Productivity

Most important number in macroeconomics is the rate of growth of productivity. With a consistently high rate of productivity growth, a country will always become rich and vice versa.

Labor productivity = \frac{Output (O)}{Hours Worked (HW)}

Total Factor Productivity = \frac{Output (O)}{Index of inputs (Labor, capital, nat. res…)}

In this model, we assume that personal utility (U) is a function only of leisure (L) and consumption (C). In other words, you get no utility from working, which is why you get paid – you need to be compensated to give up your personal utility. It is assumed that work and savings are sacrifices and productivity measure how efficiently they are being used.

The Solow growth model:

\[ Output (O) = Ae^{rt} \cdot K^\alpha \cdot L^{1-\alpha} \]

So for the U.S., a 1% increase in labor results in a 0.7-0.8% increase in output. Similarly, a 1% increase in capital yields a 0.2-0.3% increase in output. The first term in the model is for disembodied technical progress, that is technology that is independent of buying a better machine or hiring more skilled workers (embodied technical progress is in K and L). This partly depends on the government (examples: congestion in Singapore, interstates in the U.S.). Deterioration of infrastructure results in lower private productivity. The point is that there is lots the government does that impacts private productivity.

Measuring per capita GDP in other countries

There are two ways to measure GDP:

2. Purchasing power parity (PPP) – measuring the cost of a basket of goods in local currency compared to average income in local currency

Using CV with an exchange rate of 100, Japan’s per capita GDP is $39,000 (more than U.S.) but with an exchange of 110, it is only $36,000. However, with PPP, we see that Japan is about 80% of the U.S., reflecting the fact that things are more expensive there than here. In general, for welfare and things, PPP is more accurate, but for tourists, CV is better. PPP is a person’s power inside their own country while CV is their power abroad. Currently, with CV, China is at $800, but with PPP, it is at $1800. Additionally, with CV, developed countries account for 25% of the world, but with PPP, they account for 50%.
Singapore

Singapore is an example of socialism done right (example: Singapre Airlines – gov’t run but consistently one of the best in the world).

In the U.S., per capita GDP is ~ $37,000 (or $36,000 depending on new census figures that include an extra six million people). Singapore currently has a per capita GDP of $22,000 but in 1965, it was only $500. This growth over the past 35 years is the best performance in the history of the world. How do you achieve this? How do you get things going from $500?

1. Export-led growth – in the 1950s and 60s, import substitution was the big theory for building efficient economies. However, no country had ever made it work because there is no incentive to become efficient under government protection (no competition). Singapore instead focused on export-led growth to become competitive abroad (Japan offered domestic protection only if a company also exported, which also forced efficiency).
2. Seaport – Singapore had a great natural resource in the location of its seaport as all shipping passed within a few kilometers of its shore. This sparked an infrastructure-as-growth strategy.
3. Economic Development Board (EDB) – this allowed for one-stop shopping in obtaining rapid easy permits for development. The EDB streamlined the licensing process instead spreading it over several agencies and dragging it our for months. In this area, speed is the key.
4. Honest government – there was no bribing or corruption, which is extremely important.
5. English – government changed national language to allow easier communication with the rest of the world and to spur growth.
6. Capital – Singapore mobilized resources: they forced 40% of gross wages to be saved (20% by the employee plus matching funds from the employer) and the need to save more for major purchases drove the private savings rate north of 50%. Government savings was also high – up to 1/3 of GDP.
7. Housing Development Board (HDB) – Singapore built lots of houses and made it a home-owning society. They have a highest percentage of home ownership in the world (including U.S.). Giving people more houses is a powerful way to maintain the society because it gives people a vested interested in the infrastructure.
8. Education – in addition to educating kids very well, the government educated more males so that there would be more marriages (educated females hardly ever “married down”).

So is this socialism? Not really because the public companies are run the same as capitalistic companies. There is still fierce competition as the government just owns the companies and doesn’t “run” them.

With this plan, though, output goes up but productivity doesn’t. In contrast, the U.S. in the 1900s had a huge mobilization of labor. Ninety-eight percent of the population was then agricultural and while farmers work intensely, they have lots of down time (the winter months) and total
working time was only around 1000 hours per year. During industrialization, many farmers migrated to the cities and started working in factories, where they worked up to 3700 hours per year. This caused a huge growth in productivity. To compare, the average worker today in the US works 2100 hours per year, in Europe 1900, and in Japan 1700. This leads many to argue that Singapore’s phenomenal growth is all superficial and cannot be sustained because productivity has not kept pace.

Population growth

It is impossible to become a rich country with an annual population growth rate greater than 1%. The three most successful countries over the past 100 years (Japan, Germany, and USA) all had high GDP growth rates with population growth rates around 1%. To contrast, the absolute human maximum (all women pregnant all the time) is 4% - at 4%, the U.S. would add 11,000,000 people every year. To bring everyone up to average GDP would cost $410,000 each ($250K in capital, 80 in education, 30 in housing, 50 in infrastructure) for a total of over $4 trillion (!) which is over 40% of GDP. So to grow at such a population rate, the GDP would have to grow at greater than 40% per year which is impossible. This is why China (at 1% population growth) is so far ahead of India (at 3.7%). Singapore’s population is miniscule compared to the U.S. which makes it easier to control.