

Statistics with ‘a clearly defined purpose’: A brief history of sampling and economic planning in Nehruvian India

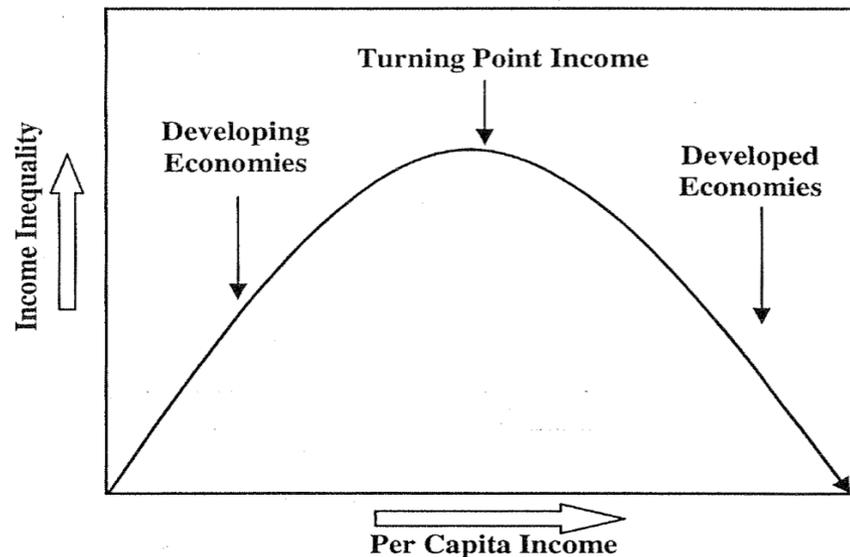
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Jawaharlal Nehru, 1960

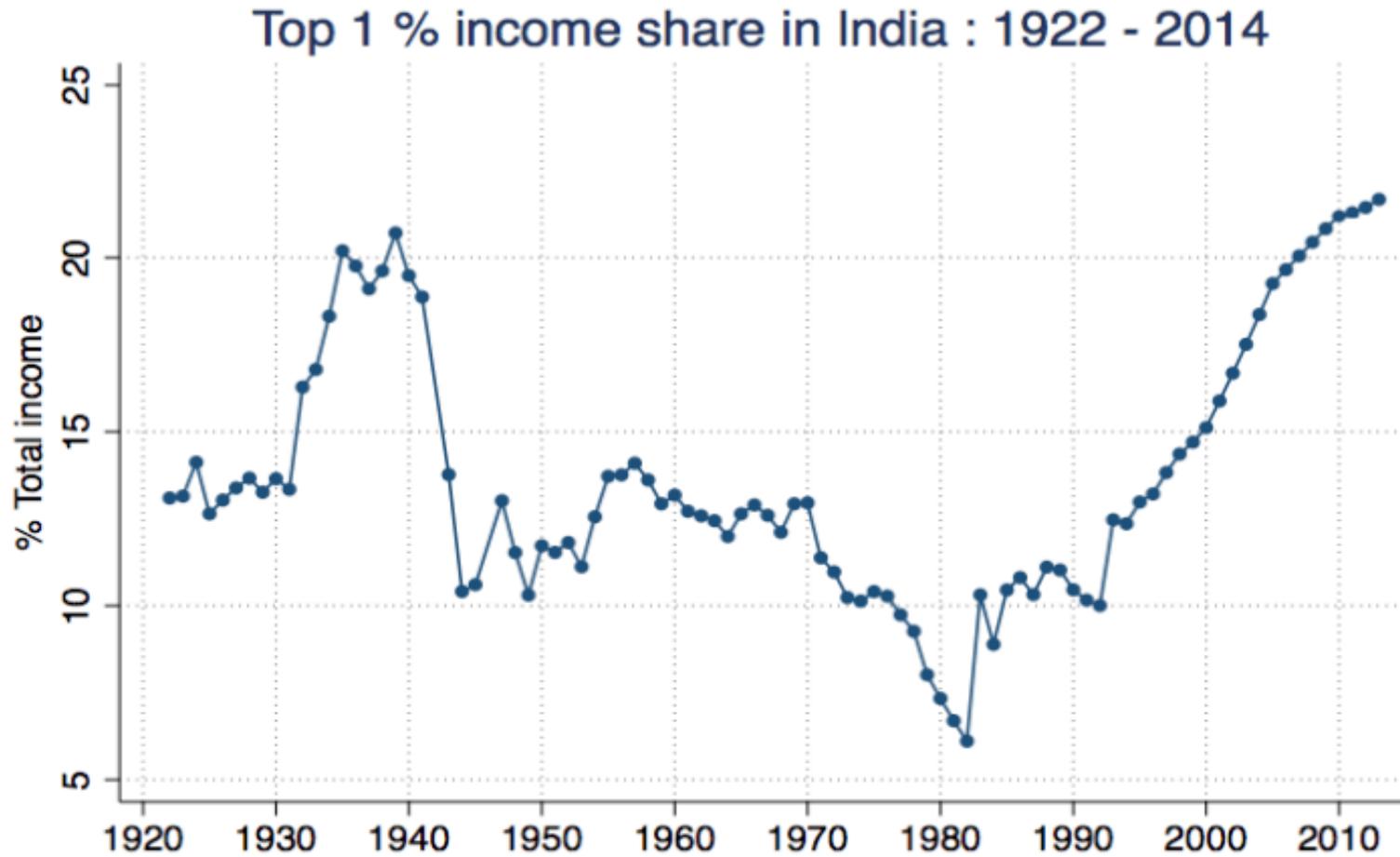
It is said that the national income over the First and Second Plans has gone up by 42 per cent and the *per capita* income by 20 per cent. Now a legitimate query is made—where has this gone? Some people probably have hardly benefited. Some people may even be facing various difficulties. The fact remains, however, that this advance in our national income, in our *per capita* income has taken place and I think it is desirable that we should enquire more deeply into where this has gone and appoint an expert committee to enquire into how exactly this additional income has come to the country or per capita has spread.

Simon Kuznets (1901-1985) and the relationship between growth and inequality

For much of the postwar period (1950s-1980s), economists believed that if economic growth rates continued to rise, inequality will diminish over time.



Historical trends in India



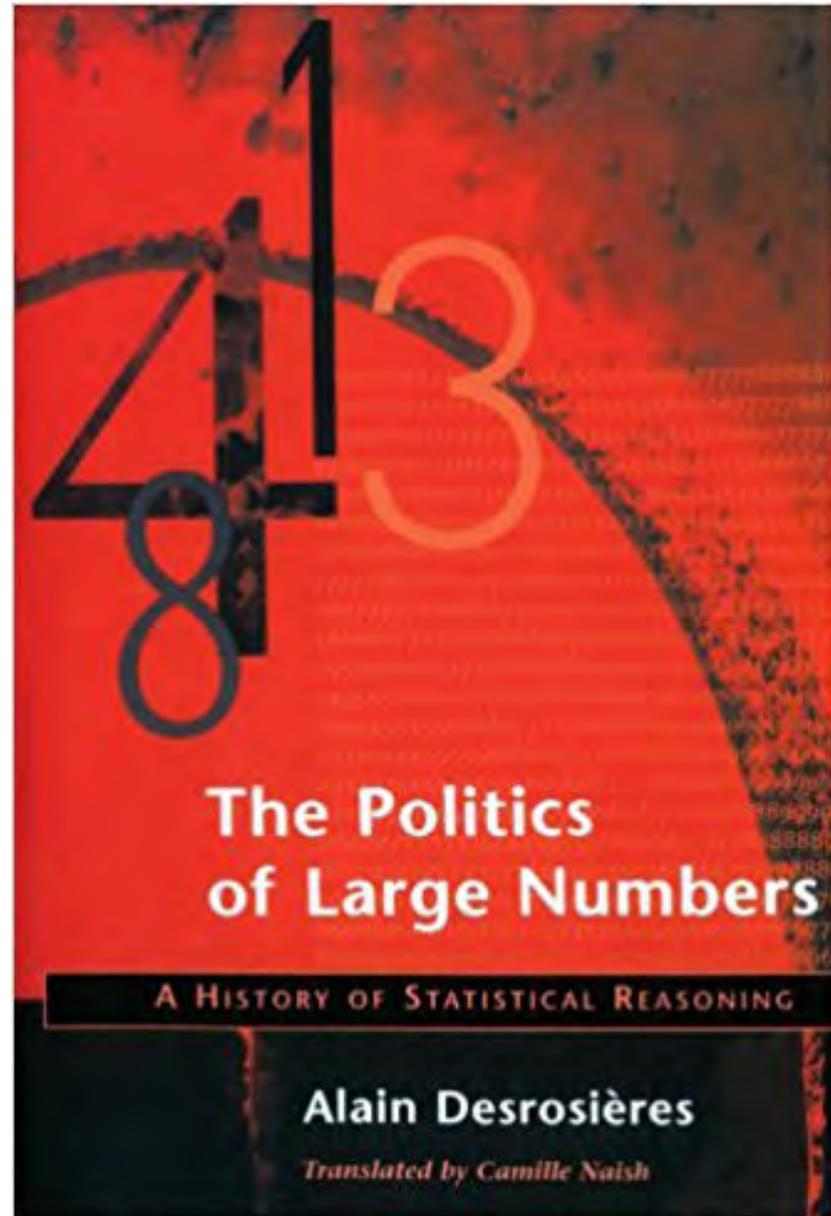
Measuring the economy

- What is an 'economy'?
- According to Timothy Mitchell, the term *the* 'economy' was hardly used until the 1920s.
- This coincides, during the interwar period, with the rise of new techniques of national income accounting, pioneered by Simon Kuznets
- A precursor to GNP, national income accounting uses household income tax records to estimate national labour productivity
- Increasingly, inequality comes to be associated specifically with income.

Numbers as Interventions

QUANTIFICATION:

- Sets priorities
- Standardises
- Changes policy priorities
- Rearticulates parts and wholes
- Incentivizes new behaviours



Discovering the 'average' Indian

Dadabhai Naoroji

- *Poverty and Un-British Rule* (1876)
 - 'The Wants and Means of India' (1870)
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- Dadabhai Naoroji produced a per capita income estimate of Rs20 in 1873. Higher govt. estimate was Rs30 per person. Still very low, by international standards. Lower than Russia and Turkey which are seen as being very poorly governed.
 - Hard to tell much about distribution, such as how many people lived below this 'average' figure.
 - Argued that India was 'the poorest country in the civilised world'.
 - Naoroji estimates living conditions by examining the caloric intake and material needs of prison inmates. Argues that India does not produce enough to support its wider population.



Interwar India and new concerns about inequality

- The interwar period brought to the surface deep fissures within Indian politics.
- The 1920s and 1930s witnessed new struggles over the status of minorities and the politics of representation, along with worries that the mainstream nationalist movement was not as inclusive as its leaders claimed. This period rise to important anti-caste agitations and tribal rebellions as well as to the Muslim League and the demand for Pakistan.
- At the same time, a growing Communist organisation voiced concerns about workers rights. Cities such as Bombay, Ahmedabad and Kanpur witnessed large-scale industrial actions and general strikes throughout the period.
- The Indian National Congress, under the leadership of Nehru, created the National Planning Commission in 1938 and income distribution is immediately one of the central concerns.

The Bombay Plan (1944)

- Sponsored by leading industrialists, spearheaded by Purushottamdas Thakurdas
- Centrally concerned with income distribution
- Argues for a strong central state and state financing of industry and distribution
- “...in order to prevent the inequitable distribution of the burden between different classes which this method of financing will involve, practically every aspect of economic life will have to be so rigorously controlled by government that individual liberty and freedom of enterprise will suffer a temporary eclipse.”

Prasanta Chandra Mahalanobis (1883-1972)

- (1912) BSc in Physics from Presidency College, Kolkata
- (1913-1915) Natural Science (Physics) from King's College, Cambridge
- Professor of Physics at Presidency College
- (1932) Founded the ISI (Kolkata)
- (1955) Was an architect of the Second Five Year Plan

Experiments in Large-scale Sampling

- Mahalanobis had been experimenting with larger-scale sampling techniques (in the area of crop yields) since the 1930s
- 1950: The creation of the National Sample Survey. The first nation-wide survey.
- Moving from land survey maps to census and population data
- Overlapping samples to build in verification tools



Early Skepticism

- India in 1950 had a population of nearly 360 million; roughly 1800 villages and urban areas were sampled in the initial rounds
- The sample frame was poor until the first post-Independence census was carried out in 1951
- Many were doubtful it could even be done: American statistician W. Edwards Deming: “We in this country [U.S.], though accustomed to large scale sample surveys, were aghast at Mahalanobis’ plans for the national sample surveys of India. Their complexity and scope seemed beyond the bounds of possibility.” (Menon, 2019)

A Pioneer in the Technique

- Harold Hotelling: “No technique of random sample has, so far as I can find, been developed in the United States or elsewhere, which can compare in accuracy with that described by Professor Mahalanobis.”
- Became a centre for learning this technique, for both sides of the Iron Curtain. Chinese statisticians came to learn this technique from experts at the ISI, as did Gertrude Cox who used the institute as a model for statistical training in the US

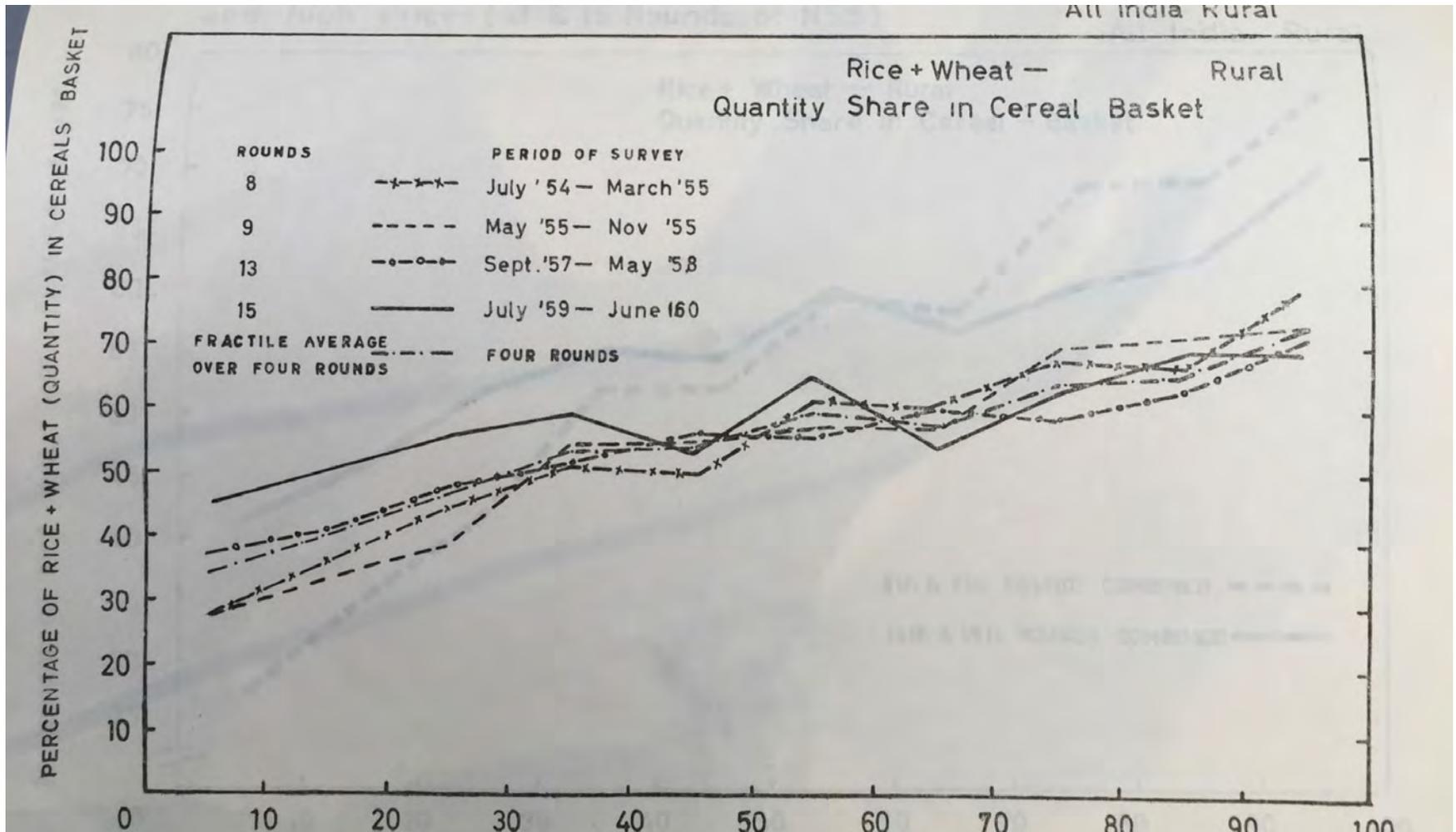
An International Network Builder

- Over the course of his work on statistical education, sample surveys and national planning, Mahalanobis brings countless global experts in statistics, mathematics, economics, and econometrics from around the world, including RA Fisher, JBS Haldane, Harold Hotelling, Simon Kuznets, Norbert Wiener, Jerzy Neyman, Andrei Kolmogorov, Joan Robinson and Oskar Lange to the ISI to give lectures, work with his staff and generally assist the statistical work of economic development.

Second Five Year Plan

- Mahalanobis 2 sector model of the economy
- Investments in heavy industry and capital goods
- “[I]n a poor country where consumption standards are already too low, higher investment and development of basic industries cannot be made to depend on a curtailment of consumption even in the initial stages.” Second Five Year draft plan

Fractile Graphical Analysis



Fractile Graphical Analysis

- The FGA method – modified Lorenz curve, using two variables rather than one.
- So PCM was interested not only in income distribution but how it might correlate with other concerns. In this case, the concern was the consumption of cereals.
- Can be used with other issues, and increasingly one sees advocates of this method in epidemiology and those interested in health disparities.
- Representing the relationship between parts and wholes in a comparative, developmentalist framework, and one that attempted to track progress over time and is a precursor to the idea of capabilities.

Measures and Purposes

“Statistics must have a clearly defined purpose, one aspect of which is scientific advance and the other, human welfare and national development.”