HONP-103-01 Global Civilization: Intro to Macroeconomics

The Economy

Let's start with a definition: An economy is an interactive system of production, distribution, and consumption of resources, goods, and services that addresses the basic economic problem of scarcity.

Economic functions are divided into four basic macroeconomic sectors:

Household: the consumers.
Business: the producers.
Government: the regulators and taxers.
Foreign: the others (rest of the world).

The household sector of the macroeconomy is everyone in an economy who consumes goods and services (i.e., everyone). Consumption is the use of natural resources, goods, or services to satisfy wants and needs. (Most economists think that wants and needs are unlimited, but others disagree--they say that people keep wanting more after a certain point only because of relative inequality and massive amounts of money spent on advertising.)

The business sector of the macroeconomy produces the goods and services that are consumed by the household sector. The business sector is responsible for production by combining the four basic resources: labor, capital, land, and entrepreneurship. These factors of production are *complements* to each other--they are all necessary, though you can have various combinations. Think of building a house with more machines and fewer people, or fewer resources and more ingenuity.

The business sector buys raw materials, intermediate goods, and other things. They also employ labor from the household sector. When the business sector buys capital goods that is an investment in capital.

What is capital? Capital is a pretty overused word. You can think of it very broadly as something people use (in association with other inputs such as labor) to produce value (goods and services). This could mean physical assets such as machinery, equipment, and buildings. It also includes inventories--stuff you've produced but haven't sold yet. In business, the term capital often refers to money available for investment. Not all capital that you need to produce things is buyable: think of public assets such as roads, bridges, airports, and schools. Some people use the term *human capital* to refer to the store of knowledge and health built into the labor force. The term *social capital* has become popular to refer

to relationships, traditions, and habits that develop among people and help produce value.

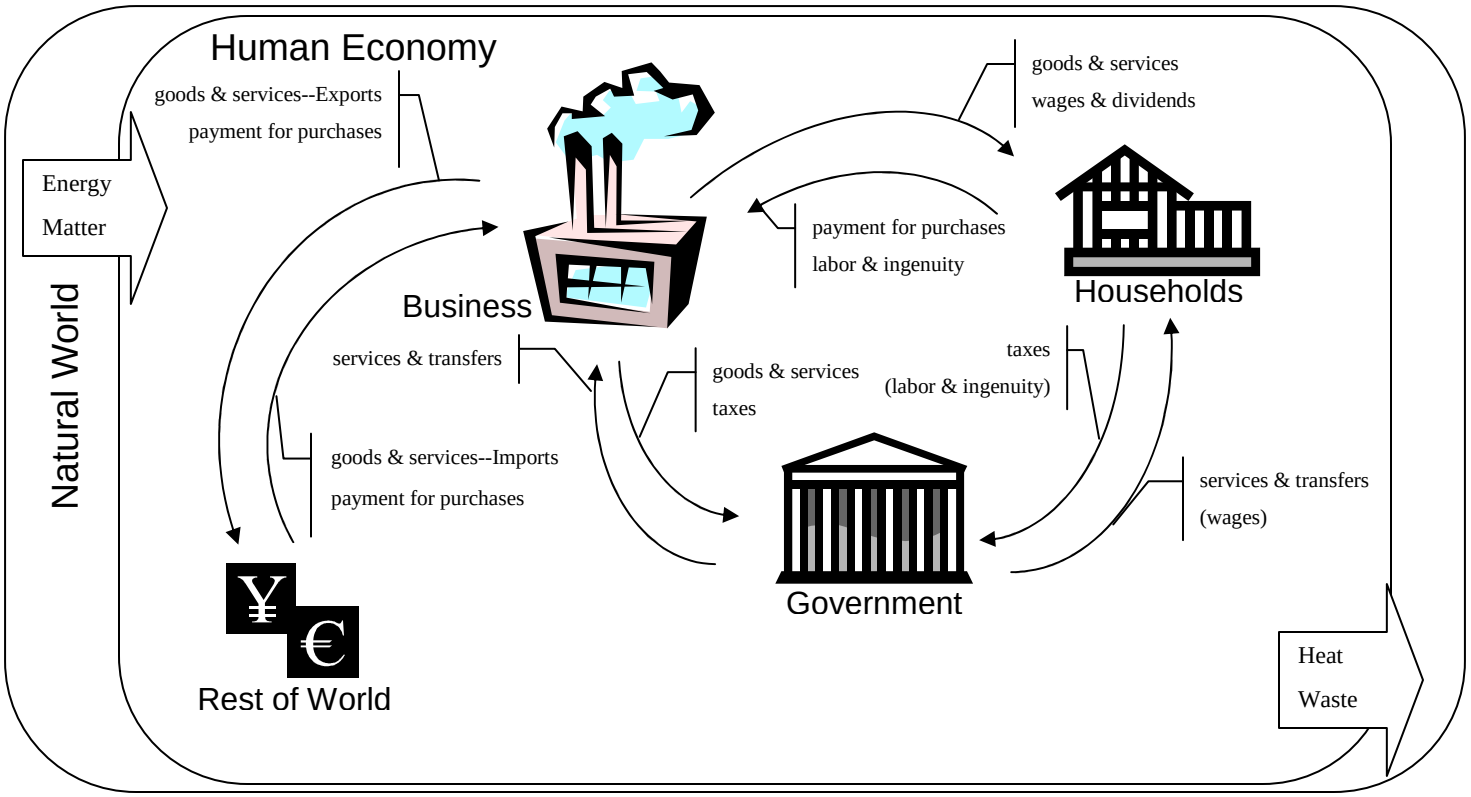
The source of all other capital is ultimately *natural capital*--resources and services provided by the natural world. You can't make machines or roads or computers or people out of thin air.

The government sector affects resource allocation and production by imposing laws and regulations that force decisions not otherwise made. The government sector collects taxes and buys a share of the economy's production, termed government purchases. These are goods such as national defense, highway and street construction, education, and police protection. Government purchases do not include transfer payments (e.g. Social Security benefits, welfare or unemployment compensation).

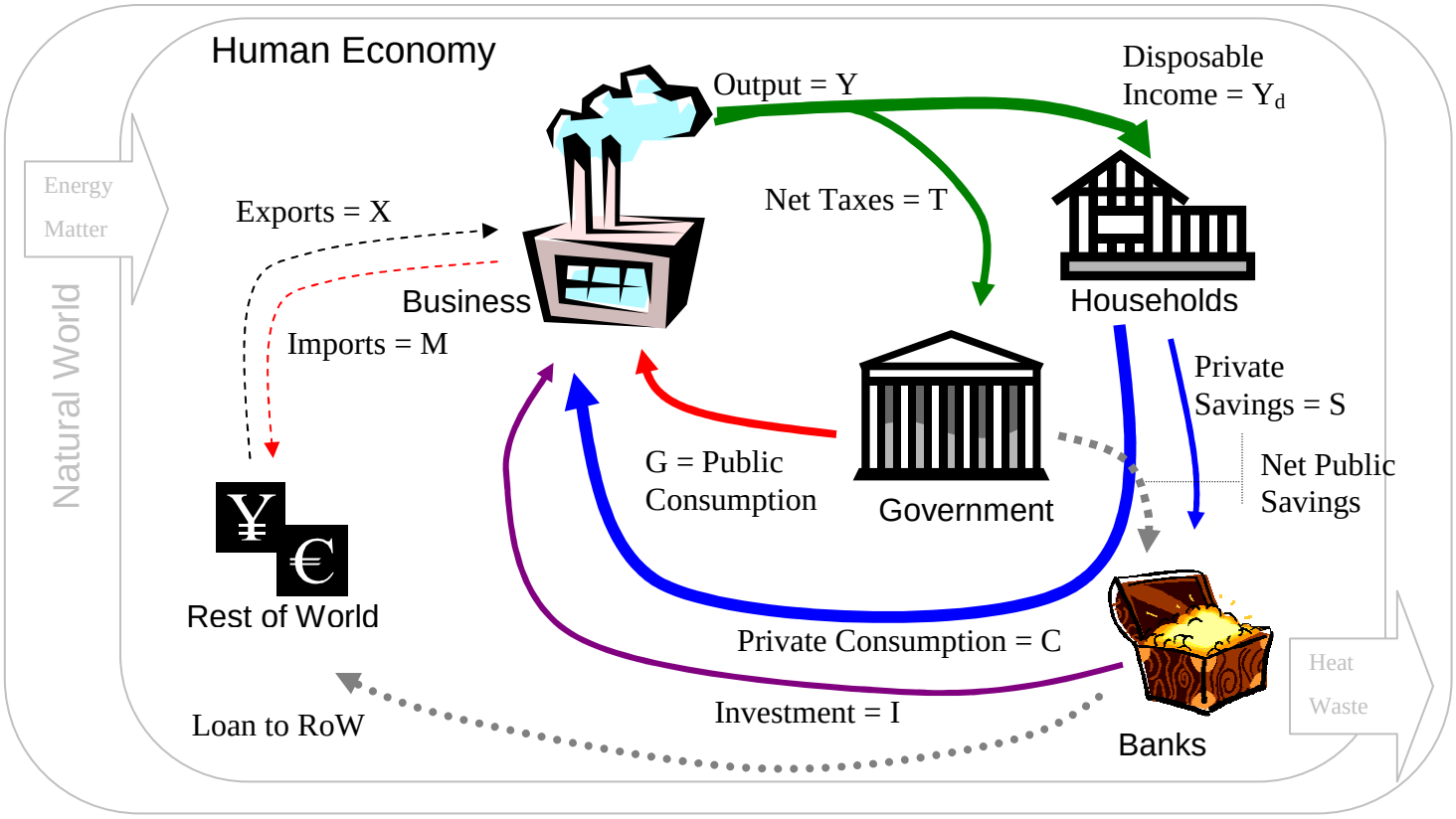
Economic activity is divided into domestic, everything within the political boundaries of a nation, and foreign, everything outside the boundaries. Any citizen of the U.S., any firm owned by a U.S. citizen, and the government of any U.S. city are part of the national economy, and everyone else is part of the foreign sector.

Exports are goods purchased by the foreign sector that are produced by the domestic economy; imports are goods purchased by the domestic economy that are produced by the foreign sector. Net exports are the difference between exports and imports, or exports minus imports.

Thus, a picture of the economy might look like this:



You may notice in that picture that the arrows represent both money and stuff. Let's draw the picture again and just look at the flows of money. And, since we're looking at money, we'll toss in another sector: banks.



Looking at this picture, we can tell a story--and, along the way, start making a few accounting statements.

We have businesses able to produce a certain amount of stuff. Let's say they have, among other things, bubblegum factories and barber shops. The households say, "Great, give us bubblegum and haircuts, here's some money." How much can they demand? Well, if all the money they pay for bubblegum and haircuts gets paid back to them as wages and dividends, they could do it as much as the businesses have capacity to produce bubblegum and haircuts. All that output of bubblegum and haircuts adds up to Y, and that's the amount the households buy: C.

So does Y = C?

It would… but then the government comes in. The government is like a big buying co-op that all the households got together and created so that they could still buy things like roads and B-52s that they all want, but don't want to buy individually.

The government says to the business sector, "Hey, looks like you could produce some roads and B-52s. We'd like to pay you to do that." The business sector says sure, produces the roads and B-52s, and gets paid… how? Where did the government get its money from?

A couple of places: first, the government looked at all the paychecks and dividend checks the business sector was sending to households and took a percentage of the action. Say the percent is t, then the taxes the government collects equals t times Y or tY. So now households don't get all the output, Y, paid back to them--they get Y - tY, and the government uses the tY to buy G (the roads and B52s).

So now we have
$Y - tY = C$
$tY = G$
and combined,
$Y = C + G$

Output is bought by households consuming and government consuming.

But wait, there's more. Government also gets non-income-related taxes, such as excise taxes (TX) and gives out non-income-related transfers, such as Social Security benefits (TR) to households.

Now we have
$Y - tY - TX + TR = Y_d = C$ (where Y_d is disposable income, after taxes)
$tY + TX - TR = T = G$ (where T is net taxes)
and combined, we still get
$Y = C + G$

Fine. The tY, TX, and TR are just ways of rearranging who gets to spend income Y on output Y. Round and round we go.

The business sector might pipe up at this point and say, "You know, some of our bubblegum-making machines got worn down, and if you take all the income (Y) and just spend it (on bubblegum, B-52s, etc.) we won't be able to make as much bubblegum next year as we did this year.

Households say, "Whoah! No, we don't want that--in fact, maybe we want you to not only replace the old bubblegum machines but open some new barber shops--so we won't consume all that we can."

"We'll make our consumption less than our disposable income:
$Y_d > C$

and we'll put the difference--the money we save (S)--into banks. Then you can use the money in the banks to invest in bubblegum machines and barber chairs."

So now,
$Y_d = C + S$

The businesses use the money in the banks to buy machines, etc., or in other words make investments, I. If the government did nothing different, we would end up with the overall equation of

$Y = C + G + I$

The government could also run a budget surplus by making its expenditures less than it collects in taxes:
$T > G$,

which would contribute to savings in the banks and thus to I. Money that goes to I means less consumption now but makes the economy better able to produce output tomorrow.

Instead of having savings, either the households or the government or both could have debt. This debt would reduce the amount going to I.

Looking back at the picture, we can see that there's one more entity that wants to get in on this game: the Rest of the World--the foreign sector. They look at the business sector and say, "Wow, could you send us some bubblegum? (We'll stick to getting haircuts in our own countries.)" And the business sector says, "Sure, here you go," sends bubblegum abroad as exports, and gets paid X. X goes into wages, dividends, and taxes, and the game continues.

But hold on--where did the foreigners come up with money to pay X? Ah, it's because we paid them M (for imported marinated olives and so on). So, net, the foreign sector is demanding
$X - M = NX$ (net exports)

When we add that in to the big demand equation, we get
$Y = C + G + I + (X-M)$

That says that the output we produced (Y) got divvied up among households (C), government (G), investment (I), and the Rest of the World (X), and some of our income (Y) went to pay for imports (M).

The last little bit we need to say here is that if we export more than we import: $X > M$, the RoW needs to take out a loan from our country. And if we import more than we export: $X < M$, we need to borrow money from

the RoW. See the box on keeping track of X, M, and foreign saving and borrowing.

Current Account and Capital Account

The current account and capital account are measurements of international currency flows. There are three basic rules for calculating the values of the current and capital accounts:

1) The current account measures trade in goods and services; the capital account measures trade in investments. For example, international trades of cars, food, and electronics are current account items. By contrast, international trades in stock markets and treasury bonds are tallied in the capital account.

Current account:	Merchandise (or "trade balance")
	Services
	Investment income (dividends, etc.)
	Unilateral transfers
Capital account:	Private *(asset transactions)*
	Government *(asset transactions)*

2) Transactions are *credits* if they earn foreign currency and *debits* if they spend foreign currency. In general, exports are credits and imports are debits. An exported car is thus a *credit* in the *current account* (we get paid in yen); the purchase of Japanese corporate stocks is a *debit* in America's *capital account* (we spend yen to buy the stock).

3) The current account and capital account always sum to zero. Suppose the U.S. wants to buy wine from France. It will need euros to do this; France will only give the U.S. the necessary euros in exchange for some kind of IOU – treasury bonds, for example. This is a *capital account credit*, because the U.S. gets euros in exchange for exporting investments. After obtaining the euros, the U.S. spends the euros on the wine – a *current account debit* of equal size. The sum of current and capital accounts? Zero.

(more info: try Samuelson and Nordhaus, *Economics*, 16th edition, 1998, pp. 683-4)

Although an import without a corresponding export would reflect a *balance of trade deficit* (NX < 0) the overall balance of payments would by construction have to be zero (NX plus foreign investment = 0) because of offsetting credits in the capital account (the country would automatically incur a debt to the RoW, or in other words obtain a loan).