Macroeconomics for Beginners

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2017-02-22

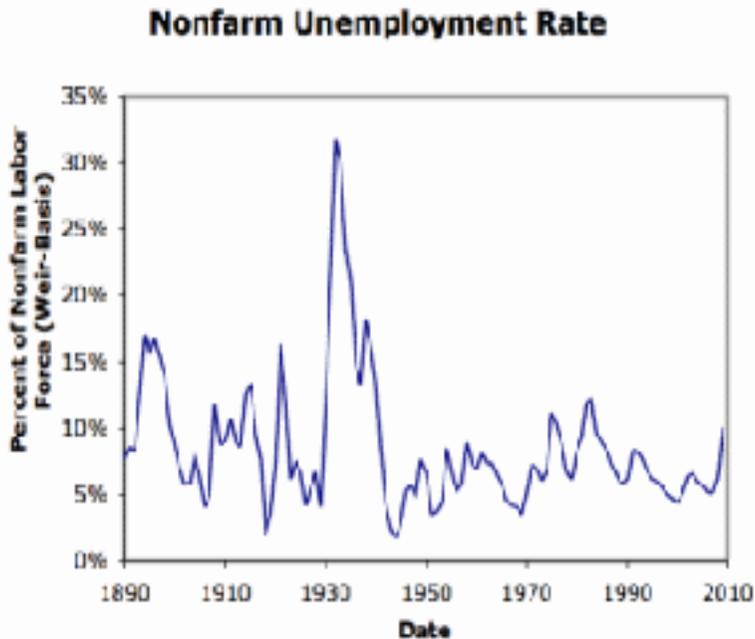**Nonfarm Unemployment Rate**

I. Polanyian Perplex

Start with the Polanyian Perplex: land, labor, and finance are not "commodities". "Commodities" are things that are pushed to their most valuable use by market forces. And each use of them must pass a profitability test. By and large this is a good thing, for most things that we call "commodities", as it promotes economic efficiency and makes us all richer.

But "land"—that is what your community is. "Labor"—that is what your lifestyle is. And "finance"—that is whether

you have a job, or a firm to work for. People think they have rights to stable communities, expected incomes, secure jobs. However. in a market society the only rights that count are property rights.

You can argue—and people do argue—that those who complain about "land" and "labor" becoming commodities have no legitimate beef. We have a dynamic society: things change. Changing communities driven by (well-functioning) markets are positive-sum changes: the winners outnumber and outweigh the losers. Changing occupational rewards driven by (well-functioning) markets are positive-sum as well: the winners outnumber and outweigh the losers. The answer is social insurance and social welfare

But all this presumes full employment: there is no sense in which as much instability as we see in firms and jobs is part of some positive-sum process.

Nevertheless, people do so argue. There is a lot of garbage economics out there. Where and why this garbage comes from and why it persists is largely a mystery. We will not go into it here. Instead we will turn to understanding why sometimes the economy undergoes and then stays in a situation in which there is a "general glut": even though the economy remains relatively poor, there are an awful lot of people who want to work and yet cannot find any or any stable jobs.

II. General Gluts

The key is that a "general glut"—an excess supply of produced goods and services and of labor—is an excess demand for money. Money is something you hold as a substitute for trust. You can increase your holdings of money in two ways: (1) Sell more other stuff. (2) Buy less other stuff. In this, money is different from other commodities: to get more of any other commodity, you have to buy it—you cannot decrease how much you spend on commodity X to get more of commodity Y.

That is the key fact here. Hold on to that.

Back in 1803 economist Jean-Baptiste Say argued that it was simply not possible for there to be a "general glut":

> If certain goods remain unsold, it is because other goods are not produced; and that it is production alone which opens markets to produce.... Whenever there is a glut, a superabundance, [an excess supply] of several sorts of merchandize, it is because other articles [in excess demand] are not produced in sufficient quantities…

Back then Thomas Robert Malthus engaged him in debate, asking that if what they saw was not a "general glut", then what was going on:

We hear of glutted markets, falling prices, and cotton goods selling at Kamschatka lower than the costs of production. It may be said, perhaps, that the cotton trade happens to be glutted; and it is a tenet of the new doctrine on profits and demand, that if one trade be overstocked with capital, it is a certain sign that some other trade is understocked. But where, I would ask, is there any considerable trade that is confessedly under-stocked, and where high profits have been long pleading in vain for additional capital? The [Napoleonic] war has now been at an end above four years; and though the removal of capital generally occasions some partial loss, yet it is seldom long in taking place, if it be tempted to remove by great demand and high profits…

By 1830 Say had come around to Malthus's point of view. Describing the depression of 1825-6 in England, he wrote:

The Bank [of England]... forced the return of its banknotes, and ceased to put new notes into circulation…. Commerce found itself deprived at a stroke of the advances on which it had counted, be it to create new businesses, or to give a lease of life to the old. As the bills that businessmen had discounted came to maturity, they were obliged to meet them…. They sold goods for half what they had cost. Business assets could not be sold at any price. As every type of merchandise had sunk below its costs of production, a multitude of workers were without work. Many bankruptcies were declared among merchants and among bankers…

Consider an economy in which only two things are produced: yoga lessons and lattes. (This is what we economists do: stripped-down thought experiments that we

hope capture the essence, and then generalize.) In this economy, excess demand for yoga lessons is deficient demand for lattes—that is the only thing it could be. Yoga teachers are then overworked, while latte-pullers stand idle. What happens next? Latte-pullers retrain to teach yoga. The economic system rebalances at a higher level of human satisfaction. This is not a process we want to interfere with. It is a healthy thing.

Suppose, however, we add cash money to the economy. Then deficient demand for yoga lessons and lattes is excess demand for cash. Yoga teachers stand idle. Latte-pullers stand idle. Neither can retrain to produce cash. In normal times bankers can produce extra cash—that's what a bank does when it gives you a mortgage loan. But what if times are not normal? What if the banks regard themselves as tapped out in terms of their ability to create cash?

And so you get depressions: long periods of high unemployment.

The options for what to do in a depression are limited:

- Wait it out—until something changes, and people are happy with the cash they have and so resume spending at a "normal" pace.

- Have those who can make "cash" do so—without cracking trust in them.

- Have those who can spend—usually government—ramp up their own spending.

- Cut wages and prices? Perhaps. But the shortage of and demand for cash is often a fear that somebodies are bankrupt, and at lower wages and prices more somebodies are bankrupt

II. Basic Macroeconomic Tools

What determines if there is "too little" cash in an economy? There is too little cash when the economy as a whole is trying to accumulate cash—and so cutting (planned) spending back below (projected) income. In attempting to figure out whether and when this is the case, it is useful to start with the facto that there are four sets of actors in the economy: households, business investment committees, foreigners, and the government.

Households have a view of their *permanent* income. They spend a fraction c_y of the gap between their current income Y and their permanent income on consumption goods, and they hoard the rest on cash, or save it by lending it out to

businesses. Thus we can write down an equation for consumption spending:

$$C = c_0 + c_y \times Y$$

Foreigners sell us our imports. They then turn around and spend some of their dollar earnings on our exports. The difference between exports and imports is net exports NX. They then take the rest of their earnings from selling us imports and either hoard it in cash or save it by lending it to businesses.

The government spends an amount G.

Business investment committees decide to borrow and invest an amount I in buildings and machines to build up their businesses' capabilities to produce more in the future. This amount I depends on:

- Total economy-wide spending E—if there is less spending, why invest?—plus their "animal spirits"
- The real interest rate r that businesses must pay to borrow —the higher r, the lower investment.

And so we can write an equation for investment spending I as well:

$$I = I_0 - I_r \times r \text{ (businesses)}$$

Note that the central bank—the Federal Reserve—can *influence* but not *control* r.

We can now write down our whole model. Y is economy-wide income. e is economy-wide spending. And:

$$E = C + I + NX + G$$

For our four sets of actors we have:

$$C = c_0 + c_y \times Y \text{ (households)}$$
$$NX \text{ (foreigners)}$$
$$G \text{ (government)}$$
$$I = I_0 - I_r \times r \text{ (businesses)}$$

Substituting in, we get:

$$E = (c_0 + I_0 + NX) + c_y \times Y - I_r \times r + G$$

Now consider: What happens in the economy if there is a "general glut"—an excess demand for cash—if planned expenditure E is less than expected income Y? People make stuff, expecting to sell it. It doesn't sell. So income comes in lower than people and expected—your income and total income, realized Y, cannot be greater than actual expenditure E because one person's income can only come from somebody else's expenditure.

We have a "general glut". What happens next? Businesses go bankrupt, people get fired, and income falls. And as income falls, planned expenditure falls further.
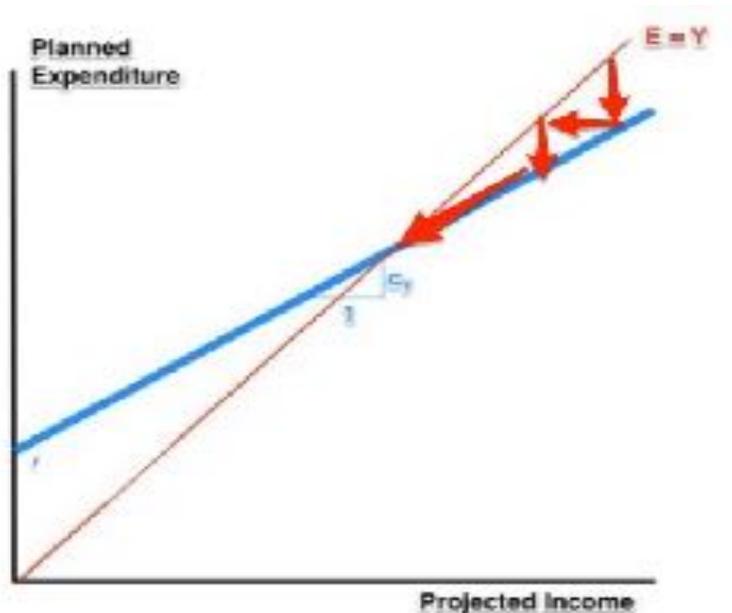
Where does the process stop? The process stops when people, at their new lower income level, are happy holding the money they have. That is, it stops when income has fallen to the income level at which there is no longer an excess demand for money.

And there is math for the economy's equilibrium—the situation in which people are neither being fired because

unsold goods are piling up or hired because inventories are rapidly declining:

$$E = (c_0 + I_0 + NX) + c_yY - I_r r + G$$

$$Y = E$$

$$Y = (c_0 + I_0 + NX) + c_yY - I_r r + G$$

$$(1-c_y)Y = (c_0 + I_0 + NX) - I_r r + G$$

$$Y = (c_0 + I_0 + NX)/(1-c_y) - I_r r/(1-c_y) + G/(1-c_y)$$

Let's call $1/(1-c_y)$ by a special name: the *multiplier.* And let's give it a special symbol: μ:

$$\mu = 1/(1-c_y)$$

Changes in anything have a *multiplied* effect on Y. That includes government spending G. Changes in the interest rate r are a powerful way of changing Y as well:

$$Y = \mu(c_0 + I + NX) + \mu I_r r + \mu G$$

Note that there are all kinds of other, weaker linkages here. We have ignored them, for the moment. But they can become important in particular circumstances. Would Greece's deciding to increase spending by its government in 2010 have boosted income and production in Greece? Almost surely not. Why not? Because of linkages that are not in this simple model.

The simple model, however, gives us tools that we can use. Know the multiplier (μ). Track what happens to consumers' expectations (c_0), business investment committees' animal spirits and expectations of future demand (I_0), net exports (NX), government purchases (G), the real interest rate (r), and the sensitivity of investment spending to the interest rate (I_r), and you can then analyze and track the economy.