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Some Observations on Economic Growth in India
Over the period 1952-53 to 1982-83

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SOME OBSERVATIONS ON ECONOMIC GROWTH IN INDIA
OVER THE PERIOD 1952-53 TO 1982-83

There is a presumption in some of the recent discussions on Indian development experience that the rate of growth of output (i.e. of gross domestic product) has decelerated since the middle of the 1960s; and that, since the rate of domestic investment has evidently gone up significantly over the last decade, incremental capital-output ratios have not only risen sharply but it reflects increasingly wasteful and inefficient resource use in the economy. From this follows a variety of other generalisations and policy inferences, both economic and political. The proceedings of the MIT Conference on the 'Political Economy of Slow Industrial Growth in India', sponsored by the Social Science Research Council of the United States, provide rich examples.^{1/}

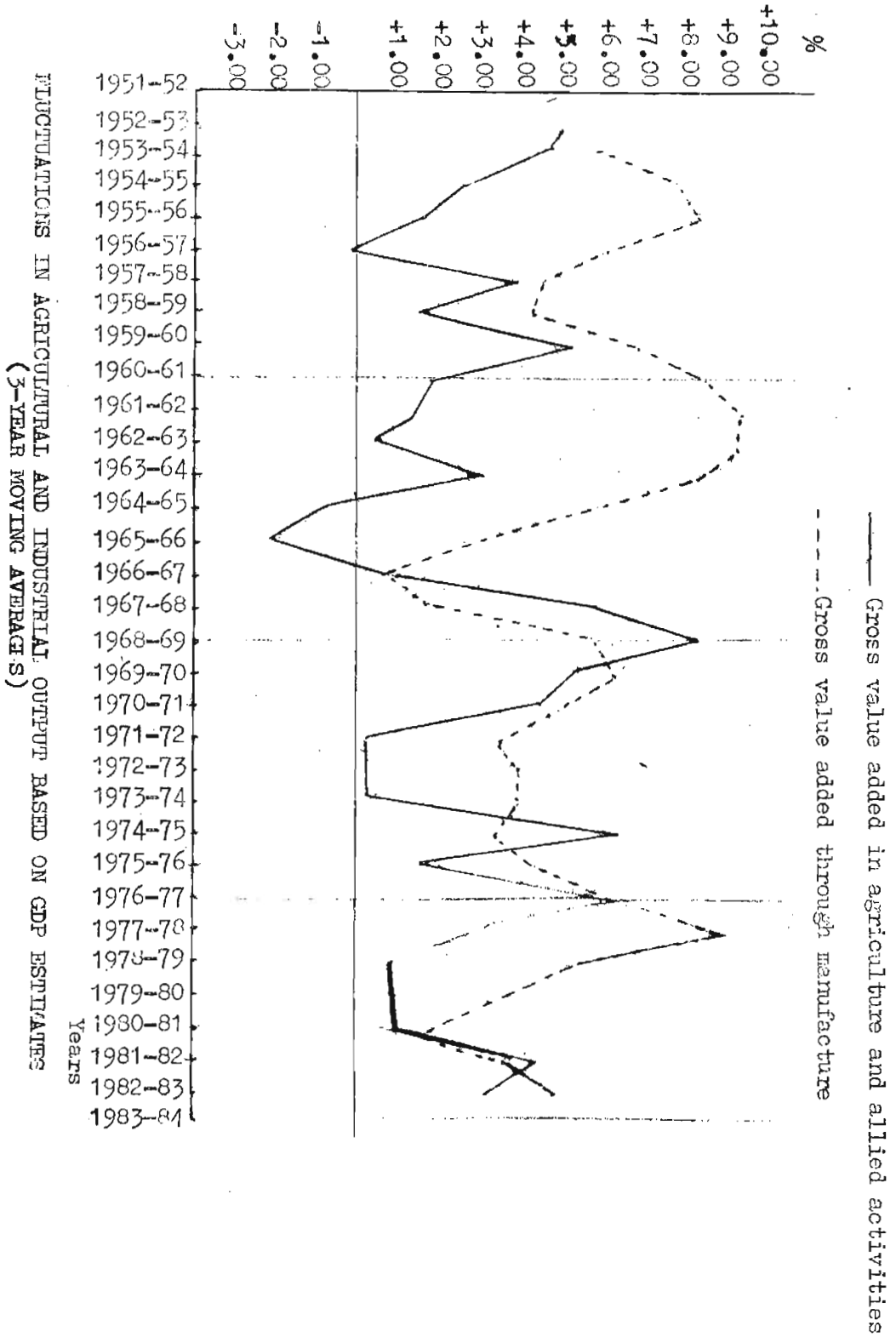
Deceleration hypotheses had their origin around the middle of the 1970s based mainly on data covering the preceding decade.^{2/} However, even before the end of the 1970s, enough evidence had begun to emerge for questioning the presumption.^{3/} Data subsequently available for the entire period covering the last three decades^{4/} make it possible now to secure a broader perspective of the pattern of growth and fluctuation in the economy and to replace the earlier supposition on deceleration with more plausible hypotheses consistent with even the possibility of some improvement in the over-all growth rate (and in the rate of industrial growth) since the middle of the 1970s.

Chart I shows three-year moving averages of the year-to-year increases/decreases in the gross value added in agriculture and allied activities and in the gross value added through manufacture, both estimated at constant prices (at 1960-61 prices upto 1970-71 and at 1970-71 prices then on), over the period 1952-53 to 1982-83.

It will be seen that there have been severe declines in agricultural output at intervals of 7 to 8 years followed by even more impressive increases; and that the industrial output series has moved in similar cyclical fashion with a time-lag of 1 to 2 years. Whether there are weather cycles corresponding to the movements in agricultural output, and what precisely their characteristics have been, are questions which need to be examined in depth, but they need not detain us at this stage since we are now concerned only with identifying broadly the nature and length of the cyclical movements in output. Having done so (with the help of the data presented in Chart I) one could go on to estimate the average annual rates of growth of GDP and of gross value added in agriculture and manufacturing industry in each of the 8-year periods identified, namely 1952-53 to 1959-60, 1960-61 to 1967-68, 1968-69 to 1975-76, and 1976-77 to 1983-84. The results are shown, along with the year-to-year estimates, in Table 1. (The three-year moving averages of the annual/ percentage changes in gross value added in agriculture and manufacturing, used for Chart I, are presented in Table 2)

When the growth record of the three decades is analysed in this manner there is not only no evidence of decline in the growth rate of GDP but one can perceive even some slight improvement in the average rate estimated for each of the sub-periods (though this is as yet too small to be statistically significant). Even the apparent decline in the rate of agricultural growth

Annual percentage increase/decrease in gross value added in agriculture and manufacturing industry



the period 1976-77 to 1983-84, compared to the earlier period, has to be interpreted with caution as the difference turns largely on which period the year 1975-76 is included in and one cannot be sure whether the appropriate length of each period is 7 years or 8 years.

It is also essential to keep in mind the following considerations:

(i) the very high rate of growth of agricultural output in the period 1952-54 is traceable only in part to the investment outlays in the First Five Year Plan, being due in substantial measure to fortuitous factors like recovery of wheat from severe rust epidemic;^{5/} (ii) the high rates of growth of output from manufacturing in the 1950s were similarly in large part a result of increased availability (after Partition) of raw materials like cotton and jute from domestic sources for the still dominantly agro-based industries; and (iii) there is likely to be some under-estimation in the growth of output from manufacturing in recent years, particularly in unregistered enterprises, for while the number and range of activities of such non-household enterprises are known to have increased phenomenally since 1970-71, there has been serious under-reporting in regard to them and the methods used for estimating changes in the gross value added by them preclude to a significant degree their true dimensions being captured.^{6/}

For these reasons, I would advance the view that, even though one cannot fully support it with adequate statistical evidence (in fact not perhaps for a further decade till a sufficiently long time-series is available), there is possibly some increase in the rate of growth of industrial output in the middle of the 1970s, raising it closer to the level achieved in the 1960s.

Table 1: Percentage Increases in Gross Domestic Product and in Gross Value Added in Agriculture (and allied activities) and in Manufacture, estimated at factor cost and at constant prices

Year	Gross Value Added		
	<u>Gross domestic product</u>	<u>Agriculture and allied activities</u> (at 1960-61 prices upto 1970-71, and at 1970-71 prices from then on)	<u>Manufacture in registered and unregistered enterprises</u>
1951-52	1.98	1.64	..
1952-53	3.54	5.47	2.80
1953-54	6.32	8.09	7.10
1954-55	2.77	0.29	7.78
1955-56	3.15	- 0.18	8.18
1956-57	5.48	5.00	8.04
1957-58	- 1.74	- 5.13	1.03
1958-59	8.48	11.17	4.44
1959-60	1.83	- 1.71	6.88
Average (1952-53 to 1959-60)	<u>3.73</u>	<u>2.87</u>	<u>5.78</u>
1960-61	6.86	6.10	8.72
1961-62	3.55	0.84	9.58
1962-63	2.13	- 2.48	9.84
1963-64	5.10	2.67	8.21
1964-65	7.88	9.19	7.89
1965-66	- 5.21	-14.29	1.25
1966-67	0.97	- 1.77	- 1.34
Average(1960-61 to 1967-68)	<u>3.75</u>	<u>2.17</u>	<u>5.74</u>
1968-69	2.70	1.36	4.29
1969-70	6.34	6.39	10.70
1970-71	5.56	7.75	3.50
1971-72	1.57	- 0.70	2.76
1972-73	- 1.08	- 6.36	4.16
1973-74	4.70	7.72	4.85
1974-75	0.86	- 2.14	2.35
1975-76	9.45	13.18	2.15
Average(1968-69 to 1975-76)	<u>3.75</u>	<u>3.40</u>	<u>4.34</u>
1976-77	0.76	- 6.59	8.81
1977-78	8.81	12.63	6.48
1978-79	5.75	2.86	11.10
1979-80	- 5.27	-13.27	- 1.85
1980-81	7.84	12.82	1.69
1981-82	5.35	3.34	5.11
1982-83	1.80	(- 3.00)	(3.90)
1983-84	(7.00)	(9.00)	(4.80)
Average(1976-77 to 1983-84)	<u>4.01</u>	<u>2.22</u>	<u>(5.00)</u>

Source of Data: Central Statistical Organization, National Accounts Statistics
For gross value added in agriculture and manufacturing from 1951-52 to 1970-71 at 1960-61 prices, see the Disaggregated Tables published along with the series for 1960-61 to 1972-73 in March 1975.

OR
 Table 2: Three-Year Moving Averages/Percentage Changes in Gross Value
Added in Agriculture and Manufacture

Mid-Year of the Three-Year Series	Agriculture and allied activities	Manufacture (in registered and unregistered enterprises)
1952-53	5.07	..
1953-54	4.60	5.89
1954-55	2.72	7.69
1955-56	1.69	8.21
1956-57	0.10	5.75
1957-58	3.68	4.50
1958-59	1.44	4.12
1959-60	5.19	6.68
1960-61	1.74	8.39
1961-62	1.49	9.38
1962-63	0.34	9.21
1963-64	3.13	8.65
1964-65	0.81	5.78
1965-66	2.29	2.60
1966-67	0.35	0.57
1967-68	5.57	1.58
1968-69	8.29	5.59
1969-70	5.17	6.16
1970-71	4.48	4.89
1971-72	0.23	3.47
1972-73	0.22	3.92
1973-74	0.26	3.79
1974-75	6.25	3.12
1975-76	1.48	4.44
1976-77	6.41	5.81
1977-78	2.97	8.80
1978-79	0.74	5.24
1979-80	0.80	3.65
1980-81	0.96	1.65
1981-82	(4.39)	(3.57)
1982-83	(4.72)	(4.60)

The share of agriculture in gross domestic product has fallen significantly over the last two decades, from 48 percent in 1960-61 to about $41\frac{1}{2}$ per cent in 1970-71 (when valued at 1960-61 prices) and from about $47\frac{1}{2}$ per cent in 1970-71 to less than 40 per cent in 1981-82 (when valued at 1970-71 prices), in all by no less than 13 to 14 percentage points. Therefore, even if the rate of growth of agricultural output had declined slightly (for which there is as yet no conclusive evidence)^{7/}, the over-all rate of growth could have increased somewhat on account of the increasing weightage of the non-agricultural sector, the higher rate of growth in this sector, and the possibility (referred to in the last paragraph) of under-estimation of the growth of output from manufacturing from about middle of the 1970s. I would venture to place it now at not less than 4 to $4\frac{1}{4}$ per cent per annum, certainly above the so-called "Hind rate of growth. If this is reasonably close to the mark, it is not growth in the Indian economy that would seem to have stagnated so much as perhaps the way of thinking about it among academics.

Without however introducing any such subjective judgements and statistical adjustments it is possible to show that the apparent increase in incremental capital-output ratios is explained largely by factors other than those stressed at the MIT Conference. The most important of them (and perhaps the least suspected until it was noticed three years ago) is simply that, while the prices of commodities and services going into fixed capital formation rose at about the same rate as the prices of commodities and services going into GDP (as reflected in the respective CSO deflators) from the middle of the 1950s upto the middle of the 1970s, the former have risen

much more rapidly since then. The numerical implications have been spelt out in detail after a detailed examination of the relevant estimates by a Working Group appointed by the Government of India.

".....even though the rate of gross capital formation in the economy would at first appear to have risen by about $2\frac{1}{2}$ times over the last quarter of a century (from around 10 per cent of the GDP in the middle 1950s to nearly 24 per cent by the end of the 1970s), the order of increase has been much lower. When year-to-year fluctuations are smoothened out, and both the capital formation and domestic product series are estimated at 1970-71 prices, the rate of gross fixed capital formation in the closing years of the 1970s (about 18 per cent of GDP) turns out to be no higher than in the middle of the 1960s and only about two-thirds higher than in the middle of the 1950s (when it was about 11 per cent of GDP)The allowances to be made for capital consumption (i.e. depreciation), and for capital destruction and losses, raise a number of conceptual and estimational problems that cannot be easily resolved. It is however obvious that, if they are all counted in and if they add up to between $5\frac{1}{2}$ and 6 per cent of GDP (which is the present rate of depreciation allowed for by the CSO), the net rate of fixed capital formation would be only around 12 to $12\frac{1}{2}$ per cent of the national income (at 1970-71 prices)".^{8/}

Still another factor to which attention has been drawn in the report of the Working Group is the "noticeable shifts in the pattern of investment that have taken place within the large-scale industrial sector, in favour of industries with relatively high capital output ratios such as chemical fertilizers and electricity from the middle of the 1960s and petroleum, coal, steel and non-ferrous metals in more recent years". While not denying the possibility of the marginal capital-output ratios getting raised through mistaken choices or inefficient use of investments in fixed capital, under-utilization of capacity, and needless additions to inventory holdings, what it sought to emphasize was that "the rise in these ratios could also be reflecting shifts towards industries which for technological reasons happen to require large amounts of fixed capital relatively to output,

and that closer analysis is required before drawing other conclusions.

For reasons not obvious from the published report on the proceedings the participants at the MIT Conference seem to have taken the apparent increase in incremental capital-output ratios at their face value without paying attention to these considerations, and accepted the interpretation that it was indicative of something seriously wrong in the economy and polity of India. One of them (in fact the one around whose earlier contribution the entire conference was evidently structured) appears to have argued that "the high and rising incremental capital-output ratios...is not simply due to a relative shift in the pattern of recent industrial involvement towards relatively capital-intensive and/or long-gestation industries like chemical fertilisers, petro-chemicals and electricity generation" since "all industry groups show a rise in capital output ratio and it is "particularly pronounced in the public sector". It does not seem to have occurred to anyone that, if the prices of capital goods were in general rising faster than of other goods, one could expect to find a rise in capital-output ratios in all industry groups (more particularly in those in which replacement of old capital stock was taking place rapidly); and that in the public sector, the performance in industries such as steel has been due to a variety of other factors (from some of which even their counterparts in the private sector in advanced industrial economies have not wholly escaped). In fact, the complex problems afflicting the capital goods sector now, which merit attention from serious scholars not only in India but even in the more advanced industrial economies, seem to have been altogether ignored by the participants.

That the majority of the participants in the Conference are located abroad and therefore not sufficiently familiar with the wide variety of Indian data and their complexities could be of course one reason for their failure even to raise some of the issues indicated in the earlier paragraphs. But then one would expect them to be familiar at least with the data relating to other countries, including the ones in which they reside, and the sort of indications they give on incremental capital-output ratios elsewhere in the world. Table 3 shows these ratios for different groups of market economies in the world as estimated and published by the United Nations.^{10/}

It will be seen that rise in incremental capital-output ratios has been an almost universal phenomenon; that the only exceptions are the "least developed" among the "developing" countries (presumably because current replacement investment is relatively low in such countries); and that it has been sharpest among the capital-surplus energy exporting countries (presumably for the reason that massive investments in "modernization" have been taking place in these countries on an unparalleled scale). One needs also to be keep in mind the perceptive observation made by Professor Arthur Lewis, on the basis of his detailed study of growth and fluctuations in the period 1870-1913, that the infra-structural capital costs tend to be very high in periods of urbanisation.^{11/}

The reasons for the observed rise in incremental capital-output ratios in India need to be viewed and analysed within this broader perspective, before drawing hasty inferences and pontificating about the Indian performance as if it were an exceptional or isolated case. The increases over this period have been in fact in incremental capital capital-output ratios in India no greater than in

Table 3: Incremental Capital-Output Ratios in World Market Economies
at 1975 prices

	1960-65	1965-70	1970-75	1975-80	1960-70	1970-
World market economies	4.1	4.7	7.1	6.4	4.4	6.7
Developed economies	4.3	5.1	8.3	6.7	4.7	7.4
Developing economies	3.2	2.9	3.8	5.4	3.0	4.6
Developed economies						
North America	4.1	6.9	7.9	5.7	5.4	6.6
Africa, Asia & Oceania	3.3	3.1	8.1	7.0	3.2	7.5
Europe	4.8	5.2	8.8	7.6	5.0	8.1
Major industrial economies	4.2	5.2	8.4	6.4	4.7	7.2
Other developed economies	4.4	5.0	7.8	8.8	4.8	8.2
European Economic Community	4.9	5.2	9.2	7.3	5.0	8.1
Developing Economies						
Latin America & the Caribbean	3.5	3.4	4.1	5.5	3.5	4.9
Africa	2.7	2.5	6.2	4.8	2.6	5.2
West Asia	1.6	1.7	2.0	10.7	1.6	4.5
Asia and the Pacific	4.5	3.3	4.1	4.1	3.7	4.1
High-income	2.8	2.6	3.6	6.1	2.7	4.8
Medium-income	2.8	3.3	3.8	4.4	3.1	4.2
Low-income	5.1	3.5	4.9	4.6	4.3	4.7
Least developed	4.1	6.1	5.2	4.0	5.1	4.4
Capital-surplus energy exporting	0.9	1.0	1.9	13.3	1.0	5.2
Other net energy exporting	2.8	3.0	4.1	4.5	2.9	4.4
Net energy importing	4.2	3.5	4.2	5.1	3.8	4.7
Petroleum-exporting	1.9	2.0	3.2	6.0	2.0	4.7
Newly-industrialized	3.7	2.7	2.9	4.4	3.1	3.7
Agricultural product exporters	4.8	3.8	5.2	5.7	4.2	5.5
Mineral product exporters	2.8	3.7	7.1	6.3	3.3	6.6



Table 4: Gross/Net Incremental Capital-Output Ratios in India, at 1970-71 prices

Period	Series A		Series B	
	including investment in inventories		excluding investment in inventories	
	<u>Gross</u>	<u>Net</u>	<u>Gross</u>	<u>Net</u>
1951-52 to 1955-56	3.13	2.25	3.02	2.15
1956-57 to 1960-61	4.13	3.98	3.69	2.75
1960-61 to 1964-65	3.23	2.45	3.03	2.25
1965-66 to 1969-70	6.59	5.18	6.24	4.81
1970-71 to 1974-75	8.88	6.59	7.72	5.36
1975-76 to 1979-80	5.08	3.93	4.57	3.37
1951-52 to 1959-60	3.80	3.23	3.50	2.58
1960-61 to 1969-70	4.54	3.48	4.28	3.21
1970-71 to 1979-80	6.27	4.77	5.55	4.00
1970-71 to 1981-82	5.66	4.35	4.75	3.39

Note: The estimates for the years upto 1979-80 are based on data furnished in Statistical Annexures 3,4,6 and 10 in the Report of the Working Group on Savings referred to earlier. The estimates for the period 1970-71 to 1981-82, given in the last row, are however based also on data available additionally for recent years from CSO's National Accounts Statistics, 1970-71 to 1981-82 (January 1984)

ost of the country groupings for which estimates are given in Table 3. This will be evident from Table 4 which gives estimates for India at 1970-71 prices.

It is of course a safe assertion to make that rising incremental capital-output ratios are "not simply due to" shifts in the pattern of

industrial investment. But there is an implicit suggestion here that they have not really been all that important. The relative share of the energy sector in the total public sector outlay has in fact risen very sharply over the last decade, from around 11 per cent in the First and Second Plan periods to between 17 and 20 per cent in the Third and Fourth Plan periods, over 25 per cent in the Fifth Plan period, and (according to preliminary estimates presented in the Mid-Term Appraisal published in August 1983) 30 per cent in the Sixth Plan period. When such important facts are waived aside, without any indication as to why, the assertions made seem naturally much less credible than they are intended to be.

No doubt there is still much wasteful and inefficient use of resources within the Indian economy to which attention needs to be given. But the kind of detailed analysis and study which this requires is not helped by cosmic generalisations about the economy and polity of an essentially superficial nature. Who does not know by now that governance of largely agrarian societies in the process of commercialization and industrialization involves a coalitional arrangement of some kind, particularly within a system of parliamentary democracy, whether through intra-party or inter-party understandings? That such arrangements involve a good deal of open or concealed horse-trading that can not only assume ugly forms but cost heavily in economic terms? And that all this is so much more complex and vexatious in a ^{multi-religious} multi-lingual, multi-caste, and multi-ethnic society like that of India? One of the participants at the conference did make the point very politely, observing that the dominant coalition thesis forward /"had the danger of sounding terribly plausible"; there was evidently some

discussion then about how and why such problems were successfully overcome
 in South Korea (a favourite example in the West for the rest of the developing
 countries to follow).^{12/} But it seems to have occurred to no one to ask why
 our neighbouring country, Pakistan, blessed with a so much more dominant and
 so much less socially and politically heterogeneous coalition, has had such
 a dismal record in regard to its rate of domestic saving and, despite pheno-
 menally high foreign aid, shown no better growth performance than the Punjab/
 Haryana/Western Uttar Pradesh region of India? It is certainly encouraging
 rather
 that Indian economists have generally become/ more sceptical about much
 advertised models of growth and development (whether it is of South Korea
 or China)^{13/} and inclined to give/ greater attention to political sociology, but
 it is also disappointing that even the most distinguished among them are
 topping short of probing deeper into the interesting and important issues
 they are raising.

September 28, 1984

K.N. Raj

Notes

1. Cf. Ashutosh Varshney, "Political Economy of Slow Industrial Growth in India", Economic and Political Weekly, Vol.XIX, No.35, September 1, 1984.
2. Cf. K.N. Raj, "Growth and Stagnation in Indian Industrial Development", Economic and Political Weekly, Vol.XI, Nos.5, 6 & 7 (Annual Number, 1976); S.L. Shetty, "Structural Retrogression in the Indian Economy since the Mid-sixties", Economic and Political Weekly, Vol.XIII, Nos. 6 & 7 (Annual Number, 1978). The main focus of my paper was not on stagnation as such but on the possible effects of slower agricultural growth on growth in the industrial sector.
3. Cf. K.N. Raj, "Recent Economic Trends in India and Prospective Changes in Development Strategy" (Working Paper No.96, Centre for Development Studies, November 1979), published under the title "Perspective Changes" in Seminar, No.244, December 1979.
4. For example, sector-wise estimates of gross and net value added at 1960-61 prices are available for the period 1950-51 to 1970-71 in the CSO publication, National Accounts Statistics, 1960-61 to 1972-73 : Disaggregated Tables (March 1975); and for the period since then in its annual National Accounts Statistics (the latest of which, published in January 1984, brings the estimates upto 1981-82). Preliminary estimates for 1982-83 and 1983-84 are available in Government of India's Economic Survey, 1983-84.
5. See V.G. Panse, "Yield Trends of Rice and Wheat in First Two Five-Year Plans in India", Journal of the Indian Society of Agricultural Statistics
6. See National Accounts Statistics: Sources and Methods (April 1980), Chapter VI on 'Unregistered Manufacturing'
7. The latest evidence, in particular the reported increases in rice output in the eastern States of India, suggests in fact that the tendencies towards deceleration in the case of crops such as wheat and maize after the first flush of the "Green Revolution" are perhaps now getting counter-acted by wider adoption of high-yielding varieties in rice in regions where yields have been extremely low and prospects of increase are potentially high.
8. Cf. Capital Formation and Saving in India, 1950-51 to 1979-80 (Report of the Working Group on Savings appointed by Department of Statistics, Ministry of Planning, Government of India), published by the Reserve Bank of India (February 1982), p.44. The CSO deflators for fixed capital formation and GDP, recomputed for the period 1975-76 to 1979-80 (with 1974-75 as the base year), are reproduced in Table 5.6 of the Report. An updated series, based on more recent CSO estimates (but again with 1974-75 as the base year), is given below.

	Fixed Capital Formation	GDP
1975-76	110.5	95.9
1976-77	112.9	102.5
1977-78	115.9	106.7
1978-79	122.0	107.9
1979-80	141.4	125.9
1980-81	162.7	137.6
1981-82	186.1	151.4

Ibid. pp.47-48

Source: United Nations, Compendium of World Development Indicators, 1982: Major Economic Indicators showing Historical Development Trends (Projections and Perspective Studies Branch, Office of Development Research and Policy Analysis, Department of International Economic and Social Affairs), PFA/QIR/3/1982, November 1982

"Here we come to a factor which must ultimately inhibit rapid growth, namely the difficulties and cost of rapid urbanisationIt is true that the factories, transport systems and other sectors need equipment, but typically, two-thirds of the cost of urbanisation is devoted to construction, including residential accomodation and other infrastructure.....High rates of urbanisation are the principal reason why the tropical countries have needed so much capital from abroad and foreign aid despite their relative prosperity. And these high rates of urbanisation are the direct consequence of explosive population growth". Cf.W. Arthur Lewis, Growth and Fluctuations, 1870-1913 (George Allen & Unwin, 1978), pp.148, 240.

The reported response that the dominant coalition in South Korea is socially and politically less heterogeneous "and certainly much less conflictual" appears a little odd in view of the methods it has had to adopt to acquire political power initially and later to maintain itself in power. This interpretation of South Korean politics cannot easily be reconciled with the recent observations of Mr.Kim Dae Jung, the South Korean dissident leader now in exile in the United States (reported in an article on "Two Cheers for Indian Democracy" by F.S. Nariman in Indian Express, September 23, 1984):

"Though the Korean economy has grown at a remarkable rate, the wealthy class is collaborating with a small band of soldiers to preserve an imbalanced economy, widening the gap between the rich and the poor. The political rights of the Korean people are being suppressed to maintain this imbalance. The Koreans enjoyed more freedom during the years when the per capita income was only \$60 than they do now when it has risen to \$1200".

Or is dissident opinion trustworthy only when it comes from India?

13. Amartya Sen is obviously right when he points out that there is something seriously wrong with the World Bank estimates according to which per capita GNP grew in China at the rate of 5 per cent per annum in the period 1960-81 while in India it was only 1.4 per cent in the same period. He did not show similar circumspection two years ago when he cited World Bank estimates to claim that the rate of growth of GDP/GNP in India had risen from 4 to 6 per cent per annum and thus become "internationally respectable" (Amartya Sen, "How is India Doing?", New York Review of Books, Volume 29, Christmas Number, 1982, p.42). I fear that the inference he now draws, that the growth rates of GNP per capita in China and India have been roughly similar, could be also erring on the side of generosity to the latter's performance, much as recent World Bank estimates of the rate of agricultural growth in China since 1976 continue to be somewhat incredible. Much more detailed and critical analyses of the growth and development record of China and India are clearly needed, as also of their respective demographic experience (including mortality from famine), before any comparative statements can be made with some confidence. (I propose to make a small contribution in this direction through a paper under preparation re-examining the hypotheses on famine in China in the period 1960-62 in the light of my earlier controversy with Amartya Sen on this subject and the more detailed data on age-distribution now available from the recent Population Census conducted in China).

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