

The example solved in class on 2-11 '08

Poland is a country, and it produces only 2 goods cotton and T-shirts. T-shirts are produced from cotton. Assume all items that are not included below and do not clearly follow from the data provided are zero. Assume also $\text{export}=0$, $\text{imports}=0$, $\text{NX}=0$ and $\text{G}=0$ in this economy.

Here is the full account of all transactions by all businesses residing in Poland in given a period of time:

Cotton Farmers

Payments:

- (1) Wages and Salaries: \$1000
- (2) Profits \$500
- (3) Rent \$500

Receipts:

- (4) Revenue from sales \$1500
- (5) Change in inventories of unsold products: +\$500

Shirt Manufacturer (purchase cotton from Cotton Farmers!)

Payments:

- (6) Wages and Salaries: \$1000
- (7) Profits \$500
- (8) Purchases of cotton for production: \$500

Receipts

- (9) Revenue from sales \$1500
- (10) Change in inventories of unsold products: +\$500

A. How much cotton is sold as final good and how much as intermediate good?

Sold as final good: $(4)-(8)+(5)=1500-500+500=1500$

Sold as intermediate good: $(8) = 500$

B. Compute GDP using factor payments approach:

$(1)+(2)+(3)+(6)+(7) = 1000+500+500+1000+500=3500$

C. Compute GDP using value-added approach:

$(4)+(5)+(9)+(10)-(8)= 1500+500+1500+500-500=3500$

D. Compute GDP using expenditure approach:

Beware! This exercise is not the best to illustrate this method, and may be a bit confusing... However, with our assumption that all items that do not clearly follow from the listed numbers are 0 (and the assumption that $\text{G}=0$, $\text{exports}=0$, $\text{imports}=0$), we can implicitly infer what the expenditures in this economy are: To get GDP from

the expenditure side we need to make the following inferences and add up the following items:

Cotton sold as final good as no other business has purchased it as an intermediate good -- given our assumptions it must be consumption (can not be investment because it would otherwise be listed in the payments of some firm):

(4)-(8)+

Cotton purchased as investment in inventories by the cotton producers (classified as private investment):

+(5)+

Final sales of T-shirts -- it must be consumption:

+(9)+

Investment in inventories by shirt manufacturers (classified as private investment)

+(10)

$$=1500-500+500+1500+500=3500$$

One student asked me the following question:

What if the T-shirt producer would lower the price of T-shirts and got less revenue from final sales... then it would all collapse and fail to add up...GDP by value added would not equal to GDP measured using factor payments approach.

Answer:

One of the corresponding items in the factor payments category would have to fall as well by their very definition. Consistency of national accounting procedures requires that you lower some item on the factor payments side as well, or it just can not be... More precisely, in national accounting system everything has been defined in a way so that it always adds up. Think about national accounting in the following way: there is some money on the table, called for example value added. Now, every penny of it is classified into some bin called profit, rent, wages, etc... The list of bins is supposed to be exhaustive and unambiguous, so that every penny can make it to some bin unambiguously... We are the ones who make this list up! No surprise here, at the end the sum of all bins must be equal to the value added by their very definition. This is the spirit in which national accounting works.

In other words, the cleverness of the whole thing does not lie in the fact that it all adds up. The cleverness lies in the fact that it adds up (is consistent), and at the same time is informative about the overall production level, structure and circular flows in the economy.