MBHS Economics Club

Aggregate S&D Notes

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What is Macroeconomics?

Earlier, we told you that macroecon is the study of economics on a large scale (which is a sort of "no duh" thing.) To be more specific, macroecon is the view of the economy from a far broader perspective, focusing not on individuals or companies, but on nations and regions. It emerged in the 19th century as a response to rapid, sustained economic growth, which is its primary focus. Most importantly, these principles drive economic policy and are what you will hear most often in political settings (GDP, unemployment rate, "trickle down" economics, etc.)

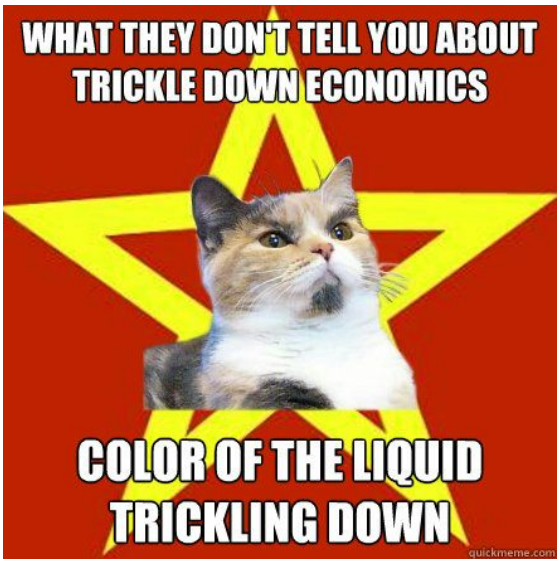

Fig 1.0: Lenin Cat, the (unofficial) club cat.

GDP: Gross Domestic Product

- Not how disgusting a nation is, but rather a measure of the size of an economy, constrained by location. As such, it is the primary metric of the success of an economy.
- This economy can be local (e.g. in an industry), national (e.g. in the US), or international (e.g. in the EU).
- Often used in terms of GDP per capita, i.e. output per person.

GNI: Gross National Income

- A measure of the size of an economy bounded by ownership.
- This is distinct from GDP in that it is not bounded by area. For example, US GNI is the output of all things owned by US nationals, whereas US GDP is the output of all things in the US. The US GNI is significantly higher than GDP because there is significant US investment abroad.

Ways of Calculating GDP

- Basic Expenditure Method: $GDP = Value_{output} - Value_{intake}$
  - This is the original, most literal interpretation of GDP. It tells us that GDP is the increase in value that an economy creates, which is probably the most fundamental interpretation.
  - To make more sense of this, let's look at a gross oversimplification how a T-Shirt is made.
    - First you have cotton, worth $2 (increase in value of $2)
    - The cotton farmer sells it to a fabric maker who turns it into a fabric worth $3 (increase in value of $1)
    - The fabric maker sells it to a jean making company
    - The T-Shirt making company sews the shirt and adds indigo, worth $2, and sells it to you for $100 (increase in value of $95)
    - The formula for this is (2+3+2+100)-(2+3+2) or $100…The price of the Shirt!!!
      - So, when we are subtracting the $\text{value}_{\text{intake}}$ we are just making sure not to count the price of raw materials twice.
  - Another way of looking at this is saying that the GDP is the price of all Final Goods & Services (goods & services that are not used to produce other goods & services.)
- Income (or GDI, gross domestic income): $GDP = COE + GOS + GMI + (T - S)_{P\&M}$
  - Compensation Of Employees (wages and other benefits, like social security)
  - Gross Operating Surplus (essentially profits of incorporated businesses, but slightly higher)
  - Gross Mixed Income (essentially profits of unincorporated businesses, but slightly higher)
  - Taxes minus Subsidies (primarily in Production and Imports)
  - Tells us that GDP is essentially the income of a nation (and income is denoted as Y in economics.)

This can be written slightly more nicely as:

- $Y = R + I + P + SA + W$
  - Rents
  - Interests
  - Profits
  - Statistical Adjustments (financial shenanigans)
  - Wages
  - For all you Freshman in R&E, RIPSAW is GDP
    - (good mnemonic device.)
- Advanced Expenditure method: $GDP = C + I + G + NX$
  - Y is GDP (Income)
  - C is Consumption
    - Durable Goods
    - Nondurable Goods

        - Services
    - I is Investment
        - Business Investment
        - Infrastructural Investment
        - Changes in Inventories
            - This will come up later when we discuss economic cycles
    - G is Government Spending
    - NX is Net Exports (Exports-Imports or X-M)
        - Although this makes imports look bad for the economy, they aren't. The reason you subtract imports is because if you don't you count them doubly in consumption, investment or government spending.
    - This is the modern method of calculating GDP and was created by economist Simon Kuznets for Congress in 1934, in the midst of the Great Depression.

Why These Views Are Equivalent

If we consider investing money, even putting it into a bank and accruing interest, as expenditure, then income and expenditure would be equivalent. All money earned would be spent or invested in some way or another, so the methods of calculation should be equivalent. This assumes that all people are reasonable and so no one simply sits on any significant amount of money.

Fig 2.0: Distinctly NOT the Homo Economicus. He is sitting on his money. Because of Mr. Krabs, Income and Expenditure GDP are slightly *different.*

Both methods only consider monetary value. Giving gifts or trading commodities directly would not influence the GDP, despite these interacts creating value. This is done because it is

impossible to objectively measure the value of these exchanges and difficult to track them in the first place.

Economic Growth

- Economic Growth — an increase in GDP over a period of time
  - Modern Economic Growth has been caused by three major factors
    - Rule of Law + Contractual Rights (allows people to conduct business and protects interests in line with economic growth)
    - Labour Productivity (If I can produce more with the same amount of labor it increases output and frees some labor to be used in other fields)
    - The Industrial Revolution and other technological innovation
      - By increasing labor productivity and introducing new goods, services, and industries technology has increased economic output and quality of life exponentially over the last two centuries.
  - Economic Convergence
    - Poor countries tend to have faster economic growth because they can rapidly industrialize and provide a good opportunity to investors. This almost ensure that the third world and second world will begin to catch up
  - Because of this, industrialized countries today see growth rates of about 1-4% whereas industrializing nations see growth rates around 9%, which makes it lucrative to invest in such nations, which can further drive up economic growth.
    - This also tells us that China's economy probably won't overtake the US's because they have already begun to approach their industrialization limit and will have slowing economic growth.
  - Economic growth is important because it generally helps everyone in a nation. **As such, driving economic growth is one of the primary goals of macroeconomics.**

The Macroecon Outlook

- Say's Law — Supply creates its own demand (supply side economics)
  - Based on the idea that "the sum of the increase in values caused by all parties in an economy is equal to the money which they cumulatively earn." (An extension of homo economicus.)
  - In Layman's terms, this means that the value of whatever you create is paid to *someone*, including (possibly) yourself.
  - What Say's law says is that when you produce something, you end up employing and paying people, who then use the money you paid them to buy more things, which means more things are produced and more things are bought, etc. So, by increasing supply you drive economic growth.
    - Note that this is a simplification and that this law is much deeper than we make it out to be. In fact, it helped clear up a lot of economic fallacies and was fairly useful.
  - This law is not accepted by many modern economists, (Reagan is not an economist) so if you're perfectly justified in not agreeing with the 'law'.
- Keynes's Law — Demand creates its own supply (demand side economics)
  - This is the refutation of Say's law, which basically states the exact opposite of what Say's Law did. This is not a generally recognized term, just something used to refer to the basics of keynesian economics.
  - In essence, demand, like that from the government, compels more goods to be produced, which allows more goods to be demanded due to higher wages, etc.
    - Once again, we are over simplifying**.** A lot.

Fig 3.0: A perfect example of of Keynes's Law in action.

Aggregate Graphs

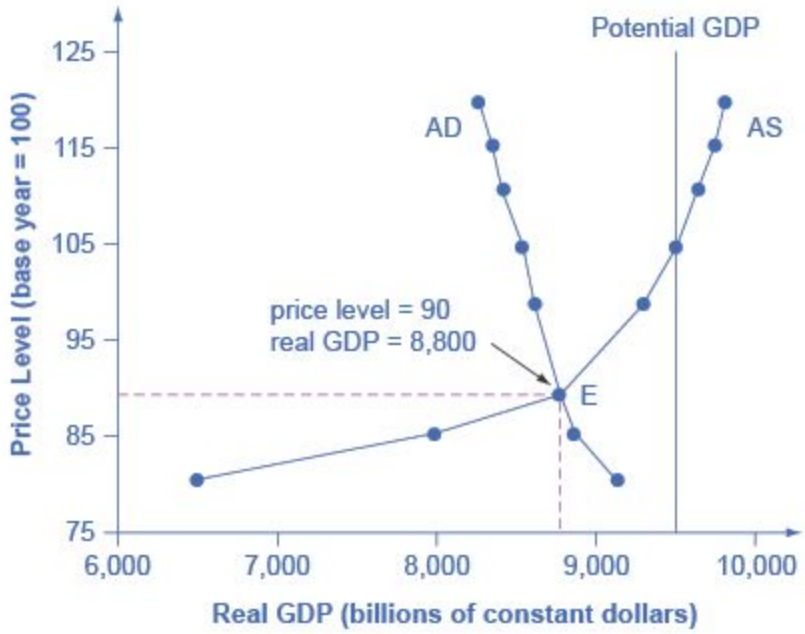

Fig 4.0: Aggregate Demand (AD) and Supply (AS). It is important to note that AD is decreasing and linear, and AS is increasing and exponential

- In macroeconomics we look at supply and demand curves of a total economy
  - Price Level — The average cost of all goods and services produced in an economy.
    - This replaces price from the normal Supply and Demand Curve
  - Aggregate Demand (Domestic Final Demand) — The total appetite of a system over some given time for all goods and services.
    - This replaces demand in the normal S&D curve.
    - This is determined by the same factors as consumption GDP (CIGNX)
  - Aggregate Supply (Domestic Final Supply) — The total amount of goods and services being sold over some given time in a system.
    - This replaces supply in the normal S&D curve.
- Potential GDP (a.k.a. Full Employment GDP) is the maximum sustainable output. There is only so much that can be made and bought, given the productivity of the population and current technology. This limit is the hard cap on GDP.

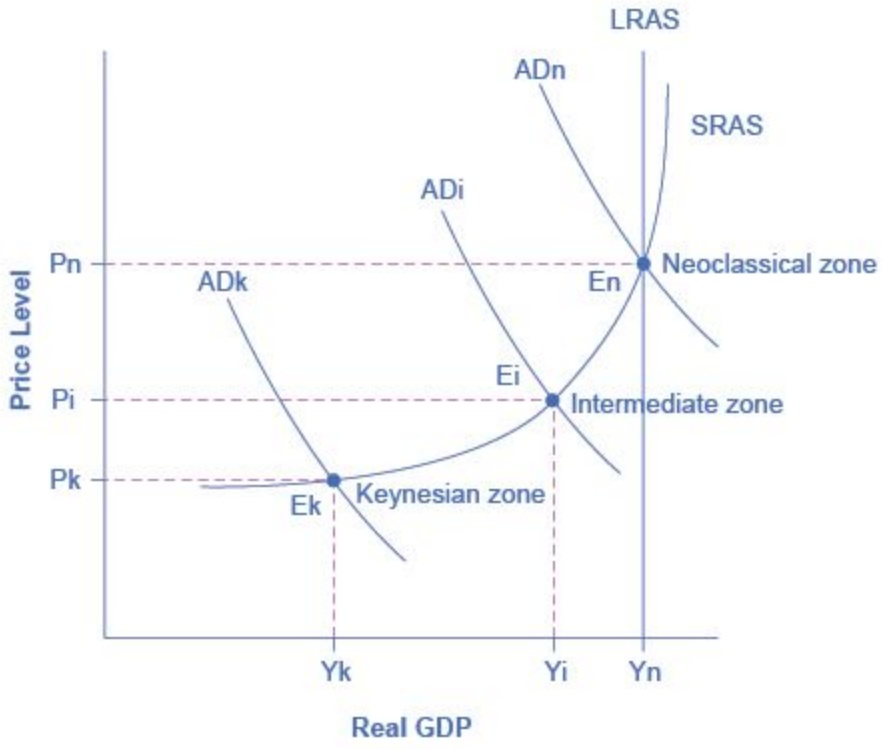

Fig 5.0: The graph of aggregate supply divided into Keynesian (approximately sublinear), intermediate (approximately linear), and Neoclassical (approximately superlinear) zones. What we are really saying is look at the derivative of the graph: in keynesian it is less than the slope of the demand graph, and in neoclassical it is greater.

- LRAS — Long Run Aggregate Supply (everything before Potential GDP)
- SRAS — Short Run Aggregate Supply (Everything after Potential GDP)
    - SRAS can exist because factories can, if incentivized by price, drive workers to work over time, invest heavily in more machines, run the machines at as higher rate, and build more factories all at an unsustainable rate.
- When the SRAS curve shifts to the left a lower quantity of real GDP is produced because although the GDP at the current price is decreasing, it also increases output.
    - Productivity Growth — How much output can be achieved with a given quantity of labor (high productivity shifts the curve to the right)
    - Input Prices — The prices of commodities used in producing goods (esp. raw materials and labor which are used across much of the economy)
        - An increase in input prices shifts the curve left, causing reduced GDP, higher unemployment, higher inflationary price.
            - Leads to stagflation (actually the ~~worst~~ AIDS)
        - A shift to the right, like lower oil prices that we see today, shifts the curve to the right by giving more incentive to produce commodities.

    - Supply Shocks temporary factors like a drought killing of crops or a war moving labor abroad.
- Aggregate Demand Shifts
    - If C, I, G, or NX increase, the curve shifts to the right
    - Consumer confidence also plays an important role here
- Economic Growth is represented by a shift to the right of the aggregate supply curve alongside a shift to the right of the Potential GDP.

What the 3 sections tell us:

- Under Keynesian conditions, the rate of change of the supply function is smaller than the rate of change of the demand function, so you should shift the demand function to cause the greatest increase in GDP.
- Under Neoclassical conditions, the rate of change of the supply function is greater than the rate of change of the demand function, so you should shift the supply function to cause the greatest increase in GDP
- Under Intermediate conditions, it 'generally' doesn't matter, do either. This zone is pretty small compared to the others.
- It just so happens that the graph, in reality, is almost always Keynesian.
    - Hush. Don't tell Reagan [or most other republicans.] It'll hurt his feelings.

Obama (Keynes) — Find ways to increase wages so that people will be able and willing to spend more and thus increase demand quantity, which will bring about supply.

Reagan (Neoclassical) — Find ways to make it easier for business leaders and investors, the wealthy, to use their money to make more stuff, which people will then want to purchase, that is, create demand.

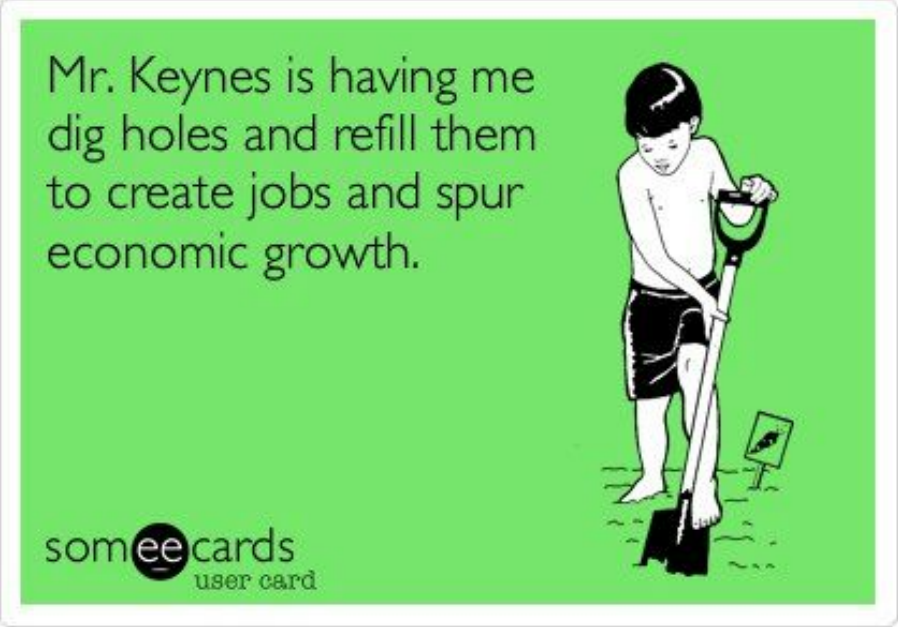

Fig 6.0: Yes, yes he is. And it works.