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Planning, Poverty and Political Economy of Reforms: A Tribute to Suresh Tendulkar

by

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Abstract  

This paper pays tribute to Professor Suresh Tendulkar’s contribution and scholarship to economics, economic-policy making, and economic reforms in India. The paper’s scope is by no means exhaustive, and primarily focuses on his contributions on economic planning in India, the political economy of economic reforms, and his important conceptual and policy-relevant work on poverty measurement. The paper also presents results on empirical exercises comparing trends in inequality, and various poverty lines in India in the recent past. The paper concludes with policy observations on economic reforms in India, and directions for further empirical research on poverty.  

Keywords: poverty, inequality, political economy, India, Professor Suresh Tendulkar  

JEL Classification: I30, I32, P48  

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1. Introduction

Suresh Tendulkar, (hereafter Suresh) joined the Planning Unit (PU) of the Indian statistical Institute (ISI) at New Delhi in 1968 soon after obtaining a doctorate from Harvard University where his thesis committee included Hollis Chenery, Hendrik Houthakker and David Kendrick. The PU had originally been established to assist Professor P.C. Mahalanobis during his term as a member of the Planning Commission. I joined in 1964. B.S. Minhas, who had joined in 1962, headed it. For about ten years we were colleagues, friends and co-residents at Hauz Khas. I left ISI in 1977 as I moved to Yale. Suresh left a year later to take up a professorship at the Delhi School of Economics (DSE). My friendship with Suresh, his wife Pramodini (Sunetra) and their daughters Juee and Sai continued during my three decades at Yale since 1980. We frequently corresponded and also met during my visits to India. After Suresh retired from the DSE he held various positions successively in the Prime Minister's Economic Advisory Council including its chairmanship and also in the national level official statistical agencies. During our long association our exchanges included personal matters and economics, policy and in particular quality of economic data. We collaborated on our book Reintegrating India with the World Economy (Srinivasan and Tendulkar, 2003).

We met, for the last time it turned out, on December 30, 2009 at the conference on Frontiers of the Interface between Statistics and Sciences in celebration of the 90th birthday of Dr C.R. Rao. Suresh, Kirit Parikh, Abhijit Banerjee and I, as chair, participated in a session on “India: Data, Statistics and Economic Policy”. Soon thereafter, on January 2, 2010 he sent me a copy of the report of the Expert Group to Review the Methodology for Estimation of Poverty chaired by him (Planning Commission, 2009). The Group came up with a radically new poverty line. I recall talking to him on my reactions (described below) to the report but I cannot find any record of this conversation. His next e-mail to me at the end of April 2010 asked me to clarify the distinction between financial stability which he said he did not understand and macroeconomic stability which he understood and described. I responded to him in three long e-mails during April 28-30, 2010. I must state here that I had briefly alluded to Euro Zone issues that were to become salient in 2011. I do not have any record of his reply to my long e-mails. His very last e-mail to me was on December 23, 2010 from Pune telling me that he was to leave Pune to reach Delhi on January 11. I neither saw him before he left for Pune nor do I recall whether he became ill before he was to leave for Delhi from Pune. I was in Delhi again in June 2011 but unfortunately I could not talk to him since he was critically ill. But I talked to Pramodini. With his passing away on June 21, 2011, India lost a great teacher, economist and policy analyst and I lost a very dear friend.

The rest of the paper is organized as follows. I start in Section 2 with a discussion of the leading issues on planning models and processes in India as a prelude to work at ISI. Section 3
discusses Professor Tendulkar’s research 1968 through 1978 while he was based at ISI. This is followed by Section 4, which discusses his research at Delhi School Economics from 1978-2011, including his work on economic reforms of India. This is followed by a discussion on some aspects of inequality in India in section 5, and results from econometric exercises on poverty trends in section 6. Section 7 concludes.


The Planning Commission (PC) was established in March 1950 by a resolution of the Central Cabinet, very soon after the coming into force of a Constitution for India as a Union of States and Union Territories on January 26, 1950. Unlike the Finance Commission (FC) and the Office of the Comptroller and Auditor General (CAG), both of which are mandated by Articles of the Constitution, the PC is not mentioned in any article of the Constitution. For this reason, its jurisdiction and power from a constitutional perspective, de jure, are presumably subsumed under those of the central government in the constitution. Although the Cabinet Resolution designed the PC only as an advisory body, and there is, as far as I know, no explicit delegation to the PC of any of its powers by the Central cabinet. The PC has, however, de facto come to exercise enormous power in the decisions of resource allocation of the Central and State governments.

A consensus across the political spectrum on planning for national development with the state playing a major role in the Indian economy had emerged in the pre-independence era in anticipation of independence. This is clear from the pre-independence reports of the National Planning Committee of the Indian National Congress, appointed in 1938 by Subhash Chandra Bose, President of the Congress and chaired by Pandit Jawaharlal Nehru (IIAPR, 1938), the group of Bombay businessman with their Bombay Plan (Thakurdas et al, 1944) and trade union leaders with their People's Plan (Bannerjee et al, 1944) have also played a vital role in this context. One notable exception from the consensus was the followers of Mahatma Gandhi. Their conception of planning was of a (largely self-sufficient) village-based process with industrial enterprises as mostly village-based labor-intensive handicrafts, cottage industries and the few large enterprises run as trusts by the entrepreneurs as trustees of the capital they managed (Agarwal, 1944). Even the Colonial Government had established a Planning Board to formulate economic plans after the end of the Second World War. The cabinet resolution establishing the PC in 1950 refers to the pre-independence consensus on planning.

The First Five-year Plan of the post-independence PC covered the fiscal years 1950-51 through 1955-56, consisting primarily of the projects that were being considered for implementation by the Colonial Planning Board. It is only in the Second Five-year Plan onwards
that a forward-looking analytical foundation for planning was laid with an overall approach and a
detailed strategy of targets for investment as well as production. This foundation and its
Development Strategy were authored by Professor P.C. Mahalanobis. His independently
formulated two-sector analytical model, which had been originally derived by Grigori Feld'man
in 1928 for the Soviet Union, played an enormous role: It would be no exaggeration to say that
the strategy of development articulated in the second five-year plan was followed until the
reforms of 1991. Vestiges of it continue since the reforms did not abolish or replace the PC.

Mahalanobis was formally made a member of the PC in 1953. To assist him, he
established the Planning Unit of the ISI at New Delhi as mentioned earlier. At the same time
there was a Planning Division at the main campus of the Institute in Kolkata. A series of
Working Papers, if I remember right, with the title Studies in Planning for National Development
was also started. There were several pioneering theoretical and empirical studies in the series
including one on the first input-output table for India, and others on empirical estimates of an
aggregate consumption function and also on household consumption expenditure patterns.
Another feature of the empirical research at ISI emanated again from Mahalanobis, namely, the
importance of cross-checking sources of data prior to their use in analysis. In particular
crosschecking of the consumption expenditure data from the National Sample survey with the
 corresponding estimates from the National Accounts Statistics (NAS) Division of the Central
Statistical Organization (CSO) were part of the series of working papers. Some of these papers
have been reprinted in Deaton and Kozel (2005). The research of the planning units in Delhi and
Kolkata served as inputs into the planning models that were put together, particularly at the
planning unit in Delhi by the late Professors Ashok Rudra of ISI and Alan Manne of Stanford
University, and others.

Mahalanobis’ emphasis on the cost-efficiency of well-designed sample surveys for
estimating crop areas and output went back to the early days after the founding of ISI in 1931.
After independence, national sample surveys (NSS) had been established in ISI and a round of
successive socioeconomic surveys was started by NSS. Mahalanobis was also involved in the
establishment of CSO and also chaired the first National Income Committee. As chairman of the
United Nation’s Statistical Commission, Mahalanobis was instrumental in the formulation of the
UN System of National Accounts.

Initially both the design and field divisions of NSS were in ISI and later the field division
was shifted to government as part of its National Sample Survey Organisation (NSSO). The
Sampling Design Division of ISI and NSSO worked in close collaboration. The analytical
contribution of ISI on design of and estimation from a large-scale sample survey is also very well
known. Indeed the fact that India is recognized as the global pioneer in the design and execution
of large scale socioeconomic Surveys and their analyses is largely due to Professor Mahalanobis
and ISI founded by him.
3. Suresh’s Research at ISI

Given his interest in India’s development and in empirical research, Suresh found a natural intellectual home in ISI at Delhi. His research training at Harvard had prepared him well for contributing to the ongoing programme (of research on plan and planning) at the Delhi planning unit of ISI. Hollis Chenery was among the pioneers of the use of quantitative models for economic planning and policy-making. Houthakker’s econometric work was on household consumer behavior. It is no surprise that the first two papers published by Suresh after he joined ISI planning unit in Delhi reflected both his dissertation (Tendulkar, 1969) and also the training he had from Houthakker (Tendulkar, 1971).

3.1. The Initial Agenda: Consumption and Growth

Let me begin with a few remarks on Tendulkar (1969). Remarkably this paper, written while he was still a graduate student at Harvard, is still worth reading and in my view worth replicating with the now publicly accessible household level data on consumption expenditure. The main objective of the paper was to estimate a dynamic demand function for households in the state of Uttar Pradesh based on the work of Houthakker and his co-authors. A large share of total consumer expenditure (54%) when valued using market prices was on commodities, which the household itself produced and consumed. This non-cash component of total consumption expenditure played an important role arising from the economic fact that a change in the price of commodities it consumes and produces has both income and substitution effects which move in opposite directions, with the net effect uncertain in theory.

Suresh persuasively argues that the dynamics of adjustment to price or income shocks through inventory adjustments requires a dynamic demand model of a stock-flow variety. His paper represents the first attempt at an econometric analysis of monthly consumption expenditures with a dynamic demand model in which expenditure and price effects are explicitly introduced. For the first time it also showed the behavioral differences of rural households with respect to the cash and non-cash components of their expenditure. In particular cash purchases act as an inventory adjustment mechanism while the non-cash component of expenditure reflects habit persistence. The results confirm that any policy change that improves the terms of trade of agriculturists by increasing their income and expenditures would increase their demand for non-produced non-agricultural commodities in the process of development. The dynamic model enables Suresh to distinguish instantaneous effects of shocks and policies from their long-run and steady state equilibrium values.

Careful researcher that he was, he explicitly notes the caveats of his study, in particular that his demand functions were not derived from an explicit utility maximization framework. Suresh’s data covered the period July 1957 to 1963, which is more than half a century ago. With globalisation many changes have taken place including possibly greater monetisation of incomes.
and expenditures of Indian households, substantial increase in the range and quality of goods consumed (and produced) and increase in share of imported goods (of possibly higher quality compared to their domestic substitutes), as well as greater opportunities for investment and many others. Still, the non-cash component of household consumption and importantly the non-financial component of total household savings, and equivalently, the non-financially-intermediated component of household investment, that is direct savings by households in the form physical assets, continue to be significant as shares of real GDP and real GDE. For these reasons it is worth replicating Suresh’s first attempt with more recent data.

Suresh (1971) is based on his dissertation at Harvard and also on comments received from his colleagues after he joined in ISI. It presents a multi-sectoral, single period, optimising linear programming model that incorporates two constraints on domestic capital accumulation and on economic growth, one arising from domestic savings and the other from foreign exchange. The model is one of the genres of “two-gap” development and growth models. It addresses a comparative static problem of moving from given initial conditions in the base year to the target year of an exogenously set planning horizon by maximising its specified criteria function. Suresh recognises that development is a dynamic process and as such a dynamic, rather than static, model would be appropriate. Nonetheless he adopted a single-period analysis after considering the methodological trade-offs between inter-temporal analysis of maximisation of a discounted sum of utility of aggregate consumption and single-period analysis of utility of a disaggregated bundle of commodities on computational costs, between methodological refinements and data requirements, and between analytical complexity and easy comprehensibility.

The paper describes in detail the data on individual sectors and the formulation of the model in algebraic terms. In the open loop variant, the model concentrates only on the foreign exchange constraint, assuming a priori that the needed domestic savings could be mobilised through means that are not part of the model. The closed loop variant explicitly introduces both

2 In fact a society for which a plan for a finite horizon is being considered not only will almost surely exist in the future beyond the finite horizon, but will be aware of this fact also. For this reason, reflecting the future in some way in the finite horizon models is done. This problem was well understood in the literature in the sixties. One procedure was to make the finite horizon endogenous as the time needed to move the economy from the initial period to a steady state growth path. The objective of such models was to minimize the time needed. The target steady state of some of the models was the so-called von Neumann model of steady state growth. The seminal Turnpike Theorem of Samuelson and Solow that showed, as long as the finite time horizon was sufficiently long, any efficient path from given initial and target economic states would spend a large part of its horizon close to the von Neumann path was very influential. My dissertation (Srinivasan, 1962) was of this genre of models.

3 Contemporary macroeconomic modelers would recognise that the analytical trade-offs that Suresh recognised more than four decades ago have their modern counterpart in those between aggregate –single- representative -agent based dynamic- stochastic- general- equilibrium(DSGE) models and versions of multiagent models.
constraints and a feedback mechanism between changes in gross output and its uses, through their effects, on the one hand change in income generated, and on the other through income generation on consumption and on savings.

The comparison between the open and closed loop variants are shown in Figures 6.4-6.7 and Table 6.3 of Tendulkar (1971). It is seen from Table 6.3 that the marginal productivity (MP) of foreign aid (i.e. foreign exchange inflow) shows diminishing returns in both versions. However, in the closed loop model, in which an additional rupee of foreign exchange inflow causes both the trade cum foreign exchange constraint and the domestic savings constraint, the MP of foreign aid is higher than its open loop variant at each level of foreign aid. It diminishes as aid levels increase, converging to the latter at 450 million in U.S. dollars. At this level, the contribution to MP is zero from the easing of the foreign exchange constraint, and only the benefit from easing the saving constraint remains in the closed loop model. There is also new information from Figure 6.2, which depicts the aggregate private consumption (the criterion of maximization) for a given level of GNP and for given levels of foreign capital inflow. The curve for the closed loop, compared to that of the open loop variant, is higher at all levels of GNP as it increases with the increases in foreign capital inflow and the two converge at $450 million of inflow. Figures 6.3-6.7 depict the same story of differences between open-loop and closed-loop variants and the reason thereof with respect to other outcomes such as domestic savings and investment, consumption, etc.

3.2. Planning and Development Issues

Clearly Suresh (Tendulkar, 1971) reflected the issues of planning in the 1960s. The development of computer technology has made it feasible to implement non-linear planning models, and with the shift in interest in policymaking in large developing countries such as China and India toward greater integration with the global economy and the use of the market mechanism, modeling interest also shifted toward applied general equilibrium (of closed and open economy) models (AGM). Scarf and Hansen (1973) illustrated the computability of an equilibrium Arrow-Debreu version of the general competitive equilibrium (GCE) model. They developed an algorithm for its computation. For this reason, not only the models came to be described as “Theory with Numbers” but also their genre came to be called computable general equilibrium (CGE) models. However, the genre is more appropriately called applied general equilibrium (AGE) models. Moreover, the Scarf-Hansen Algorithm is rarely used in AGM models since more efficient algorithms have been developed. A growing number of AGM models (particularly of international trade) have been used for analyzing policy, including many models for India (eg. Narayana, Parikh and Srinivasan, 1991).
In a careful but simple econometric analysis Jain and Tendulkar (1973) attempted to answer two questions. First, do Engel curves for five occupation groups and for each of eight commodity groups, on which household consumption expenditure per capita is divided, differ across the five occupation groups in rural and urban India? Second, if they differ, what is the source of the difference, that is, which are the pairs of occupations that have distinct consumption patterns? The simple methodology involves estimation of linear approximations of a possibly non-linear Engel curve, with an occupational dummy variable that shifts the intercept and slope (of the linear approximation of the Engel curve). Three functional forms for the Engel Curves, namely linear, semi-log and hyperbolic are considered.

The obvious advantage of the dummy variable technology is that it enables the use of a simple ‘F’ test originally due to C.R. Rao (mostly referred to as ‘Chow’ test) for the hypothesis whether the linear approximation of a particular Engel curve for a commodity group differs across occupations, and if not, whether they differ in their intercepts, slopes or both. The authors also note its disadvantages. The paper (as are all papers of which Suresh is an author) is an example of the clarity of its exposition.

One of the limitations of the data used for the study as noted by the authors is that per capita household expenditure is the average for all households within each of the thirteen per capita total expenditure classes, so that instead of household-specific data (the so-called unit-level data in the terminology of NSSO), only averages had to be used. Now that NSSO has made unit level data available to users for research purposes at a cost, the exercise of Jain and Tendulkar (1973) could be repeated with unit level data and perhaps also with other sophistications in methodology that the availability of better computing technologies would enable.

Suresh’s contributions during 1974-78 have to be placed in their political context. Mrs. Gandhi’s Prime Ministership from January 1966 ended in 1977 with her defeat by the Janata Party at the end of her dictatorial Emergency Rule of 1975-1977. During 1966-1977, particularly in the 1970s several draconian laws were enacted extending the coercive power of the state and its intrusive dominance to many areas of gainful economic activity and competition, such as financial intermediation, exports, imports and the freedom of large enterprises to hire or retrench workers.

Respected and distinguished economist, Professor D.R. Gadgil, was in effect unceremoniously removed (presumably at Mrs. Gandhi’s command) from being the Deputy Chairman of the PC in May 1971. His tragic death from cardiac arrest on the way back home in Pune by train was another serious blow. Pitambar Pant, who was the Chief of the Perspective Planning Commission, under whose leadership emerged the remarkable paper on Perspectives of Development: India 1961-76: An implication of Planning for a Minimum Level of Living
(Srinivasan and Bardhan, 1974), was also reassigned to a different position. C. Subramaniam succeeded Dr. Gadgil for about a year and later, until 1977 by D.P. Dhar and P.N Haskar, whose sympathies for left-wing ideology were well known. The PC was also reconstituted.

For Suresh and myself, then at ISI, the fact that one of our colleagues and Head of Delhi ISI and a dear friend, B.S. Minhas, and our friend from DSE, Sukhamoy Chakravarty, became members of the reconstituted PC, was exciting. The differing policy perspectives and above all, policy judgments, of a theorist (Sukhamoy) and of a down to earth farmer, empirical and policy economist (Minhas) eventually led to the resignation of Minhas from the PC after the government nationalized wholesale trade in wheat. This was a policy driven almost entirely by ideology in total disregard of ground realities. Minhas had predicted in the debates within the PC and with Chakravarty that the nationalization would fail. After it indeed failed, he was invited to rejoin the PC. He refused though Mrs. Gandhi, who respected his frankness and integrity, continued to seek his advice.

The reconstituted PC inherited the Fourth Five-year Plan (1969-1974), formulated by the PC headed by Professor Gadgil. The first Five-year Plan formulated by the new commission was the Fifth Five-year Plan (1974-1979). Naturally, we at ISI, in particular Suresh, wanted to analyse it. All of the six publications listed in his CV during 1974-78 are on planning. Of these, as many as four relate to the draft of the Fifth Five-year Plan (the first one drafted by the reconstituted planning commission) and its various objectives. The first paper was on Planning Models for Growth and Redistribution in India and a sixth, published in 1977, was on some basic issues on the planning process itself. It is clear from his critical remarks in his four papers on the Draft of the Fifth Five-year Plan, three of which were published in 1974 and especially his paper (Tendulkar, 1977) that he was disappointed with the planning process in India. Some, including myself, were to argue later in the post-reformer era for the abolition of the PC and its replacement by an agency that was empowered not only to decide on the size, composition, financing and time schedule for completion of public investment projects including central, state and centrally sponsored ones, but also monitoring their implementation and taking corrective action as needed (Singh and Srinivasan, 2006). As of 1977, Suresh had hopes of reforming the process of planning as practiced by the PC. Interestingly the creation of a Public Investment Board is currently (2012-13) being debated.

I will not discuss Suresh’s six post-1974 papers individually, but will summarize his assessment and critique of the plans and planning. First, the fundamental issues of financing the plan in India’s fiscal federation and of specific public policies for their implementation were absent or inadequate. Suresh (1974a) traces the absence of concerns about financing issues to Professor Mahalonobis, the author of the Second Five-year Plan and of India’s Development Strategy from 1956 until the mid-eighties. He amply quotes from Mahalonobis himself in support of the proposition that a planning authority in full, direct and effective control of
financial, monetary, funding and aid needs public investment can finance any designed level of aggregate investment in real terms. The quotation is worth reproducing.

“We have taken our stand on the obviously true proposition that if something can be shown to be feasible in physical terms, then the financial and fiscal machinery can always be adjusted to supply a satisfactory monetary counterpart (provided there is no difficulty in making the necessary institutional changes)”

The implicit sweeping away under the carpet of the core issues of the fiscal and financial system to raise revenue to cover expenditures in a non-inflationary way is simply breath-taking.

Suresh (1974a) argues that the analytical model of the Fifth Plan was inadequate in its institutional specification and operationally unsatisfactory. The empirical bases for its three major policy-oriented conclusions emerging from the model were a poor approximation of recent experience. Further, the de-emphasis, if not abandonment altogether, of earlier commitments on self-reliance and poverty removal cannot be attributed solely to exogenous factors. Even in their absence, the biases and inappropriate institutional specification and socio-political infeasibility involved in working out the policy from ex post facto redistribution (Tendulkar, 1977) would have led to the same result. On the objective of the removal of poverty (Suresh 1974a) argues that the statement in the draft Fifth Plan was a non-statement, with its focus on abstract logic rather than on operational feasibility. Programmes for poverty eradication are vague and couched in non-operational terms such as “attitude transformation” and “structural reformation”. The possibilities of the government taking policy decisions for distribution purposes appear at best remote.

Tendulkar (1977) is a very thoughtful appraisal of India’s planning process that draws on Tendulkar (1974a, 1974b and 1974c). This was important in view of the then rumours of possible change in the attitude toward the planning process of the newly established Janata Party Coalition which came to power after the defeat of Mrs. Gandhi’s Government in early 1977. A shift to the **Rolling** Five-year Plan with an annual review for needed policy correction in contrast to **Fixed** Five-year and Annual Plans was widely talked about. Tendulkar makes three major points: Neither method of planning, rolling or fixed, would be likely to succeed in the absence of the credibility of planning process itself. The establishment of the planning process is essentially political. Both methods have their strengths and weaknesses. The flexibility of response to changing circumstances of the rolling is provided at the cost of its greater complexity and prerequisites compared to the fixed five-year plan. In the Indian context the prerequisites and complexities of a rolling plan appear too demanding. An abrupt change to it without adequate preparation and discussion could unfurl to unforeseen and unintended effects.

Unfortunately, Tendulkar (1978) on the employment objective of the Fifth Five-year Plan was inaccessible to me. To conclude, Suresh’s analytical and policy contributions during his ISI
period continue to be relevant. His emphasis on the need to establish the political feasibility of proposed changes in the method of planning as he emphasized in the seventies are as relevant now as they were then, except the proposed change is a broad agenda of reforms (‘big bang’ and others). The grounds for his skepticism of the feasibility of change to rolling plans seems to be relevant also to the feasibility of “big bang and other” reforms for example.

4. Suresh’s research at DSE (1978-2011)

Turning to Suresh’s many substantial contributions after he joined DSE\(^4\), let me note at the outset that these have been rightly praised by others in this conference for their relevance and importance to the field of developmental economics in general and to India’s economic policy in particular. These multifaceted contributions to economics and other substantive areas are too many to be discussed here. I will concentrate on his book with me (Srinivasan and Tendulkar, 2003 [henceforth S and T (2003)] and Tendulkar and Bhavani (2012) [henceforth, T and B (2012)]. T and B (2012) were to have been the paperback revised edition of Tendulkar and Bhavani (2007), based on notes prepared in February 2011 by the two authors\(^5\). It was completed by Bhavani after Suresh’s death in June 2011 and published in 2012 (T and B, 2012). In my view the fact that S and T (2003) and T and B (2007, 2012) two complement each other all three ought to be read together for getting a full understanding of Suresh’s remarkable command of economics, economic history and political economy of India.

4.1. India and the World Economy

Although both of us were responsible for all five chapters of our book, Suresh took primary responsibility for chapter 2 (India in the World trading system: a quantitative assessment) and chapter 4 (Domestic constraints on International Participation). In a remarkably concise 48 pages, chapter 2 describes analytically India’s foreign trade from its pre-independence roots and traces the extreme insularity from world markets during 1950-73, piecemeal opening and deregulation during 1974-91, and the macroeconomic and balance of payments crisis of 1991. The crisis is rightly viewed as a turning point that led to systemic reforms of 1991. Interestingly, the chapter not only places India’s exports in an Asian perspective but also looks at the emerging software exports in India’s current account. Any

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\(^4\) Suresh joined others at DSE such as Pranab Bardhan and Mrinal Datta Chaudhuri, who had left ISI earlier. In my perspective as an ISI-Mahalanobis loyalist I used to call them in jest as “traitors”.

\(^5\) I would like to express my gratitude to Professors Tendulkar and Bhavani for mentioning me along with my friends and collaborators, Manmohan Singh, Jagdish Bhagwati and late P.N. Dhar; labeling all of us as ‘long-time reformers by conviction'.
student or scholar interested in the interrelated history of India’s growth, development and trade as well as its ideological and political foundations need not go any further than chapter 2 and its references. The chapter is quantitative and analytically rigorous. It emphasizes that, contrary to what many believe, the constraints on India’s development are primarily domestic.

In chapter 4 of our book Suresh explores macroeconomic (mis)management of the economy, physical and financial infrastructure and needed flexibility of restructuring in manufacturing and industry as the major domestic constraints. Alas, they continue to constrain India’s growth in 2013. In the concluding chapter on Conclusions and the Tasks Ahead, we briefly discuss political economy issues by identifying the principal interest groups (large industrialists, farm interest groups, bureaucrats and labor unions active in the political arena) and exploring how different items of the 1991 reform agenda would affect their interests and thus their stance towards reforms. We found that depending on the item, different groups lost to a different extent the rents they were earning in the pre-reform era. Obviously there was no simple aggregate measure of net change in rents and more importantly the aggregate impact on electoral politics. We summed up by noting that the political economy of the reform in the Indian context is complex with domestic and foreign interest groups as well multilateral institutions (IMF and the World Bank) in the picture.

We ended our brief discussion of Political Economy of Reform by expressing the hope that by emulating China's successful and imaginative use of external commitments (as signatories of international agreements such as the Uruguay Round agreement) and pressures (such as by the World Bank and the IMF) to resist the push of domestic interest groups, Indian governments, whatever be their political affiliation, will be able to push the reforms further. We obviously did not anticipate the Policy and Political Paralysis and the inability to act that characterized the middle of the second decade of the 21st Century. I must add that we did not attempt to formalize our discussion of political economy as a game between interest groups and the policy makers given their respective bargaining powers and strategic choices.

4.2. Political Economy of Reforms

Professor Bhavani, a student of Suresh, modestly says in the Preface T and B (2012) that with Suresh's untimely demise she ‘had to take the responsibility of completing the draft'. The draft she refers to is the one that Suresh and she began drafting with the information (particularly on Political Economy) and data that they had discussed and put together between February 2011 and April 2011 when Suresh left for Pune. As I mentioned earlier I will focus on T and B (2012). The discussion of T and B (2012) of political economy issues and drawing on them at appropriate relevant contexts of policies adopted are deeper and more extensive than in S and T (2003). In particular the questions in the post 1991 reforms process in Chapter 1 and the analytical framework in Chapter 2 reflect the remarkable depth and width of coverage.
The authors justifiably characterize Indian reforms as systemic, *continuing, and wide-ranging* though the reforms process was by no means smooth, internally synchronized, complete, or fully successful. They cite the oft repeated argument by political scientists (e.g. Roy Jenkins cited by them) that India is an unlikely candidate for *systemic reforms* because of its being a low-income democracy with large diversity in religion, language and other socio-economic-political dimensions (ethnicity, caste, regional origin) inhibiting consensus building in favor of systemic change. Moreover India's institutional environment with its entrenched belief in economic nationalism and socialism and a governance structure of coalition politics is widely believed to be inimical to any reforms. Importantly the originators of reforms constituted minorities within their own parties, with no strong political bases of their own. The questions that arise are how such political leaders not only initiated reforms in a presumably hostile political context but also managed the reforms to move in the same consistent direction over a decade and a half.

I find the hypothesis of political scientists that a consensus *in favor* of reforms is a necessary condition for them to be adopted to be unpersuasive. I would argue that as long as the reform agenda has elements of interest to each of the major parties it would be difficult for them to build a consensus to prevent its adoption as argued by the reformer of New Zealand’s economy, Roger Douglas, who successfully transformed New Zealand from a socialist swamp into a thriving market economy. Be that as it may, the authors set themselves the task of offering a 'set of coherent and plausible clues towards unscrambling the puzzling features of Indian reform process...'(p 5).

In chapter 2 the authors present their chosen analytical framework for completing their task, drawing on the work of Douglass North augmented by certain conceptual distinctions suggested by William Baumol. In this framework, 'the performance of economies over time is determined by path-dependent responses of individual entrepreneurs and organizations to changing incentive structure generated by the evolving institutional matrix consisting of mutually interacting formal and informal rules of the game in the social, political and economic domains (ibid)’. The thoughtful authors recognize that it is easier to describe the framework in words than to formally model it algebraically let alone rigorously estimate it econometrically and derive policy implications.

They quote North himself as admitting that no theory of economic dynamics comparable in precision to general equilibrium theory (e.g. Arrow-Debreu theory of general equilibrium in a complete set of contingent commodity markets) is available and that he offers 'an initial scaffolding of an analytical framework that help an analytical understanding of the way economies evolve over time'. Interestingly Professor Mahalanobis rationalized the Feldman-Mahalanobis two sector model as ‘scaffolding’ for building an understanding of essential aspects of dynamics of growth and capital accumulation from a policy perspective. The mathematical
model abstracts from non-essential features of reality and retains only essential features for the sake of tractability. Once the model is put through its paces and the features of policy gleaned (i.e. heavy industry strategy) the foundation for building of development analysis is complete and the 'scaffolding' is thrown away. Of course, North does not offer an algebraic analogue of the two-sector model. Yet the authors amply demonstrate that North's scaffolding is as useful in policy analysis as the two-sector model.

The elaboration in Chapter 2, of formal and informal rules of the game, the introduction of a broader than Schumpeterian role of entrepreneurs invoking Baumol to include all those who use creative, novel, and ingenious methods to gain social recognition, power prestige, or wealth is innovative and very useful. Given that not much is known about the supply of entrepreneurs, Baumol focuses on their available supply in three types, those engaged in productive, unproductive and destructive activities. The section on institutions and economic performance draws on North's attempt to unify the approach to the distinct processes of technological and institutional change by redefining the terms of factor augmenting or attenuating technological change to include the effect of institutional change on the marginal product of inputs brought about by the change. The chapter concludes with a very brief discussion of Interest groups, Distributional Coalition and Distributional Equilibrium. The distinction due to Sudipto Kaviraj between vertical mobilization that appeals to commonality of non-economic identity (e.g. caste) and cutting across economic identities and horizontal mobilization that appeals to commonality of economic interests (e.g. wages) and cutting across non-economic identities in the context of reforms is appealing.

Chapters 3, 4, 5 and 6 overlap the chronology laid out in sections of Chapter 2 primarily drafted by Suresh in S and T (2003). Naturally they cover more events, policies and politics of each phase of the chronology. The basic difference is the consistent emphasis on political economy reflected in each chapter of T and B (2012). Chapter 3 on post-independence development strategy describes the emphasis on state-directed and state-controlled strategy with emphasis on the expansion of the public sector and insularity from world markets. Except for minor changes of phrases used and their relative emphasis the account is the same in the two books. Chapter 4 on the slow growth phase of 1950-80 is suggestively subtitled Incentive Structure and Economic Performance and draws on North. It argues that the slow growth, low fiscal and current account deficits of this phase constituted growth equilibrium. Scarcity rent creating quantitative controls and their selective and discretionary exercise enabled rent allocation to chosen interest groups without affecting the budget or current account, thus enabling the pursuit of a low fiscal and current account deficits. Insularity from world markets and eliminating domestic competition through discretionary import and investment licensing which created significant scarcity rents were the policy instruments. The interest groups were small in size and conflicts among them were minor.
The gains from the incentive structure provided domestic savings, which combined with external aid were adequate to finance the investment needs of slow growth. The authors argue plausibly that the interest groups and the government had no incentive to move from this path of policies and their outcomes thus generating equilibrium of slow growth, low fiscal and current account deficits. Chapter 5 on the decade of the 1980s looks at the emergence of regional parties and the entry of farmers, small industrialists/traders as disturbing the growth and distributional equilibrium of the previous three decades inducing a shift away from horizontal to vertical mobilizations. Chapter 6 on the context and timing of the 1991 reforms considerably overlaps the story in S and T (2003). It seems to me that chapters 7-9 are primarily the contributions of Professor Bhavani. Since my focus is on Suresh's contributions I will not elaborate on them except to say that their substantial political economy content is very impressive and I agree with most of it. The two Appendices, Appendix I (itself consisting of Appendices A, B, C and D on Economic Data) and Appendix II with 4 tables on Pre-poll alliances and the electoral performances and 17 more with various economic data, would be extremely useful to students and scholars of India's Development.

In conclusion, let me first emphasize that Suresh's analytical and policy contributions during his ISI period continue to be relevant. His emphasis on the need to establish the political feasibility of proposed changes in the method of planning as he emphasized in the seventies are as relevant now as they were then, except that the proposed change is a broad agenda of reforms ('big bang' and others). The grounds for his skepticism of the feasibility of change to rolling plans seems to be relevant also to the feasibility of "big bang and other" reforms for example. Second the number and range of his contributions after he resigned from ISI, particularly his books with Professor Bhavani (T and B, 2007 and 2012) are remarkable for their depth in their exploration of India’s Development and Political Economy.

5. Inequality in India

5.1 Some data-based issues

In celebrating Tendulkar’s contributions and to pay a tribute to his memory I thought it would be appropriate to look at some aspects of poverty and inequality in India, drawing to the extent I could, on the available data on household expenditure from all rounds of the NSS including the so-called ‘thin’ rounds of non-quinquennial years. In so doing I will be ignoring the differences in sample design across rounds, in particular the major design changes introduced in the 28th round of 1973-74. I will also be neglecting the facts that surveying household expenditure was not the primary objective in some of the rounds; not all rounds covered a full year and even those that did, the year did not always correspond to a fiscal year or an agricultural year etc. My ignoring all these is not because I believe them to be irrelevant but only because I neither have full details of the design changes nor do I have the expertise or time to adjust properly for them even if had. My hunch, and it is only a hunch, is that effects of design changes on poverty estimates are likely to be relatively minor compared to the effects of other factors.
I should also mention that the size of the total central sample in the early rounds was not large compared to the quinquennial surveys since 1980. However in my view, contrary to common belief including that of the Planning Commission, the sizes of central samples of annual rounds have been large enough to yield reliable estimates of poverty at the all-India level and also at the level of large states. In any case I would proceed on that basis. I should however mention that had the State Samples of equal size that were meant to be independently analyzed by states for use in addressing state specific issues been included, the total sample sizes of annual rounds would have doubled. Scandalously and wastefully the State Samples have been very rarely used.

NSSO (2001) published on the occasion of the Golden Jubilee of NSSO is comprehensive in its description of the changes across rounds in concepts used by NSS, Unfortunately its Annexure 3 gives the number of villages and urban blocks surveyed in each round but not total sample size in terms of number of rural and urban households surveyed. One has to access the report of each round to get its sample size in terms of households canvassed Fortunately Ozler et al. (1996) have done so for rounds 3-48 covering the period 1951-1993 and we use their compilation in appropriately weighting the sample observations of each round in the regressions in Section 4.

5.2 Inequality since 2000

Inequality measures involve assessing the relative positions of individuals in the distribution in a society of whatever inequality measure (of income, consumption, particular commodities such as food, health service etc.) is of interest. Poverty involves examining an individual’s position relative to some absolute norm and assessing the distribution of the individuals in the society with respect to their departures from the norm.

In the decade of the 2000s it has been claimed that in India and many other developed and developing countries inequality has been on the rise. The literature on this claim is large and growing, diverse with some contributors not even defining inequality precisely, let alone statistically testing its rise rigorously with appropriate data and assumptions. What follows is one such exercise to test this proposition.

Although individual household (unit) records of consumer expenditure are in principle available from the NSSO, I use only the published reports of household expenditure in the rounds of the eight years 2001-02 to 2009-10 with the exception of 2008-09 This meant that I had to use distributions by size classes (12 or 10 in all) of MPCE. Thus the Lorenz curves in Figures 1 and 2 (all figures and tables are at the end of the paper) respectively of the distributions of MPCE at current prices for Rural and Urban areas for the eight years are based on replacing continuous distributions by histograms corresponding to the size classes. Naturally this procedure involves potentially significant approximation errors that could be large if the number
of size classes is few. I will assume that these errors do not bias the inter-year comparisons below of the Lorenz curves and of Gini coefficients based on them. Since it is well known that Gini coefficients are not only crude aggregate measures of inequality but also insensitive to changes in the distribution it is preferable to compare the distributions themselves rather than only the Gini coefficients. I will in fact do both. Looking at the distributions in Figures 1 and 2 it is apparent that in the decade 2000-2010 the Lorenz curves did not change very much. To be sure, I also did a Kolmogorov-Smirnov test of a bilateral comparison respectively of the rural and urban Lorenz curves for the years 2001-02 and 2009-10. The results are presented in Tables 1A and 1B. No statistically significant difference between the two Lorenz curves is seen in either rural or urban areas.

Tables 2A and 2B present Gini coefficients and their confidence intervals. It is evident from the Tables that, unsurprisingly, urban Gini coefficients exceed the rural ones once in each of the eight years. Although a statistical test of the hypothesis that the Ginis of the eight years were the same could be done, even without doing so it is clear from the confidence intervals that they are the same. For example, the largest Rural Gini was 0.51 in 2006-07 which is within the confidence interval around the lowest Gini of 0.40 in 2009-10 and vice versa.

Instead of comparing Lorenz curves based on the histograms of the distributions of MPCE one could compare the cumulative distribution functions (CDF) derived from the histograms. Lorenz curves plot the shares of total MPCE of the population shares in the vertical axis against the shares of total population that incur them in the horizontal axis. It is obvious that the Lorenz curve is unaffected by any deflation of MPCE of all individuals by the same deflator, since such deflation does not affect either axis. Strictly speaking, under the very strong sufficient conditions, all individuals and households face the same vector of commodity prices at each point of time and over time all prices change at the same rate, using a deflation that changes at the common deflator to deflate expenditures of all individuals and households would be appropriate even if the individuals are diverse in their preferences. An alternative sufficient condition would be to assume that all individuals and households have the same preferences and face the same vector of prices with prices varying over time at possibly different rates.

On the other hand, CDFs plot (on the vertical axis) the cumulative population shares at the upper limit MPCE values (on the horizontal axis) at current prices of successive size classes. The lower and upper limits of each size class have been chosen so that the size class represents the same share of population each year. It would appear that deflation of all size classes by the same deflator could affect the CDF by distorting the horizontal axis, so that the CDFs of the undeflated and deflated MPCEs would be different. In any case, instead of comparing CDFs of MPCE at current prices we compare the CDFS of rural MPCEs deflated by the consumer price index for rural labour (CPIRL) and urban MPCEs by the consumer price index for industrial workers (CPIIW). The CDFs of deflated rural and urban MPCEs are shown in Figures 3 and 4 respectively. The Kolmogorov-Smirnov bilateral comparison tests of CDFs of deflated MPCEs
of 2001-02 and 2009-10 for rural and urban areas are reported in Tables 2A and 2B. The tests confirm what Figures 3 and 4 suggest, namely, that there is no change in the CDFs of deflated MPCEs in the decades of 2001-10. Given the crudeness of the deflation procedure the importance of this finding should not be exaggerated. For this and other reasons, including that the time periods analyzed and the methodology of analysis are different from Sen and Himanshu (2004), it should not be compared to their finding that inequality increased sharply in the 1990s.

For many reasons, primarily due to data problems and possibly serious approximation errors, absence of robustness checks and crudeness of deflation I would not claim that my statistical tests on Lorenz curves and CDFS of uniformly deflated MPCE distributions have established rigorously that in India in the decade of the 2000s inequality has not changed.

The sufficient conditions under which a uniform deflator for all individuals (households) would be appropriate are strong. However, while in principle an individual (household) specific deflator based on the individual’s preferences and the policies he/she faces at each point would be an appropriate one to use (provided preferences do not shift over time), there are conceptual and data problems. First, we have to have panel data so that the same set of individuals are sampled over time. Second, even if we did, there are many conceptual problems including one of aggregation of real income over individuals. Thus although the use of a uniform deflator is problematic there is no better alternative.

6. Poverty Before and After 2000

Inequality and poverty are distinct concepts and that the changes over time in one need not correspond or correlate with changes in the other. There is an extensive literature on the choice of poverty norms, in particular whether a scalar norm or a vector of norms would be appropriate and whether they could be deemed to be inter-temporally stable. In my paper, (e.g. Srinivasan, 2007) on poverty, I have discussed this issue and have nothing new to add. Subramanian’s paper in this volume discusses this issue.

I will simply assume that (i) there is general agreement in India on the norms being scalars called poverty lines (PL) for the society as a whole and/or for well-defined socio-economic groups within the society as well as their stability in real terms (ii) the PLs are defined as the value at well-defined and specified prices in some base year of specified bundles or baskets (called poverty line baskets or PLBs) and (iii) a well-defined procedure for backdating and updating PLs in base year prices is also specified.

If my memory serves me right, in India the updating (and backdating) was done (until the Lakdawala Committee changed it in 1993) by inflating (and deflating) the base year value of the PLB, i.e. the PL of the base year, using a single overall price index for rural and urban areas rather than revalue the PLB itself at the prevailing prices of the goods and services included in
the PLB, the price vector being drawn from the prices of commodities and services included in the chosen price index. For this reason, the debate on the contents of the PLB is entirely misplaced as all PLB's which happen to have the same value at base year prices would serve just as well as poverty lines for the base year and hence all subsequent years!

The official data on poverty published by the Planning Commission until 1979, to the best of my knowledge, were based on PLs of Rs. 20 per capita in rural areas and Rs. 25 per capita in urban areas at 1960-61 prices. These PLs were defined by an expert group in 1961 (see Srinivasan and Bardhan (1974)), but they did not spell out the basis for them, although the Perspective Planning Division gave the pragmatic reason that, “In deciding the minimum objective a balance has to be struck between what may be considered desirable and what is in fact feasible by way of the rate of income growth and of income redistribution within a given period of time”. These PLs did not include expenditures of a household on education and health services as these were meant to be provided at no cost to the household by the state.

The PLs were reviewed in 1979 by a Task Force chaired by Yoginder Alagh. It recommended new poverty lines of Rs.49 and Rs.56 respectively for rural and urban areas at 1973-74 prices and in addition recommended replacing the mean MPCE of the NSS survey data by its corresponding value in the National Accounts Statistics. Also, they defined the food basket that would provide the energy equivalent of 2400 kilocalories per capita per day (kcal pcpd) for rural and 2100 kcal pcpd for urban areas, and its composition based on patterns corresponding to these levels of consumption from NSS data for 73-4. They also used consumer price indices for agricultural labour for rural and non-manual workers for urban areas for adjusting the poverty line for price changes; and further made pro-rata adjustments to NSS estimates of per capita expenditure per day to account for the difference between NSS and NAS estimates of total consumption. Official Poverty data from then on were based on both recommendations of the Task Force. The Lakdawala Committee of 1993 accepted the Task Force’s first recommendation on PLs but, in my view rightly, not its second recommendation on pro-rata adjustment, and also changed the procedure for the updating PLs. In effect official poverty estimates from 1973-74 till 2004-05 were based on the PLs defined by Task Force and the updating procedures of the Lakdawala Committee. They also suggested that henceforth poverty estimates be made entirely on the basis of NSS consumption data and provided estimates from 1973-4 to 1987-88. All subsequent estimates of the PC followed this method (Planning Commission 1993) until the report of the Tendulkar Committee. Based on the methodology of the report (Planning

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6 I am greatly indebted to Mr. K. L. Datta, Consultant in the Ministry of Rural Development, Government of India, for letting me see Chapter 2 on The Methodology of Poverty Measurement from his forthcoming untitled book analyzing Poverty Measurement and Policy in India (Datta, forthcoming). My email exchanges with him and the chapter were very helpful in clarifying the changes in poverty measurement by the Planning Commission and also evaluation of the changes made (as well as needed and not yet made) by independent scholars.
Commission 2009) the Planning Commission (2013) has published poverty estimates for 2004-05 and 2011-12 for India as a whole and the states. Ignoring the effect of the changes in poverty lines the proportion of the poor in India’s population fell from over 50 percent in the early fifties to 22 percent in 2011-12. The data for 2011-12 became available only after the exercises in Sections 6.1 to 6.3 below had been completed.

6.1 Related Studies

Datt (1998) had revised and updated poverty indicators (poverty ratio, poverty gap and poverty gap squared) of rural and urban India as a whole and of major states using the poverty lines of Rs.49 per capita per month in rural areas and Rs. 57 per capita in urban areas at 1973-74 prices as recommended by the Task Force (1979). He did not replace the mean MPCE of each round with its counterpart from National Accounts Statistics. He estimated semi-log time trends of poverty. My first exercise was simply to replicate Datt’s trend estimate in part to check, whether he had used (square root of) sample sizes as weight as is done in this paper to improve the efficiency of the parameter estimates. However both sets of estimates are unbiased. It appears he had not—his estimate of the rate of decline of rural and urban poverty during 1951-1994 were respectively 0.86% and 0.75% My estimates were respectively 0.89% and 0.77%. Both the slopes were statistically significant with P values of 0.000 (Table 4A).

My next set of regressions estimated the trends of official poverty ratios during six quinquennial year surveys over three decades of 1973-74 to 2004-05 omitting 1999-2000 because of its well-known problems. As seen from Table 4B the yearly average trend rates of decline at 2.2% and 2.5% respectively in rural and urban areas. Both are statistically significant with P values of 0.000. Since the rates of decline seem rather rapid, the sample size of six is very small and the trends have to be corroborated with independent data before they are used.

I updated to the decade of 2000 poverty lines of Task Force (1979) using CPIAL for Rural areas and CPIIW for urban area, estimated poverty ratios using the CDFs derived from the histograms. Naturally there could be significant approximation errors in the ratios. Predictably, the standard errors of the estimated regression coefficient are high. The estimated annual average decline of 0.465 in rural areas is not statistically significant from zero. The rate of decline at 7.3% for urban areas is too fast (halving of poverty every decade) to be credible and it is statistically significant at a 6.5 % level of significance only. The slow and significant decline in rural poverty is consistent with the general belief that the agricultural sector has been stagnant and the occurrence of a spate of farmer suicides in some states. Consistency in this crude sense should not be viewed as establishing a causal story.

6.2 Econometric Exercises

It goes without saying that there would be significant correlation between rural and urban poverty ratios suggesting that the residuals of trend regressions for the two could be estimated
using the technique of seemingly unrelated regressions (SUR) allowing for the residuals to be correlated. However Table 4B reports results for the simple case of uncorrelated disturbances. In such a case the parameter estimates remain unchanged as compared to the estimates from running separate regressions but there are efficiency gains in the form of lower standard errors for the estimated parameters because of larger sample in combining the two regressions. This is seen clearly by comparing the residual mean squares in the corresponding regressions. For example consider rural regressions in 4A, and its counterpart in 4B. Both have the same slope coefficient -.0224644. But the slope coefficient in 4B, has a lower standard error compared to its counterpart in 4A. The following additional trend regressions are run, and reported in Tables 5 to 6. These include separate regressions of poverty ratios of the World Bank at its $1.25 a day at 1995 PPP exchange rates and of Gupta and Datta (1984), and grand pooling of regressions.

Finally, I tested for structural breaks in my longest time series of poverty series included in the regressions reported in Tables 6, at 1985-86 and 1990-91 that are exogenously imposed. This time frame was selected as India implemented a few hesitant economic reforms in the mid-1980s, and systemic reforms covering several sectors in 1991 after a severe macroeconomic and balance of payments crisis. The coefficients for these structural breaks are not significant. One of the main reasons could be the limited number of observations in the 1990-2009 period relative to the earlier years. However, we have limited concurrent observations in 1990-2009 relative to the earlier years. Further Bai and Perron (1998) tests were done to test if they were any endogenous structural breaks.

My plans were to compute time series of poverty levels from 1950-51 to 2009-10 based on (updated and backdated) poverty lines of the Planning Commission, the Task Force of 1979, Gupta and Datta (1984), the Expert Groups chaired Lakdawala and Tendulkar (2009) and the World Bank’s $1.25 a day at 1995 PPP exchange rates. For various reasons they could not be realized. Instead I drastically limited my effort to extend different poverty lines to cover the time span of six decades and chose to use the poverty ratios that various authors had published using their poverty lines for the years they chose to cover in a common semi-log time-trend framework. This meant that my intention to use annual rounds of non-quinquennial years could be implemented only partially since the poverty ratios of several authors are available only for the quinquennial years! Unfortunately the myth, and it is a myth since no one has provided convincing evidence in support, that only the large sample sizes in quinquennial years could yield reliable estimates, seems to have been bought without much thought by official, national and international agencies. Be that as it may, in the time trend regressions that follow I have made the best of a bad bargain by using all the information available, meaningfully I hope!

6.3 Revision of Poverty Measurement by the Tendulkar Committee

The Tendulkar committee submitted its report in November 2009. It painstakingly rationalized its apparently radical revision of poverty measurement in India by proposing a single PLB applicable to all of India's residents, rural or urban and in whichever state or union territory
they happened to be residents. Presumably the PLB was meant to be universal in this sense but possibly eternal as well in the sense of being time invariant. To be fair, the Committee neither explicitly suggests its PLB as an eternal norm nor does it explicitly say that it is not. This universal PLB was “the MRP [Mixed Reference Period] equivalent of PCTE (Per Capita Total Consumer Expenditure) corresponding to 25.7% of urban BPL [Below Poverty Line] population… [or] poverty ratio" (Planning Commission, 2009, p 7).

In arriving at its universal PLB, the committee started with the observation "that the latest available official estimate of rural poverty ratio of 28.3% for 2004-05 is widely perceived to be too low mainly because of understated price adjustment (mentioned earlier) and its basis of a very old and outdated 1973-74 poverty line basket (PL B) while the corresponding urban proportion 25.7 percent of the BPL population is less controversial in terms of order of magnitude of extent of urban poverty" (ibid, p6) It then goes on to list seven points in favour of its recommended PLB ibid, pp7-8).

It is ironic that the committee, after rightly deciding not to anchor the poverty line around average energy requirements (in kilo calories per day) per person based on FAO/WHO energy requirements in kilo calories per day of persons of specified age, sex and activity status and in the case of a female, her pregnancy and lactation status\(^7\), nonetheless felt it needed to draw support for its PLB by pointing out in its point six that “the revised minimum calorie norm for India recommended by FAO is currently around 1800 calories per capita per day which is very close to the calorie intake of those near the new poverty lines in urban areas (1176 calories per capita and higher than the revised FAO norm (1996 calories per capita) in rural areas in the 61st round of NSS" (Planning Commission, 2009, p8). The seventh point in support the new PLB is that it happens to be close to but less than the 2005 PPP $ 1.25 poverty norm used by the World Bank in its latest poverty estimates. Unless the World Bank’s, or for that matter any other PL, is independently rationalized or justified on some normative grounds the fact that the committee’s PL is close to them is no argument in its favour.

The committee also carried out external validation checks “for the consistency of the new All India and state level poverty lines derived from the recommended PLB and recommended price adjustment procedure with regard to nutritional, educational and health outcomes derived from the related specialized out,-oriented service" (ibid, p8). Although I am very much attracted

\(^7\) The eminent statistician, the late Professor P.V. Sukhatme (1911-1997), in several papers stressed the importance of allowing for intra- and inter-individual variation in energy intakes around a requirement, defined as long-term averages. He had argued that not doing so in identifying all individuals whose energy intakes are below the average requirements for the population as a whole as necessarily undernourished would lead to erroneous estimation of the share of undernourished in a population and by the same token erroneous estimation of the poverty ratio in a population using a poverty line anchored at the average energy requirement for a population. See Srinivasan (1992) and Sukhatme (1982).
to and supportive of the idea of a universal norm of poverty for all Indian citizens (and arguably also for non-citizen residents), I was not persuaded by the rationale used by the committee for the particular PLB it chose as the universal norm. By saying this I do not mean to dismiss the so-called validation checks used by the committee but only to express my skepticism about the rationale behind these checks themselves. Also some of the arguments in support of the PLB offered by the committee seem irrelevant for the purpose to me. If my memory serves me, which it may not, I had expressed my reservations to Suresh in our unrecorded conversation in January 2010 and promised to think about them.

The Group described its procedure (Steps A-F) for deriving final poverty lines at 2004-05 prices and their updating (Steps G-H) in Annex C. It reports statewide and All-India poverty lines for the year 2004-05 for rural and urban areas separately. Their updated values for 2009-10 are also available from the PC. However, without access to the household level unit values each year, particularly the non-quinquennial years in which they are not publicly available, poverty lines and levels based on the committee's procedure are impossible to compute. I can personally testify to this fact in my own failure in my attempt to do so for this paper. The committee was aware of this problem and for this reason had recommended “that the NSO publish by state and rural and urban population, the median levels of unit values for all the items for which quantities are available” and “that the planning commission set up either in-house or in some suitable institution a unit that can perform the required computations whenever necessary and support the state governments to do the calculations, if necessary” (ibid, p15). Neither recommendation has been implemented as yet.

7. Conclusion

This paper is primarily intended to be a tribute to Suresh Tendulkar and his contributions to poverty measurement and also planning. It did not cover all his writings, particularly during his tenure as the Chairman of the Prime Minister’s Economic Advisory Council. Nor did it explore his contribution as Chairman of the National Statistical Office. Given my chosen task, the previous sections of the paper did not go deeply into policy issues. Yet Suresh’s doctoral thesis and his work during the decade (1968-78) he spent at ISI were very much on national planning. A significant part of my work in ISI during (1964-77) was also on planning models. Put another way, both of us then still had faith in the public-sector led planning largely managed by non-price based economic management as essential for achieving the overarching national objective of poverty eradication. Without entering into my later deviations from this faith and reasons thereof and into debates on policy to which I have had my say in my other writings, let me briefly summarize my policy observations.

First, the empirical results support a broad observation that until the hesitant reforms of the mid-eighties and systemic reforms post 1991, growth was slow with no downward trend in the poverty ratio. Since the reforms, the growth rate of real GDP accelerated and the poverty
ratio declined. It is also the case that from a policy perspective the reforms broadly speaking abandoned the insularity from world markets and absence of domestic and external competition, and encouraged the entry of domestic and foreign private sector entities. For example the development and the success of the IT sector and the emergence of large entities that did not even exist in the pre-reform era testify to the success of competition of Indian entities in global markets that was created by the reforms. Sadly, the post-reform era is also one in which administrative and political corruption are widely believed to have increased. Most importantly, one-party rule at the Centre came to an end with the defeat of Rajiv Gandhi’s Congress Party rule in 1989 and ushered in an era of rule by coalition of regional parties for the first time at the Center.

A causal story attributing the economic reforms as having brought about growth acceleration and poverty reduction that is theoretically and econometrically sound is virtually impossible to provide for several reasons. These include the inadequacy of the number of observations and difficulty of identifying a sufficient number of exogenous variables. However several analyses, largely of a descriptive kind, including Srinivasan (2011) are available. I would argue that by and large the analyses, though not all, support the proposition that the reforms of moving away from the license-permit raj were justified and the results confirm that. If anything, failure fully to implement the agenda of 1991 reforms, including not initiating needed reforms relating to factor markets, infrastructure, and the financial sector, has contributed to the growth slowdown since the three golden years of 9 percent a year average growth during the three fiscal years 2005-06 to 2007-08. The global financial crisis of 2008 or the Euro zone uncertainties since late 2011, added modestly to the growth slowdown that was already in progress and growth recovery after the financial crisis of 2008 lasted only until the Euro Zone sovereign debt crisis hit. Incidentally India’s own sovereign debt (and the gross fiscal deficits) is arguably unsustainable.

Suresh Tendulkar made lasting contributions to the empirical analysis of India’s economic development In particular, his work on poverty measurement has attracted the attention of academics and policy makers. Of course, the ongoing academic research on conceptual underpinnings of poverty measurement should be encouraged. The prospect of making a path-breaking contribution and possibly publishing it in a globally known theoretical journal are obvious incentives. If any additional incentives are needed they should be explored.

In my view surprisingly, there have been only a few papers that exploit the increasing availability of data on individuals and households and the computing technology to analyze them have been published on poverty and levels of living in India. Let me conclude with a couple of possible explorations.

The first is studying inequalities of access to services (education, health, clean water etc.) using data from the population censuses and NSS together. A pioneering study of this approach is by Ricardo Barros et al. (2009). Given the available access to unit-level data from several
rounds of NSS of a stratified random sample from the universe covered by the censuses the opportunity for doing theoretical and empirical work, particularly in devising statistically valid “populations” from censuses from which the sample of particular rounds of NSS could be deemed a random samples and also for imaginatively replicating the work of Barros et al. (2009) is very attractive. The second attractive exploration is to extract from oblivion to which the data from state level samples of each round have been condemned by the criminal neglect of governments and do analyses of the multiple facets of poverty using both central and state samples

Raj Chetty along with his colleagues have been doing pioneering research in public finance by following individuals from their childhood to adulthood. A recent working paper of Chetty et al. (2011) shows the significant impact of teacher value added in adulthood not only with respect to economic outcomes such as earnings but also other outcomes such as teenage pregnancy of girls. Of course long-term data sets that allow the researcher to follow individuals through their lives are rare. I recognize such data most probably do not exist in India. Nonetheless, my last suggestion is to explore whether any modified form, albeit simple, of the type of research that Chetty and his colleagues are doing is possible with available Indian data.
REFERENCES


APPENDIX

LIST OF ACRONYMS

AGEM: Applied General Equilibrium Model
CGEM: Computable General Equilibrium Model
CSO: Central Statistical Office
GDE: Gross Domestic Expenditure
GDP: Gross Domestic Product
GNP: Gross National Product
ISI: Indian Statistical Institute
MP: Marginal Productivity
NAS: National Account Statistics
NSO: National Statistical Office
NSS: National Sample Survey
NSSO: National Sample Survey Organization
PC: Planning Commission
PL: Poverty Line
PLB: Poverty Line Basket
PU: Planning Unit
FIGURES

Lorenz Curves for Rural MPCE for Select Years

Figure 1: Lorenz Curves for Rural MPCE for Select Years
Figure 2: Lorenz Curves of Urban MPCE for Select Years
TABLE 1A
KOLMOGOROV- SMIRNOV TEST FOR LORENZ CURVES FOR RURAL MPCE

<table>
<thead>
<tr>
<th>Rural</th>
<th>D</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 – 2009-10</td>
<td>0.2333</td>
<td>0.552</td>
</tr>
<tr>
<td>Group 2 – 2001-02</td>
<td>-0.0667</td>
<td>0.953</td>
</tr>
<tr>
<td>Combined K-S Test</td>
<td>0.2333</td>
<td>0.928</td>
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</table>

<table>
<thead>
<tr>
<th>Urban</th>
<th>D</th>
<th>p-value</th>
</tr>
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<tbody>
<tr>
<td>Group 1 – 2009-10</td>
<td>0.1667</td>
<td>0.739</td>
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<tr>
<td>Group 2 – 2001-02</td>
<td>-0.0667</td>
<td>0.953</td>
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<tr>
<td>Combined K-S Test</td>
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<td>0.998</td>
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TABLE 2 A
GINI COEFFICIENTS FOR RURAL MPCE

<table>
<thead>
<tr>
<th>Year</th>
<th>Gini Coefficient</th>
<th>Standard Error</th>
<th>t-statistic</th>
<th>p-value</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-10</td>
<td>0.40</td>
<td>0.077</td>
<td>5.17</td>
<td>0.00</td>
<td>.249 .555</td>
</tr>
<tr>
<td>2007-08</td>
<td>0.41</td>
<td>0.080</td>
<td>5.12</td>
<td>0.00</td>
<td>.252 .566</td>
</tr>
<tr>
<td>2006-07</td>
<td>0.51</td>
<td>0.794</td>
<td>6.45</td>
<td>0.00</td>
<td>.358 .669</td>
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<tr>
<td>2005-06</td>
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<td>0.785</td>
<td>5.95</td>
<td>0.00</td>
<td>.313 .621</td>
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<tr>
<td>2004-05</td>
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<td>0.081</td>
<td>5.40</td>
<td>0.00</td>
<td>.280 .601</td>
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<td>2002-03</td>
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<td>0.081</td>
<td>5.83</td>
<td>0.00</td>
<td>.315 .635</td>
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<td>0.078</td>
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### Table 2 B
GINI COEFFICIENTS FOR URBAN MPCE

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<tr>
<th>Year</th>
<th>Gini Coefficient</th>
<th>Standard Error</th>
<th>t-statistic</th>
<th>p-value</th>
<th>95% Confidence Interval</th>
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</thead>
<tbody>
<tr>
<td>2009-10</td>
<td>.44</td>
<td>.080</td>
<td>5.47</td>
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<td>.284 - .601</td>
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<td>.081</td>
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<td>.799</td>
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### Table 3
KOLMOGOROV SMIRNOV TESTS FOR CDF OF MPCE

<table>
<thead>
<tr>
<th>Rural</th>
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<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Group 1 – 2009-10</td>
<td>0.1727</td>
<td>0.732</td>
</tr>
<tr>
<td>Group 2 – 2001-02</td>
<td>-0.0091</td>
<td>0.999</td>
</tr>
<tr>
<td>Combined K-S Test</td>
<td>0.1727</td>
<td>0.998</td>
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<table>
<thead>
<tr>
<th>Urban</th>
<th>D</th>
<th>P-Value</th>
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<tr>
<td>Group 1 – 2009-10</td>
<td>0.2455</td>
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<tr>
<td>Group 2 – 2001-02</td>
<td>-0.0091</td>
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### Table 4A

#### SUMMARY OF EMPIRICAL RESULTS

<table>
<thead>
<tr>
<th>Author</th>
<th>Log Poverty</th>
<th>Time</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datt</td>
<td>Rural 1950-1993</td>
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<td>0.00189</td>
<td>0.00</td>
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<tr>
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<td>Urban 1950-1993</td>
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<td>0.00179</td>
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<tr>
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<td>Rural Quinquennial</td>
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</tr>
<tr>
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<td>Urban Quinquennial</td>
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### Table 4B

#### SEEMINGLY UNRELATED REGRESSIONS WITH SERIALLY AND ACROSS EQUATIONS INDEPENDENT RESIDUALS

<table>
<thead>
<tr>
<th>Author</th>
<th>Log Poverty</th>
<th>Time</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datt</td>
<td>Rural 1950-1993</td>
<td>-0.0089</td>
<td>0.00179</td>
<td>0.00</td>
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<tr>
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<td>Urban 1950-1993</td>
<td>-0.0076</td>
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<td>0.0019</td>
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<tr>
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### Table 5

34
### GRAND POOLING

<table>
<thead>
<tr>
<th></th>
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<tr>
<td>Rural</td>
<td>-0.0087356</td>
<td>0.00</td>
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<td>-0.007104</td>
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### TABLE 6

EXOGENOUS BREAKS IN POVERTY TRENDS

<table>
<thead>
<tr>
<th>Log Poverty</th>
<th>Time</th>
<th>Coefficient</th>
<th>p-value</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>1950-1985</td>
<td>0.011</td>
<td>.36</td>
<td>-.0141861 -.037275</td>
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