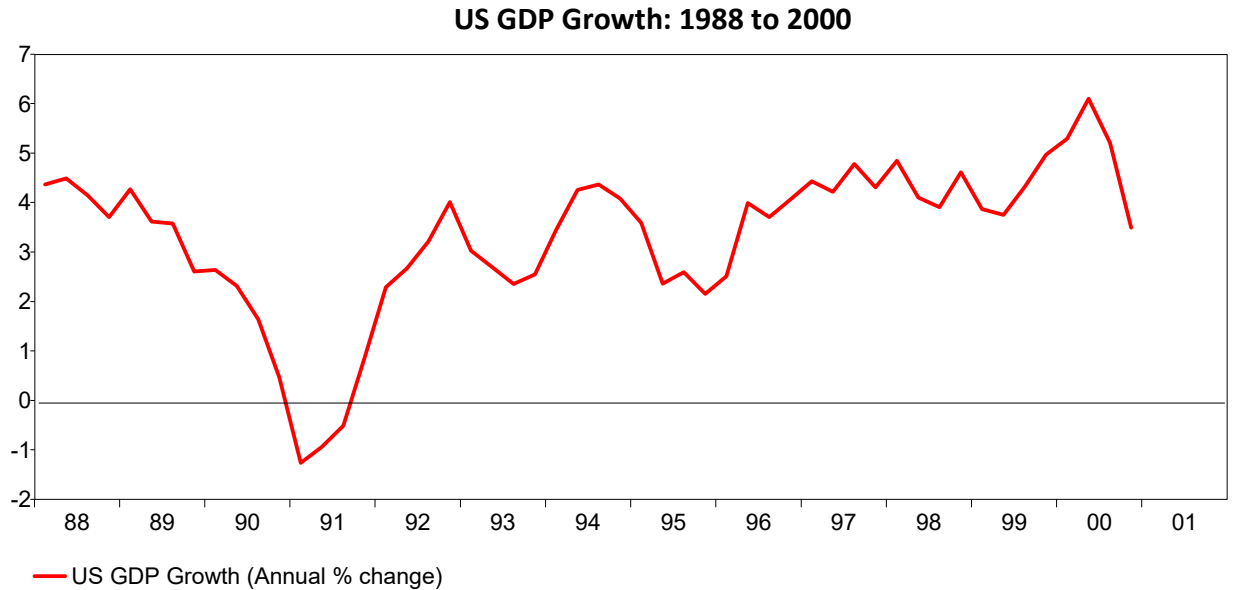
Figure 2.13 Further information on environmental accounting can be found at <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTDATASTA/0,,contentMDK:21060933~menuPK:7333796~pagePK:64168427~piPK:64168435~theSitePK:2875751,00.html>

CASE STUDY: "IT'S THE ECONOMY, STUPID"

In 1992, campaign adviser James Carville came up with the slogan that is thought to have won Bill Clinton his first presidential election- "it's the economy, stupid". Under President George Bush (senior), the economy had suffered a mild recession (negative output growth) after the Gulf War. However, by the time of the election, the economy had already begun to recover strongly (growth was 3.2% in 1992) and so Bill Clinton's campaign slogan should probably not have struck home as strongly as it did. Why didn't Bush get the credit for the recovery?

- 1) **Slowly changing expectations.** Even after you come out of a recession you don't feel better off. This makes sense because if output has fallen, it may take a year or more to get income back up to its pre-recession level.
- 2) **Data collection lags.** Although US GDP data are amongst the most rapidly compiled in the world, it still takes several months for the final data to be reported. So in 1992, although the preliminary Q3 GDP figures were available in late October, the final numbers were not reported until much later.
- 3) **Preliminary data errors.** When the preliminary Q3 GDP figures arrived, they were a pleasant surprise for Mr. Bush - the economy had supposedly grown by 2.7% (at an annualized rate). However, many commentators dismissed them as incorrect. For example, CBS reporter Susan Spencer filed from the Bush campaign: "He crowed today

at upbeat news of a third quarter growth rate of 2.7 percent, though some economists warned that may not hold.” In the event she was right to be suspicious of the Q3 number it was subsequently revised up to 3.9%! By the end of 1992, a year that some had predicted would see GDP fall by almost 2%, a healthy 3.2% growth rate had been posted.



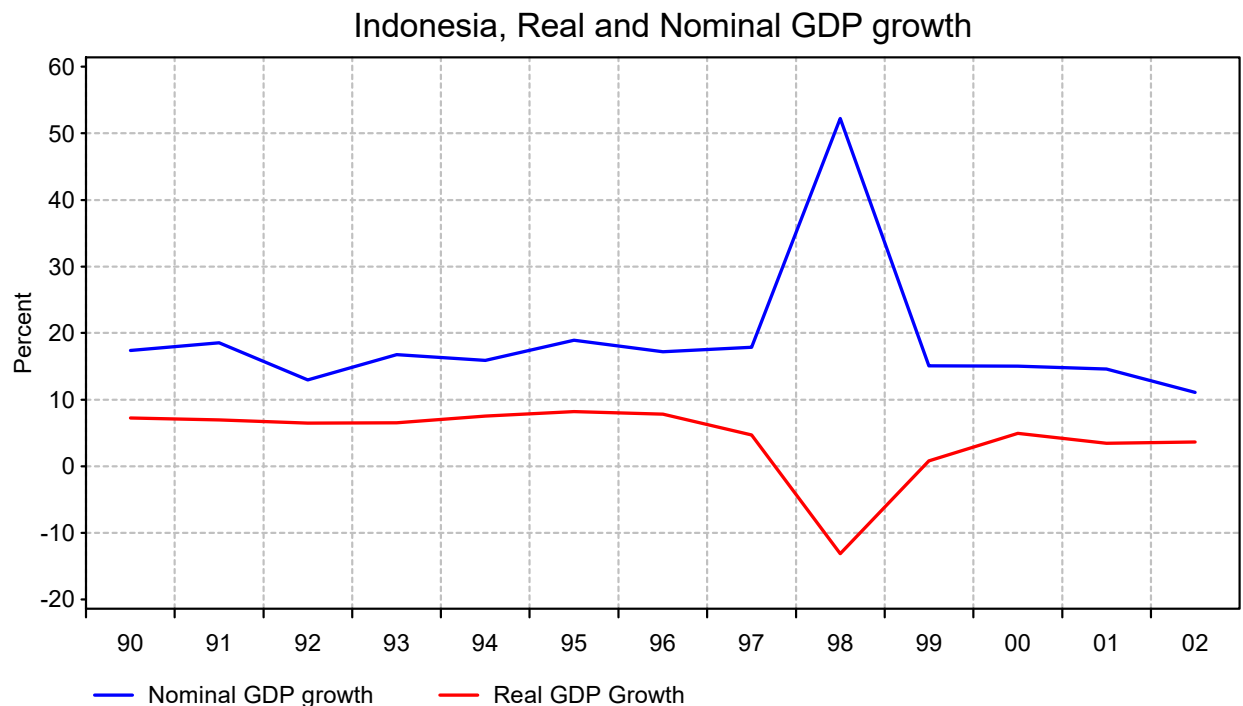
Source: EcoWin

Discussion Questions

- 1) *What possible defense could Bush have mounted to the economic attack made on him by Clinton?*
- 2) *Should the budgets of the statistical agencies have been increased or reduced after this incident?*

Additional Questions

Question 1) Look at the chart below and describe what happened to Indonesia in 1998



Answer1) The Asian currency crisis in 1997 triggered a recession in Indonesia so that real GDP fell by over 10%. At the same time, the decline in the Indonesian currency (the Rupiah) led to a dramatic rise in prices as imported goods cost more in Rupiah terms and these import prices fed through into domestic prices and wages (note that if the import price rise had been the only source of price inflation then nominal GDP would have been unaffected since it excludes imported goods). The rise in inflation meant that nominal GDP rose dramatically even though real GDP was falling.

Question 2) Analyse the recent sectoral composition (agriculture, industry and services as a % of GDP) of output GDP for a selection of countries of your choice using either national sources or the World Bank’s World Development Indicators [<http://data.worldbank.org/data-catalog> -> WDI databank].

Is the sectoral breakdown what you would expect given the country’s level of development (see Figure 2.2)?