

Discussion Handout #2

Econ 102
Prof. Eudey

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Last Session

- Solutions to last handout posted on johnstrommeuw.wordpress.com
- Some data on C, G, Ex, Im as % of total GDP: (source: world bank and IMF)

	HH Consumption	Gov Consumption	Imports	Exports	GDP (PPP) per capita
USA	68.4	14.7	16.6	13.5	\$54,597
Norway	40.6	21.9	29.5	38.7	\$66,937
Kuwait	28.2	19.4	31.3	67.9	\$71,020

Goals for this session

- Look at nuances of GDP measurement (Classify transactions as C, G, I, or NX)
- Define and calculate GDP deflator, use it to move from Nominal to Real GDP
- Real GDP vs. Real (chain-weighted) GDP vs. Nominal GDP
- Note: You do not need to memorize the formula for calculating real chain-weighted GDP. However you will need to know the basic economics behind the switch to the chain-weighted estimate, and the political implications of this switch.

Problems from Chapter Five in our textbook

2. Section 2

- 2.1. When calculating GDP using the production method, which of the following would you not include?
- A. Consumption
 - B. Investment
 - C. Value Added - The production (expenditure) method does not look at 'intermediate goods'. The value-added method looks at intermediate goods.
 - D. Government Purchases
 - E. Net Exports
- 2.2. What part of government spending is excluded from GDP because it does not correspond to goods and services currently being produced?
- A. National Defense
 - B. Transfer Payments - These include social security, welfare, subsidies, etc... Although they are in the government *budget*, they are not government *purchases*
 - C. Education

D. Purchases of Police Cars

- 2.3. When we subtract depreciation from gross investment, we arrive at Net Investment
- 2.4. A trade surplus occurs when Exports exceed Imports .
- 2.5. **GDP Statistics and Unemployed Workers:** In Economy A, the government puts workers on the payroll who cannot find jobs for long periods, but these employees do no work. In Economy B, the government does not hire any long-term unemployed workers, but gives them cash grants. *Comparing the GDP statistics between the two otherwise identical economies, what can you determine about measured GDP and the actual level of output in each economy?* **Economy A will have a higher measured GDP than economy B. In economy A, hiring people adds to the service sector, even if they aren't actually doing anything. In economy B this is a transfer payment which does not get counted in GDP. This shows a shortcoming in the way we measure GDP. The actual level of output in both economies will be the same.**
- 2.6. **Health-Care Subsidies:** When the federal government provides subsidies for individuals to buy health care, *is this included in the federal budget? Is it included in GDP?* **The health care subsidy is included in the government budget. This is real money coming out of their account to pay for the subsidy so they need to budget for it. However this is not included in GDP. Subsidies are considered transfer payments.**
- 2.7. **Buying a foreign car** Explain why buying a foreign car made abroad for \$50,000 increases consumption by \$50,000 but does not increase GDP. **Buying a foreign car increases C by \$50,000. However this also increases Imports by \$50,000. Since imports are a drag on GDP, these two offset each other, meaning the total effect on GDP is \$0**
- 2.8. **Depreciation and your new car:** You just bought a new car for \$23,000. After a year, you decide that you need a slightly bigger car. But when you think about selling it, you can only get \$19,000 for it. This is depreciation. *Describe several reasons why your car has depreciated in value. When you sell your car, does this result in a \$19,000 addition to GDP?* **Your car could have depreciated because of wear to the mechanical parts, wear to the interior, obsolescence (new models with newer features) etc... When you sell your car this \$19,000 does NOT get added to GDP. GDP measures new production, and selling your used car is obviously not new production.**
- 2.9. **Investment Spending vs Intermediate Goods:** A publisher buys paper, ink and computers to produce textbooks. *Which of these purchases is included in investment spending? Which are intermediate goods?* **Ink and paper are intermediate goods. The final good would be the textbook. The manufacturing process converts the intermediate goods into the final product. The computer would be an investment, since it is a long-lived durable good which will be used to produce many books.**

3. GDP Deflator

- Price Deflator: Measure of the price level. Convert between **nominal** and **real** values
- $(\text{Nominal GDP} / \text{Real GDP}) * 100 = \text{Price Deflator}$

4. Section 4

- 4.1. The GDP deflator is calculated for any given year by dividing nominal GDP by real GDP and multiplying by 100.

- 4.2. **True/False:** If the base year is 2010, the real and nominal GDP in 2010 will be equal. **True**, assuming fixed price index, not chain-weighted. Both the nominal and the real calculations use the same 2010 prices, however for all other years the real and nominal calculations will differ.
- 4.3. **True/False:** Measured price changes do not depend on the particular base year chosen when calculating:
- The traditional GDP deflator. **False**. Affected by base year choice.
 - The chain-weighted GDP deflator. **True**. Chain-weighting does not depend on base year.
 - Real GDP. **False**. Real GDP is affected by base year choice.
- 4.4. **True/False:** Real GDP is always a greater number than nominal GDP. **False**. See page 103 in book for a graph. It may be less than nominal, and also will be equal at the base year. Also see 4.5 and 4.6 below.
- 4.5. **Calculating Real GDP, Price Indices, and Inflation:** Using data from the following table, answer the following questions:
- Calculate real GDP using prices from 2011. By what percent did real GDP grow?
 2011 Quantities at 2011 Prices $RGDP_{2011} = 100(20) + 200(110) = 24,000$
 2012 Quantities at 2011 prices $RGDP_{2012} = 120(20) + 210(110) = 25,500$
 Percent change in RGDP = $(GDP_{new} - GDP_{old}) / GDP_{old} = (25,500 - 24,000) / 24,000 = 6.25\%$
 - Calculate the value of the price index for GDP for 2012 using 2011 as the base year. By what percent did prices increase?
 $NGDP_{2012} = 120(22) + 210(120) = 27,840$
 $Price\ Index_{2011} = NGDP_{2011} / RGDP_{2011} * 100 = 24,000 / 24,000 * 100 = 100$
 $Price\ Index_{2012} = NGDP_{2012} / RGDP_{2012} * 100 = 27,840 / 25,500 * 100 = 109.18$
 Percent change of the price deflator = $(109.18 - 100) / 100 = 9.18\%$

	Quantities Produced		Prices	
	CDs	Tennis Rackets	CDs	Tennis Rackets
2011	100	200	\$20	\$110
2012	120	210	\$22	\$120

- 4.6. Repeat 4.5 but use 2012 prices.
- 2011 Quantities at 2012 Prices $RGDP_{2011} = 100(22) + 200(120) = 26,200$
 2012 Quantities at 2012 prices $RGDP_{2012} = 120(22) + 210(120) = 27,840$
 Percent change in RGDP = $(GDP_{new} - GDP_{old}) / GDP_{old} = (27,840 - 26,200) / 26,200 = 6.2595\%$
- $NGDP_{2011} = 100(20) + 200(110) = 24,000$
 $Price\ Index_{2011} = NGDP_{2011} / RGDP_{2011} * 100 = 24,000 / 26,200 * 100 = 91.6$
 $Price\ Index_{2012} = NGDP_{2012} / RGDP_{2012} * 100 = 27,840 / 27,840 * 100 = 100$
 Percent change of the price deflator = $(100 - 91.6) / 91.6 = 9.17\%$