On the 50th Anniversary of the International Comparison Program

Angus Deaton, address at the World Bank, May 23rd, 2018.

Welcome to the 50th anniversary of the world's largest and most ambitious statistical program, the International Comparison Program. This is its Jubilee year, and it is certainly a time to celebrate its achievements. Permit me to start by quoting something I wrote a few years ago:

The rounds of the International Comparison Project are like successive Olympic Games. Like the Olympics, they do not happen every year, and in the first modern games only a few countries sent competitors, there were only a few events, and standards of competition were relatively low. Yet the first modern Olympics was a watershed, which eventually grew into the record-breaking, professional event that it is today, in which almost all of the nations of the world come together in a truly global competition. The ICP began in 1968 with Irving Kravis, Alan Heston, and Robert Summers from the University of Pennsylvania, and Zoltan Kennessy from the United Nations. The first round in 1967 had only six countries with four more added in 1970, and prices were collected for only a small range of goods and services. Since then, each round has become bigger and better (and more expensive), with more countries represented, with the involvement of more and more professional statisticians and economists, and with lots of preparatory training in the form of expert workshops, theoretical papers, and figuring out how to deal with problems that could not be solved in the previous round.

Indeed, it has been such a success that, from now on, it will be an annual event as a fully established part of the international statistical architecture.

Alan Heston has written a fine history of the ICP, and of its predecessors. You can find it on the Groningen website, along with the current version of the Penn World Table. Google "Groningen Alan Heston's ICP Memoirs."

How did this tiny project turn into the huge enterprise that we see today? And why is it so important to the Bank and to the Global development community?

A good place to start is the fact that if you take a US dollar to Delhi and change it at Indira Gandhi airport, you will get about 68 rupees. If you then take your 68 rupees out into the city, you will be able to buy almost four times as much as your dollar bought you in Washington. What is a dollar really worth in India? To find out, someone has to collect prices in India, and to collect prices in the US, and then to average them in some way into a *price index*. It is this price index, also called a purchasing power parity exchange rate, or PPP, that does the job, not the current exchange rate. But why, apart from idle curiosity, is this price index useful. And what justifies the cost of collecting prices on thousands of goods and services in hundreds of countries around the world? Maybe exchange rates are good enough for many purposes, and maybe the law of one price—what Alan likes to call the FLAW of one price—is a reasonable approximation?

A very substantial amount of development discussions run in terms of comparative statements about countries. Poor countries versus rich countries, the relative size of national economies, or which countries have more of the globally poor. Some of these discussions can be handled using national accounts converted at market exchange rates; for example, the Bank's classification of countries by income do not use PPP exchange rates, and that works because the *ranking* of countries in terms of PPPs is not very different from that in terms of exchange rates. But the sizes of the countries are quite different. China is bigger than the US in PPP terms, but not in exchange rates. Development practitioners need to know on a daily basis what local wage rates mean compared with other countries, for which they need to know what can be bought with them. International organizations constantly need to compare living standards across countries. And more formally, if we are to have a global poverty line that applies everywhere—as is required by the Sustainable Development Goals—we need to go beyond exchange rates that are so deeply misleading in comparing living standards across countries.

My late colleague Uwe Reinhardt used to teach accounting at Princeton, a course for which there was great student demand, but very little faculty supply. But Uwe loved to teach it. He was frequently asked why accounting was so important, and his answer applies even more strongly to international accounting for international organizations. He said that without accounting, there is no accountability. If the World Bank is to achieve its dream of a world free of poverty, or to be held accountable to its member governments, it needs PPPs as a central part of its accounts.

I am an academic, and not a development practitioner, and I don't work for the World Bank. I want to say something about the ICP from an academic perspective. It always surprises me how little most economists know or understand about the ICP, and many seem to regard it as an essentially mechanical price collection exercise. But it is a great deal more than that, and those who dismiss it often don't understand how intellectually rich and challenging the topic is.

Price index theory is a staple of economics courses, or at least used to be. But the standard theory applies to comparing two situations, either two time periods, 2018 versus 2015, or two places, New York versus Los Angeles, or India versus China. The ICP needs more than this. Instead of bilateral price indexes, it needs multilateral price indexes, that work for a whole bunch of countries at the same time. Which countries? Just rich ones? Like an EU set of indexes? Or for the whole world? Do multilateral indexes have a basis in consumer theory similar to bilateral indexes. Exactly which prices are we supposed to compare? How do we compare a shirt in France with a shirt in Mali? Should we use the identical shirt, even though a French shirt costs a fortune and is hardly ever bought in Mali? Or should we use a "representative" shirt in France and compare it to a "representative" shirt in Mali?

None of these issues is completely settled, though there is more agreement on some than on others. Many have been worked on for a very long time. Gini, Corrado Gini, who most of you here probably know in a different context, made an important contribution in the 1920s.The trade-offs between matching, on the one hand, and representativeness, on the other, has been a challenge to the ICP since very early days, and remains so today.

Thinking about all of these questions is an immensely rewarding activity.

Even so, these theoretical issues are secondary compared with the practical ones, of collecting data, and on questions like how to handle the balance of trade, how to measure "comparison resistant" items, like housing, or construction, or how to measure the extent to which

Singaporean civil servants are more efficient than Congolese civil servants. All of these questions have their counterparts in national income accounting, and the work of the ICP has always been a collaboration between academics and professional statisticians from international organizations, as well as from national statistical agencies responsible for domestic national accounts. For me, the highest pleasure of working on the ICP has been this collaboration of widely different skills and of contributing to something that no one could have done on their own, or at least no one but Alan Heston!

While it is true that calculating PPP-based national accounts almost always has parallels in domestic national accounts, there are often unexpected differences. For example, when we calculate a domestic price index, say for 2018 relative to 2000, we know that we can use base period weights or end-period weights, giving us either a Laspeyres or a Paasche index. In national accounting, those are not usually very far apart, perhaps within five percent. But this is not at all the case for international comparisons. The ratio of the Laspeyres index to the Paasche index for China versus the US is around 1.7, for Russia 1.8, and for a few African countries more than 4! In his memoir, Alan tells the story of Irving Kravis, about to fly back to Penn to teach, was so horrified by the Laspeyres to Paasche difference for Italy, that he canceled his flight and stayed in Paris in order to check the calculations. The ICP is full of surprises.

I'd like to give two examples of important literatures in economic development that were made possible by the ICP. First, in 1978, Kravis, Summers, and Heston published a paper in the *Economic Journal* which contained PPP versions of GDP for more than 100 countries. In 1979, in a paper in the *Journal of Development Economics*, Montek Ahluwalia, Nicholas Carter and

Hollis Chenery, used those PPPs to take a poverty line, drawn from Indian data, to estimate poverty counts for 36 countries using the Indian line converted at PPP exchange rates. This was the beginning of the World Bank's global poverty counts. Under the direction of Martin Ravallion and his colleagues, these counts became famous the $1-a-day counts; today, the line is $1.90 per person per day.

My second example comes from the 1991 paper by Summers and Heston in the *Quarterly Journal of Economics*. This contained the results of Mark 5 of the Penn World Table, which provided estimates for up to 39 years for 138 countries. These data were the foundation for a new wave of empirical work on economic growth. An economic growth group was established at the National Bureau of Economic Research under Robert Barro. And hundreds of papers were written running cross-country regressions on the determinants of economic growth. Later, many of those were extended to examine whether, and to what extent, aid helped recipient countries grow more rapidly. As with all such waves, there was a good deal of criticism of the whole idea of cross-country regressions. Yet, this is wrong, if only because, without formal econometric analysis, we are left with competing anecdotes undisciplined by serious consideration of empirical evidence. While these regressions have not unlocked the secrets of economic growth, nor settled the debates about the effectiveness of aid, that was too much to expect of them. But the analyses using that Penn World Table have organized the data in a coherent and comprehensive way, and revealed a large body of stylized facts to shape the discussion, facts that are infinitely superior to the anecdotes and stories that we had before.