Exercise Set 3 -- Answers

3.1.

a) Real GDP growth

2007 2,37%
2008 -0,01%
2009 -2,91%
2010 1,94%
2011 -1,55%

b)

Year	GDP Deflator	Inflation rate
2006	1,000	-
2007	1.028	2,83%
2008	1.045	1,58%
2009	1.054	0,91%
2010	1.061	0,62%
2011	1.066	0,52%

3.2.

a) Column A measures GDP in a country (Portugal, for exemple) by multiplying the nominal value of Portuguese GDP by the dólar/euro Exchange rate. What is the problem with this procedure when the purpose is to compare the income of the **average** Portuguese (which is what GDP per capita is de facto measuring) with that of the average American or the average German? The problem is that the real purchasing power of the average Portuguese also includes essential goods that are cheaper in Portugal than in the US. So, when you say that the per capita income in Portugal is about 25 000 dollars a year, a person earning 25000 a year has much higher purchasing power in Portugal than if the person were in the U.S., or Germany, where the price of house, hair dressers, restaurants is higher. So you need to make a technical adjustment for this fact. This is what column (2) does.

b) Germany is a more expensive country than Portugal or the U.S., so the income of the average German in 2008 (48.488 thousand dollars) effectively buys only 35.392 thousand of goods and services in the U.S. In contrast, note how a per capita income in Poland, only of 11.861 thousand dollars in Poland, has a purchasing power equivalent to US$ 17 493 in the U.S. This is because basic goods are much cheaper in Poland than in the U.S. and than in Portugal. Another way of saying this is that a one dollar in one's pocket buys much more in Poland than in the U.S. (as well as in Portugal). Likewise, an euro in Germany buys less than one euro in Portugal. This is what column (2) is correcting for relative to column (1).

3.3

a) No real convergence in any of the periods.
b) Never.
c) T=90.4 years.

3.4

a) 10542
b) Contribution of Y/N: 7673 euros of 2000
Contribution due to N/Pop: 565 euros of 2000
Contribution due to interation between Y/N and N/Pop = 2304 euros of 2000.
Total Effect = 10542 euros of 2000

c) Because GDP/capita is a good (but not perfect) measure of living standards (or quality of life). As discussed in class, countries that are richer (i.e. have a high GDP/capita) enjoy higher and better-quality consumption of goods and services, typically have lower mortality rates, etc. etc. Since from the formula we have that GDP/Pop=Y/N*(N/Pop), and typically N/Pop does not move all that much, higher average labor productivity, i.e., higher Y/N implies higher living standards.