1 GDP and GNP, Net Exports and Current Account

Our starting point for an open economy's national income accounting is

$$Y = C + I + G + NX, \tag{1.1}$$

where Y is aggregate output, C is consumption, I is investment, G is government spending and NX is net exports. Net exports, in turn, are defined by

$$NX = EX - IM,$$

where EX are exports (of goods and services) and IM are imports (of goods and services). Because equation (1.1) is an accounting identity, it must always hold *by definition*. In other words, we define the meaning of Y, C, I, G and NX so that equation (1.1) is true.

1.1 GDP vs GNP

There are two different measures of aggregate output that we have discussed in class: GDP (gross domestic product) and GNP (gross national product). They are related by

$$GNP = GDP + NI \tag{1.2}$$

where NI is net income from the rest of the world (net factor income). Net income, in turn, is given by

$NI =$ Receipts of factor income from the rest of the world$-$

Payments of factor income to the rest of the world.

"Factor" here refers to factors of productions, the inputs used to create goods and services. In this course, we assume there are two factors of production, labor and capital. In this two-factor world, capital income is another name for profits of firms, and labor income is another name for wages of workers.

In equation (1.2), we have made a simplification by omitting net unilateral transfers NT of income. Examples of unilateral transfers of income are pension payments to retired citizens living abroad, reparation payments, and foreign aid. Thus, instead of equation (1.2), we

should really write

$$GNP = GDP + NI + NT \tag{1.3}$$

It is common to omit NT because it is much smaller than the other terms.

1.2 Textbook confusion

International Economics: Theory and Policy, by Krugman, Obstfeld and Melitz

Our course textbook uses Y to denote GNP. In Chapter 2, it starts with

$$Y = C + I + G + EX - IM,$$

and then says $EX - IM$ is called net exports. It then defines the current account to be equal to net exports:

$$CA = EX - IM$$

Putting the last two formulas together, the textbook concludes:

$$Y = C + I + G + CA.$$

This is a common textbook simplification: it is equivalent to assuming (or abstracting from) net income and net transfers, so that the current account is the same as net exports ($CA = EX - IM$).

Later on in the chapter, the textbook presents Table 2-2, which clearly shows that the current account is composed of

- exports EX minus imports IM of goods and services,
- net income NI (income receipts from the rest of the world minus income payments to the rest of the world),
- net unilateral transfers NT.

In the text that follows the table, the textbook offers two clarifications:

- "income really is compensation for the services provided by foreign investments", and

that. Translation: when the book wrote $Y = C + I + G + CA$ earlier in the chapter, it included net income NI as a part of $EX - IM$ by treating income transfers as exports and imports of services.

- "the identity $Y = C + I + G + CA$ holds exactly if Y is interpreted as GNP plus net transfers". Translation: when the book wrote $Y = C + I + G + CA$ earlier in the chapter, and going forward for the rest of the book, we will ignore unilateral transfers.

Macroeconomics, by Blanchard

Many of you used Blanchard in Intermediate Macro. In Chapter 3, Blanchard starts with

$$Y = C + I + G + EX - IM$$

It then says that $EX - IM$ is called net exports and also called the trade balance. Finally, it defines the current account as the sum of net exports NX, net income NI and net transfers NT from the rest of the world:

$$CA = NX + NI + NT.$$

This is more When we look at this equation, we immediately know that $Y = GDP$ and $NX = NX_{GDP} = TB$.