

**STEG Virtual Course on
"Key Concepts in Macro Development"**

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Lecture 1: Empirical overview of macro development

[Richard Rogerson \(Princeton\)](#)

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Q: What is the difference between traditional growth theory and macro development? (As the key question in growth theory seems to be the same)

A: My own answer might be, in part, that the macro development literature is going to engage much more closely with micro data and micro development issues than has typically been true of the growth literature. The growth literature has seldom pushed below relatively aggregated data, and the emerging macro dev literature is often trying to work with models that start from micro data.

A: I think growth generally focuses on rich countries and, traditionally, only aggregates, whereas macro development thinks more about the economic realities of developing countries, much of which brings up broader distributional issues as well (e.g., sectoral gaps, urban vs. rural, etc.).

Q: How does the problem of measuring purchasing power translates to measuring aggregate productivity and labor market efficiency across countries?

A: The purchasing power issues across countries are of course important for making comparisons of aggregate productivity and labor productivity. Understanding efficiency is more complicated... And the purchasing power issues across countries have analogous issues in comparisons over time and even across locations within countries. We typically want to make lots of comparisons in 'real' terms, but the data tend to arrive in various complicated 'nominal' forms...

Q: Couldn't differences in workers/population be driven by the same kinds of labor misallocation problems that lead to differences in productivity per worker, e.g. misallocation into the household sector, wage controls that push people out of the labor force, etc.?

A: Yes. Treating the workers/population ratio (i.e., labor force participation) as an endogenous outcome is important. It is surely subject to a variety of incentives, distortions, and other forces. And it is heavily gendered; we probably need to think carefully about the relationships between home

production and market production. Some great recent work on this topic that will come up in Rachel Ngai's lecture in a few weeks.

Q: Is there a good standard reference which documents this observation (that covariance between GDP/worker and Worker/Capita is not very high, and hence can be ignored)?

A: Funnily enough, I don't have anything off the top of my head. But perhaps others do??

Q: On the flat part of the chart... was it the same all over or there was no data??

A: I'm also curious what the sources for such historical data are.

A: I believe the reference is Maddison (2008) but beyond that someone else will have to say.

A: It's not that there's no data... It does reflect a serious effort to produce quantitative measures of per capita income in different countries at different dates. But obviously there were no GDP statistics collected in the 1200s, so these data are reconstructed from the available data sources. The Maddison data have a lengthy appendix!

Q: Until now, I am not convinced that GDP per capita is a good measure of economy's progress especially in countries where there is a lot of income inequality. Is there a better measure of economic progress for such countries?

A: I think none of us would try to defend GDP per capita as a measure of well-being or social progress. We often study it because it is nevertheless interesting. Understanding changes in GDP per capita is useful, even if it has nothing to say about inequality -- and very little to say about environmental harm, cultural integrity, or social factors that we might care about.

A: Perhaps Jones and Klenow provides a way to measure it in their paper Beyond GDP? Welfare across Countries and Time (AER 2016)

A: yes, especially in the context of developing countries. perhaps a review of the 'basket of commodities' which basically translates into the essential proxies of growth must be given attention.

A: There are, of course, other measures such as the Human Development Index or (an advertisement here for my colleagues in Oxford) the Multidimensional Poverty Index, that try to provide more complete understanding of well-being.

A: I would strongly recommend Diane Coyle's book: GDP: A Brief But Affectionate History where she also talks about alternative measures.

Q: By exogenous model, do we refer Solow's?

A: Yes, typically that's the model that we tend to think of... There are other exogenous models too, of course, but the Solow model is probably our shared mental model.

Q: Can we say something about the sense in which development accounting tells us something causal? The language in the Jones article, or others that discuss it, is that it is a "diagnostic" exercise.

A: Great question. My own answer is that development accounting is not intended to tell us anything causal -- but rather to shape the space in which we develop theory and models. An accounting exercise can help us think about where to look... In that sense, it points us towards

interesting questions, but it certainly doesn't provide causal answers (or even allow us to pose causal questions).

A: Thanks! I would love to hear more about that. I was thinking about a growth accounting exercise in a simple Solow model. We'll attribute some fraction of growth to capital accumulation, but in that model the *only* thing causing growth is the exogenous productivity process.

A: Even in the growth accounting framework, the kind of 'decomposition' exercise cannot in any sense be interpreted as a causal story. But it might tell you (for instance) that there is something important to understand in relation to productivity growth.

Q: I would like to know if an external shock like COVID-19 pandemic can shuffle the order of countries in terms of levels? Will it give an advantage for lower income countries to reduce the gap? Or will it make the situation even worse for them?

A: I think this is a great question but also really difficult to answer with any real clarity. There are lots of potential scenarios for how COVID-19 will affect the growth processes of different countries, and we don't have great tools for predicting which scenarios will hold.

Q: How can we expect the Covid shock to alter the distribution of global income, in light of the historical evidence of divergence? Assuming a smoother shock (and faster recovery) in more developed countries, it would be possible to find a wider income gap between the most poor and the top rich by the end of this decade, or perhaps sooner.

A: I'm not sure I can think of a harder question!! I hesitate to answer this. I'm not sure we have the tools to say anything that would be really well founded. Your idea seems plausible, but I could imagine a whole range of other scenarios, and I don't know how to think rigorously about which scenarios are most likely.

Q: Can you speak to what the ICP's basic strategy for assessing differences in standards of living is? As they cannot use the common basket approach.

A: They collect micro data and form international PPPs at the category level using the GEKS method. Here is a decent overview: <https://www.worldbank.org/en/programs/icp/brief/methodology-calculation>

A: There are a number of documents available on the ICP website that might give some help in understanding their methods. Here is a link to one document; many others on their website: <https://www.worldbank.org/en/programs/icp/brief/methodology-calculation>

As I (imperfectly) understand it, the key point is that they use prices for a range of goods to construct aggregates at the level of categories. These are then used to deflate nominal GDPs. The benefit of this approach is that it doesn't require that all countries have exactly the same goods -- but they do have the same categories, if they are broadly defined.

Q: somehow, i wanted to chew more on that 45 degree line graph. How countries above the line are different from those below

A: Just to add that you might want to interpret those deviations with caution, because measurement is not a trivial issue.

Q: Is A hat t exogenous?

A: You might want to think about A hat being exogenous for some countries and endogenous for others. For a lot of developing countries, the world technology frontier is probably moving exogenously.

Q: Can that A hat reflect the idea of misallocation?

A: I think that would be in $A \sim$.

A: Probably the world technology frontier shouldn't be viewed this way, but individual countries might sit inside that frontier based on the extent of misallocation *within* the country.

A: I would disagree on this. At least per definition given, the US should have $A \text{ tilde} = 1$ since it is the frontier. In the Jones paper, they cite the great recently published paper by Hurst, Jones, et al on how reallocation of talent in the US (putting women and people of color in better work positions) drove a good chunk of US frontier growth.

Q: Why are countries the relevant level of aggregation. Is it driven by data availability or is there a theoretical reason?

A: Great question. In some cases, we might want to think about sub-national units. And in other cases, we might want to think about regions. But I think you are right in supposing conjecture that countries are a useful level of aggregation precisely because we have a lot of data at the country level. And because many important policies are implemented at the country level, so that we can arguably treat countries as useful units of observation.

A: Just to follow up, much of the reason that data is more available at the country level is because country borders matter tremendously for both policy and almost any economic phenomenon. There is an old international economics literature about how wide is the border between countries, i.e., how much distance within countries does a border equate to. Yet, there is also a lot of important spatial disparity within countries, especially poorer countries, and there is a lot of increasing availability of disaggregate data (e.g., satellite imaging on night time lights, etc.) that is spurring a lot of spatial economic research.

Q: More of a comment, which is also mentioned in the Jones paper: Frontier growth and relative position here does not only mean technical innovation, but also more efficiently allocating and using existing resources. E.g. letting more women and people of color become doctors, engineers and scientists.

A: I think the paper *The Allocation of Talent and US Economic Growth* (ECTA 2019) may answer your question to some extent.

A: That's exactly the paper I was referring to and that is cited in the Jones paper.

Q: What if poor countries, far from the frontier, adopt technologies at the frontier?

A: This would allow them to move closer to the world frontier. They would still face whatever *within-country* productivity constraints characterize their economies.

Q: Since this model predicts that growth is determined by the distance from the frontier, does it mean that poor countries need to look for other alternatives to achieve growth rather than focusing on technology as the main gateway?

A: Great question. But I think it means that they can focus on *adopting existing technologies* rather than necessarily inventing new technologies. And they can focus on making efficient use of the technologies that they already have.

A: Your question is discussed and provided answers by Ha Joon Chang in his book called Kicking Away the Ladder.

A: Thanks a lot. it means we will go back to the whole argument of whether globalization is really good/bad for poor countries. Ha Joon Chan basically suggests that poor countries must use the tools developed countries used instead of trying to open their economies.

A: I am really curious if there is any study in the literature which checked and provided some causality insights (e.g. Granger causality etc) on development paths adopted by countries random or dependent of other countries choices.

A: Others in this thread are right that this is a highly contested issue. Lots of questions that are actually very hard to answer with data. I don't think that simple econometric techniques can answer this. But these are great policy questions, and of course they matter a lot!

Q: Is there an importance of how countries at different levels may interact with each other, particularly in a globalised economy? In other words, can the positions of some countries have more permanent influences over the levels of other countries?

A: A really interesting and complicated question... Not sure there is an easy answer. We are still trying to grasp the ways in which countries interact. Many of our models look at closed economies in isolation; others look at the global economy as a whole. A lot of interesting questions about what happens in the middle...

Link to the Buera et al paper http://www3.nd.edu/~jkaboski/bkt_jel.pdf

Q: Is there now a missing stepping stone towards the frontier with the automation of manufacturing?

A: A big, big question. I don't think we really know whether manufacturing is actually essential. That is an open question in itself! It's often taken for granted.

Q: In a country where data do not explain the reality yet researchers use such data to investigate and find out about certain phenomenon. the result is always disastrous. how can we then explain about the development or growth about the economy?

A: There aren't good answers here -- except never to take data at face value. We need to read data critically, both in terms of the integrity of data collection processes and the fundamental challenges of measurement.

Q: Is it true that TFP frontier can only be pushed higher, but not dragged downward? For example, industrial revolution can be regarded as a permanent positive shock on the TFP frontier, but I can't come up with any permanent negative shock.

A: I wonder if global climate change isn't at least a very persistent TFP shock, as the relative value of land in different places changes and some of it becomes unusable.

A: In historical terms, you could probably find moments when the world technology frontier has moved backwards. But you're right that unless knowledge is lost, this should not happen.