Statistics for Colonial Rule, for the Independence Struggle, and for Inclusive Development

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Introduction (1)

- In this conference we will discuss many technical dimensions of statistics:
  - design of household surveys,
  - compatibility between household survey based aggregates and national accounts aggregates,
  - measurement of informal activities,
  - new technology and big data
  - randomized control trials
  - etc etc

Introduction (2)

- I suspect, however, that there will be little discussion from the perspective that statistics are fundamentally political in nature and in import.
- These political dimensions are often not mentioned in polite technical society.
- I thought I would start this conference by introducing the issue in a particular, historical, context.

Introduction (3)

- What I would like to do is to look at statistics during the period of colonial rule, during the independence struggle and during the post independence period in one country, India, focusing in particular on statistics on poverty and well being.
- I hope you will agree with me that it is an interesting and instructive story.

Introduction (4)

- As I hope to show, throughout history it is not just the numbers, it is the use to which they are put which matters.
- A humorous account of this is given in the frontispiece of Stuart and Kendall's classic text The Advance Theory of Statistics. It is an extract from a story "The Taming of Lamia Gurdleneck."
- You have to imagine Lamia as a demure Victorian heroine, and Lady Nuttal as her formidable aunt, who is grilling Lamia about her marriage prospects:

Introduction (5)

“You haven’t told me yet,” said Lady Nuttal, “what it is your fiancé does for a living.”

“He’s a statistician,” replied Lamia, with an annoying sense of being on the defensive.

Lady Nuttal was obviously taken aback. It had not occurred to her that statisticians entered into normal social relationships. The species, she would have surmised, was perpetuated in some collateral manner, like mules.

“But Aunt Sara, it’s a very interesting profession,” said Lamia warmly.

“I don’t doubt it,” said her aunt, who obviously doubted it very much. “To express anything important in mere figures is so plainly impossible that there must be endless scope for well-paid advice on how to do it. But don’t you think that life with a statistician would be rather, shall we say, humdrum?”

Lamia was silent. She felt reluctant to discuss the surprising depth of emotional possibility which she had discovered below Edward’s numerical veneer.

“It’s not the figures themselves,” she said finally, “it’s what you do with them that matters.”

Statistics and Colonial Rule (1)

- Statistics in Antiquity:
- From the *Arthashastra* by Kautilya (around 300 BC in India). Duties of a King:

Statistics and Colonial Rule (2)

First 1½ hrs. after sunrise	Receive reports on defence, revenue, expenditure
Second 1½ hrs. after sunrise	Public audiences, to hear petitions of city and country people
Third 1½ hrs. after sunrise and last 1½ hrs. before noon	Receive revenues and tributes; appoint ministers and other high officials and allot tasks to them
First 1½ hrs. after noon	Write letters and dispatches, confer with councillors, receive secret information from spies
Second 1½ hrs. after noon	Personal: recreation, time for contemplation
Third 1½ hrs. after noon and Last 1½ hrs. before sunset	Inspect and review forces; Consult with Chief of Defence

Statistics and Colonial Rule (3)

- All rulers have needed statistics to monitor and control the populations they ruled, and colonial rulers are no exception. The British were particularly reliant on data in India (and indeed elsewhere in their empire). Here are only two of the vast set of economic records that are available:
  - Economic Department Records: The records of a group of related departments responsible for a wide range of economic, technical and social questions. The departments were variously named Revenue, Statistics and Commerce (from 1858 to 1924), and Industries, Overseas, Communications and Economic (from 1921 to 1947). Their records deal particularly with land revenue, agriculture, trade and industry, and increasingly with other aspects of the social infrastructure such as census, posts, telegraphs and civil aviation.
  - The Financial Department records are concerned with the financial policy of the Government of India: banking, currency and exchange, debts and loans, mints and coinage, audit principles, pay and pension rules, taxation, and public expenditure. The earlier Company financial records which are also included are more varied in character, and the records as a whole are informative on the home establishment of the Company and the India Office, on the post office, and on railways and public works finance.

Statistics and Colonial Rule (4)

- Among the records is a series entitled “Statement Exhibiting the Moral and Material Progress and Condition of India” which is the official report of the colonial India Office to the British Parliament.
- Of particular interest is the report for 1906-07. The editor of the document for the year was none other than **John Maynard Keynes**.
- Keynes had finished his Mathematical Tripos at Cambridge, had stayed on an extra year to take the Civil Service exam, had been ranked second among 104 candidates, and was appointed to the India Office in London.
- Keynes’s first appointment in the India Office was in the Military Department, but he was soon transferred to the Revenue, Statistics and Commerce Department. Thus one of the greatest economists of all time got his start in Colonial Statistics.

Statistics and Colonial Rule (5)

- Keynes reacted strongly to the appointment of a Chartered Accountant as the Director of the Department of Statistics:
  - it is absurd to suppose that it is still possible to prepare and present statistics in the most compact, most informing and least misleading manner without special knowledge - and the more mathematics and economics this special knowledge includes the better. Such special knowledge the present Director General of Commercial Intelligence has not got (as his otherwise admirable Review of Indian Trade immediately shows - e g, his account of the balance of trade or the extremely unscientific character of the index number which he published): and surely this is an admirable opportunity for supplementing his ignorance by the appointment of a real trained statistician.

Statistics and Colonial Rule (6)

- But Keynes became well aware of the political dimensions of statistics, as shown by the correspondence between him and his superior A.T. Holderness on the Material and Moral Progress report. Keynes was “requested” to reconsider the presentation of certain mortality statistics in the first draft of the report.
- Keynes was at the India Office 1906-1908, but his fascination with the Indian economy and Indian statistics continued. He published “Recent Economic Events in India” in the *Economic Journal* in 1909, and wrote letters to the *Economist* magazine about statistics on British direct investment in India.

Statistics and Colonial Rule (7)

- Keynes was one of many British economists and statisticians who worked on colonial matters. Another such person was the lifelong Indian Colonial Service official Sir Malcolm Darling, whose 1900 book “The Punjab Peasant in Prosperity and Debt” compiled detailed information on credit in the Indian province of Punjab from official sources and special surveys.
- This book makes an appearance in a modern classic known to all economists, George Akerlof’s Nobel Prize winning paper “The Market for Lemons”:
  - “A second example of the workings of the Lemons Principle concerns the extortionate rates which the local moneylender charges his clients…. The leading authority on this is Sir Malcolm Darling. See his Punjab Peasant in Prosperity and Debt.” (George Akerlof, “ The Market for Lemons”)

Statistics and Colonial Rule (8)

- The British colonial rulers collected statistics on “moral and material progress” in their colonies, India in particular, no doubt to further the argument on their “civilizing mission” to justify the benefits of colonial rule for the colonized.
- But they had therefore set up a system which also collected information about the bad times.
- The various famine reports of the colonial era are full of statistics on grain production and the like, from official sources as well as from special surveys conducted for the purpose.
- For example, the Famine Inquiry Commission on the West Bengal Famine of 1943 also used official statistics to report to Parliament about the outcome and the causes of the famine. It was these very data that Amartya Sen later (in the 1970 and 1980s) engaged with and supplemented in developing his seminal critique of famines as resulting from food shortage.

Statistics and the Independence Struggle (1)

- Famine statistics provide a good lead into how those fighting for independence from British rule in turn used statistics to further their cause.
- If the colonial rulers were using statistics to measure “moral and material progress” to in turn justify colonial rule, then the freedom fighters would use the same device to show the depravations of colonial rule in India.
- An early example of this is Dadabhai Naoroji’s 1901 book “Poverty and Un-British Rule in India”:
  - My object…is to show…that under the present system of British administration India is suffering seriously in several ways, and is sinking in poverty.”
- A selection from the Table of Contents shows that he means this to be an empirical exercise:
  - Total Production of India…Calcutta Statistical Committee…Fallacy of its Statistics…How statistics should be Compiled…Income per head…Necessary Consumption…Cost of Subsistence…Subsistence per head…Production Compared with the Cost of Living… etc etc

Statistics and the Independence Struggle (2)

- As the independence struggle intensified in the 1910s and especially the 1920s and 1930s, the use of statistics and analysis on the state of the poor in India also intensified.
- For example, in 1930 the Gokhale Institute of Economics and Politics was founded as a research institute and began to produce a slew of work documenting the state of poverty in India. It is named after one of the early heroes of the Indian independence movement.

Statistics and the Independence Struggle (3)

- This use of statistics on poverty and wellbeing meshed with another tendency in Britain itself.
- Statistics were of great importance to the great Victorian reformers, and became of even greater importance in the early years of the twentieth century. There was a belief that if the true state of affairs on poverty could be demonstrated empirically, then reform would follow.
- Thus Seebohm Rowntree's study of poverty in the British city of York in 1900, which conducted a household survey and compared consumption to a poverty line, was not just analytical in purpose—it was also deeply political.

Statistics and the Independence Struggle (4)

- This empirical tradition was also a hallmark of the Fabian socialists who came to prominence as the 19th century turned into the twentieth century.
- Perhaps the best marker of this trajectory was the founding of the London School of Economics in 1895 by those two Fabian socialists Sidney and Beatrice Webb.

Statistics and the Independence Struggle (5)

- And of course many of the leaders of the Indian independence struggle studied in Britain at exactly this time in history, most famously Jawaharlal Nehru who led the struggle with Mahatma Gandhi and went on to become India's first Prime Minister. Nehru studied in Cambridge 1907-1910.
- Another person worth noting in this story is P.C. Mahalanobis, who studied at Cambridge 1913-16. Mahalanobis returned to India and set up The Statistical Laboratory in Calcutta, which later became the Indian Statistical Institute.

Statistics and the Independence Struggle (6)

- The National Planning Committee of the Indian National Congress, headed by Nehru, produced a report in 1936, which was referred to by Nehru in his book Discovery of India:
- “there was lack of food, of clothing, of housing and of every other essential requirement of human existence” and independence was needed “to ensure an adequate standard of living for the masses, in other words, to get rid of the appalling poverty of the people.”
- Nehru wrote these words in prison, having been put there by the British authorities for his role in the Quit India movement of 1942.

Statistics and the Independence Struggle (7)

- So it can safely be said that at independence in 1947, India had a set of political and technical leaders who had seen the value of statistics, particularly statistics on the wellbeing of households and individuals, in the independence struggle itself.
- And since independence was meant to advance the wellbeing of citizens, it is not surprising that such statistics continued to be important in India after independence.

Statistics for Inclusive Governance (1)

- The story of Indian statistics after independence in 1947 is quite involved, covering many dimensions, and is intimately linked to the strategies of development.
- From a very early stage, household surveys played a crucial role alongside conventional national accounts statistics.

Statistics for Inclusive Governance (2)

- The Indian National Sample Survey (NSS) was started in 1950, three years after independence.
- It was run out of the Indian Statistical Institute, which was headed by none other than P.C. Mahalanobis.
- Mahalanobis was also responsible for the models behind the first two five year plans (1951-56 and 1956-61). These plans were dominated by the thinking of the Soviet Union model of industrialization, with income distribution not being paid much attention.

Statistics for Inclusive Governance (3)

- By the time of the Third Plan (1961-66) distributional questions had come to the fore and with it the National Sample Surveys also became important, especially in providing estimates of poverty.
- The Indian poverty line was established in 1962 and ever since then the poverty line and poverty measures, their levels and trends, have dominated Indian policy discourse.

Statistics for Inclusive Governance (4)

- The Indian experience shows that poverty data and how they are generated is not simply a technical matter. It is deeply political.
- As Winston Churchill famously said:
  - "The first lesson that you must learn is, when I call for statistics about the rate of infant mortality, what I want is proof that fewer babies died when I was Prime Minister than when anyone else was Prime Minister. That is a political statistic."
- As already noted, Keynes also faced "requests" from his superiors on the Material and Moral Progress Report.

Statistics for Inclusive Governance (5)

- There are many examples of how the official statistics play into poverty estimates, and thus affect debates on policies and governance.
- For example, poverty statistics and Center-State fiscal allocations.
- What should be clear is that statistics are not apolitical.

Statistics for Inclusive Governance (6)

- In the Indian case, the big issue in the last quarter century has been whether the economic liberalization which started in 1991 led to a fall in poverty or not. This led to what some have called The Great Indian Poverty Debate.
- There are many dimensions to this debate, but there are two issues which illustrate how seemingly arcane matters of questionnaire design can become important in the political economy of the poverty discourse.

Supplement A: Survey Recall Loss and Poverty (1)

- Every consumption survey has to have a recall period—what period is the consumption question being asked about? 7 days? 30 days? 365 days? The issue is relevant because of the lumpiness of purchases, for example of durables. But it is also important because of "recall loss". Typically, the flow rate of consumption recorded is lower the longer the recall period.
- For inter-temporal comparisons, clearly the recall period should be kept the same. The 1993-94 round of the NSS had a 30-day recall period for food expenditure. The 1999-2000 round included both a 30-day and a 7-day recall period in the same module to enable an estimate of recall loss. Comparing consumption aggregates from the 30-day recall period in the 1993-94 round and the 1999-2000 rounds, official publications claimed that poverty fell from 36% to 26% over this period.

Supplement A: Survey Recall Loss and Poverty (2)

- However, it was argued by many that the presence of the two recall periods together contaminated the 30 day recall period—individuals would tend to equalize flow rate across the two questions and thus the 30 day recall period flow rate was biased upwards. Thus consumption in 1999-00 was estimated artificially high, and thus poverty was estimated artificially low.
- Of course, the poverty comparison between 1993-94 and 1999-00 was not at all an innocent technical exercise. This was the period of liberalization, and a lot was at stake politically on whether poverty declined or not.
- The best description of the outcome of the debate is as a stalemate. Neither side "won", and we had to wait for the next major round of the NSS for the poverty debate to resume with confidence in the data.

Supplement B: Intra-household Inequality (1)

- Our standard headline measures of poverty and inequality are understated because, by design, they suppress intra-household inequality.
- There are very few studies of the quantitative magnitude of this mismeasurement, but a 30% error is not an unreasonable estimate (Kanbur, 2016)

Supplement B: Intra-household Inequality (2)

- Furthermore, an understatement of inequality leads to an overstatement of the growth elasticity of poverty reduction—an over optimism on the impact of growth on poverty reduction.
- The issue of missing intra-household inequality is surely one of the biggest problems with our household survey based headline measures of poverty and inequality.

Supplement B: Intra-household Inequality (3)

- What to do?
- Too much to expect that national sample surveys will collect individual level consumption data.
- What we need is a concerted program of smaller scale specialist surveys which begin to build an evidence base on the quantitative magnitude of the mis-measurement.

Supplement C: SDGs and NSO Budgets (1)

- The SDG process, and the specification of goals in quantitative terms, has brought statistics to the fore.
- But it also raises two sets of issues, one of which has been present historically, the other of which is of more recent vintage.
- These issues are treated in a recent paper by Ravi Kanbur, Ebrahim Patel and Joseph Stiglitz (March, 2016).

Supplement C: SDGs and NSO Budgets (2)

- The issue which is present historically is the problem of what Winston Churchill called a "political statistic."
- The independence and integrity of national statistical offices is central, and becomes even more important when a government is being evaluated globally against a set of quantitative criteria.

Supplement C: SDGs and NSO Budgets (3)

- Formal independence is clearly a good start. Many countries have statistical offices which are legally independent of the executive, with separate governing boards. In some countries, the independence of the statistical offices is enshrined in the constitution.
- However, formal independence is one thing. Having a budget to act independently is quite another.

Supplement C: SDGs and NSO Budgets (4)

- Budgetary constraints are key feature of all low income economies, and many middle income countries.
- As Rashad Cassim, now Deputy Governor of the Reserve Bank of South Africa and former Head of National Accounts at Statistics South Africa notes:

Supplement C: SDGs and NSO Budgets (5)

- "…getting GDP measures and its components right is not trivial and there are many challenges that a middle-income country like South Africa, let alone developing countries, face in getting a set of conventional economic indicators right…..[S]hould we gear up our statistical infrastructure to track as accurately as we can, the business cycle or sacrifice this for something else—like putting more resources into estimating the value added of the informal sector, conduct area sampling to better understand small enterprises?"

Supplement C: SDGs and NSO Budgets (6)

- And we are now moving to a situation where there is a dramatic increase in data that are indicated as being important—the hundreds of indicators which have emerged out of the SDG process so far.
- This increase in demands will only sharpen the tradeoffs faced by National Statistical Offices (NSOs), as they try to implement protocols their politicians have signed in global fora.

Supplement C: SDGs and NSO Budgets (7)

- For many low income countries, these financing needs have driven their statistical offices into the hands of donors who have their own and often shifting priorities.
- The entire statistical system of some countries, so far as data on income distribution, poverty, and social dimensions such as health, is geared to financing from donors, and the attendant influence of donors on the statistics they wish to collect.

Supplement C: SDGs and NSO Budgets (8)

- The challenge for donors is to provide financing for the increased needs without at the same time undermining the independence of NSOs.
- I look forward to the panel discussion on this at the conference.

Supplement D: SDGs and Global Statistics (1)

- The SDGs are goals developed at the global level, but their major import is seen to be at the national level.
- The national discourse is of course central to the development process, but there are also uniquely global dimensions to key elements of the SDGs for which we have to take a perspective which goes beyond the national.
- One such example is global poverty.

Supplement D: SDGs and Global Statistics (2)

- SDG 1.1, the first quantitative target of the first SDG is: “By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day.”
- This is also the first of the new “twin goals” of the World Bank.

Supplement B: SDGs and Global Statistics (3)

- The usual operational definition of “eradicate” is reduce down to 3%.
- But note that this is a global goal, in other words it is a goal for a global measure of poverty.
- Which immediately raises the question of how global poverty is to be measured.

Supplement D: SDGs and Global Statistics (4)

- Such an exercise requires comparisons of money metric living standards in different countries—it is not a problem that was faced by Keynes in gauging the “material and moral progress” of India.

Supplement D: SDGs and Global Statistics (5)

- Two questions arise in getting a global count of poverty.
- First, how are nominal incomes and consumption around the world to be turned into comparable real income measures?
- The World Bank and others use Purchasing Power Parity (PPP) exchange rates, the use of which is itself steeped in controversy; a controversy which reignites every time a new set of PPP exchange rates is published.

Supplement D: SDGs and Global Statistics (6)

- The second question arises even if we were to successfully arrive at a true distribution of real income in the world as a whole.
- Where then do we draw the poverty line to measure global poverty?
- This is undoubtedly a normative question, a political question.

Supplement D: SDGs and Global Statistics (7)

- How is it to be done, and who does it?
- There are various conceptual bases, for example starting from basic capabilities a la Sen and working down from those to a line in income space.
- But, as a practical matter, the World Bank has constructed its global poverty line using as inputs various national poverty lines.

Supplement D: SDGs and Global Statistics (8)

- This method led to a poverty line of $1.25 per person per day at 2005 PPP, which is the line stated in SDG 1.1, and a line of $1.90 at 2011 PPPs.
- The two lines do not lead to a big difference in the global poverty count (just over 14% of the world's population).
- (The Bank heaved a big sigh of relief when that happened).

Supplement D: SDGs and Global Statistics (9)

- The Atkinson Commission (of which I was a member) recommended:
  - Fix cross-country comparisons at the 2011 PPP values, and that the "international poverty line" for each country should be adjusted over time for each country, in local currency, using the national CPI, or suitable alternatives, until 2030.
- This addresses the concerns over the PPP methodology, and dramatic and erratic changes in PPPs.
- But it does not really address the question of the normative principles according to which we fix a global poverty line; who decides on these principles, and who does the actual calculation exercise.

Conclusion (1)

- Our Indian journey from antiquity, through colonial rule and the struggle for independence, to the modern independent state, has shown the political importance of statistics at every step.
- I hope I have shown in this presentation how and why numbers mattered for colonial rule in India, how and why they mattered for the Indian independence struggle; and how and why they continue to matter today.

Conclusion (2)

- The technical dimensions of statistics are of course important. Recall loss, and intra-household inequality, are crucial issues in household surveys.
- And the technical dimensions are endlessly fascinating to statisticians and to us economists.
- Our technical fascination should not, however, cloud our understanding of the political dimensions of statistics, and of systems for collecting statistics.

Conclusion (3)

- Who these systems answer to, and who funds them, matters.
- Ultimately, statistics are political. History teaches us at least that.

Thank You!