POPULATION AND STANDARDS OF LIVING IN AKBAR'S TIME

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This paper attempts to reach statistical conclusions on the average standard of living and the population of Akbar's time. Data from Abul Fazl's *Ain-e-Akbari* which have hitherto escaped the scrutiny of historians are resorted to for the purpose.

Two independent comparisons between Akbar's and recent times are made, *viz.* comparisons of urban wages, and of mean per capita output and consumption of agricultural goods, and are found to corroborate the conclusion that the per capita consumption of basic agricultural goods was higher four centuries ago. Precisely how much higher, it is impossible to say; it is, however, possible to specify a range for per capita consumption in Akbar's time. For the two extreme limits of the range, we have estimated the land revenue paid per capita on the basis of Todar Mal's rates; per capita land revenue, divided into the total land revenue of Akbar's empire, of which we have an estimate, enables us to set limits within which the population of the empire probably lay.

I. Urban Wages

The lowest average wages in organized industry in 1961 were Rs. 744 a year in food products, Rs. 868 in wood and cork products, and Rs. 884 in tobacco—i.e. Rs. 2.80 a day.[1] Hence we might take Rs. 2.40 as the lowest *average* industrial wage. This was not the lowest prevalent wage rate. Within food industry itself some workers must have earned less than the average; and there were probably many non-industrial workers in towns who earned less.

The lowest wage mentioned in *Ain* is 2 dams a day; 3 dams a day

1. Ministry of Labour, Government of India, *Indian Labour Statistics 1965*, Tables 4.4 and 4.12.

was perhaps the wage roughly comparable to Rs. 2.40 in 1961. According to *Ain*, palanquin-bearers, gate-keepers, and the lowest grades of soldiers got between 3 and 4 dams a day (presumably in Agra).[2]

How much would the wages have purchased? Abul Fazl gives some prices, but it is not clear whether they were retail or wholesale prices. Let us make the comparison as favourable as possible to modern times, and assume they were wholesale. Dividing the wage rates by corresponding wholesale prices, we get the following picture.

TABLE 1
PURCHASING POWER OF WAGES IN AKBAR'S TIME AND IN 1961

Commodity	*Unit*	*Physical equivalent in Akbar's time of*[3]		*Physical equivalent in 1961 of*[4]
		2 dams	*3 dams*	*Rs. 2.40*
Jowar	Kg.	7.4	11.1	8.0
Wheat	Kg.	6.2	9.3	5.7
Milk	Litre	3.0	4.5	2.0[5]
Ghee	Kg.	0.8	1.1	0.4
Oil	Kg.	1.0	1.4	1.2
Gur	Kg.	1.4	2.0	5.3
Sugar	Kg.	0.3	0.5	2.4

It seems that the lowest-paid urban worker of Akbar's time could have bought about as much of cereals as and more of milk products than a relatively low-paid worker in 1961. A relatively low-paid urban worker could have bought substantially more of cereals and milk products in Akbar's time than in 1961. He could have bought far more milk and ghee and some more vegetable oil; gur and sugar,

2. Abul Fazl, *Ain-e-Akbari*, tr. H. Blochmann, Calcutta 1871, repr. Aadiesh Book Depot, Delhi 1965, 147, 235, 236, 261, 264.

3. *Ibid.* 65-67. Metric equivalents of weights and measures are taken from Irfan Habib, *The Agrarian System of Mughal India*, Asia 1963, Appendices A and B.

4. C.S.O. *Statistical Abstract, India 1968*, Table 164.

5. Market price taken as Rs. 1.20 per litre.

on the other hand, were considerably more expensive. Altogether, however, the standard of nutrition might have been appreciably higher in Akbar's time.

The poorer workers were worse off then in respect of all products of modern industry. Kerosene today is a cheaper illuminant than vegetable oil was then. The average consumption of cloth and metal goods was probably considerably lower then. However, the quality or size of workers' dwellings has probably not changed much.[6] The overall impression we get therefore is that while the urban workers in Akbar's time were worse off in respect of the goods that have since been cheapened by industrialization, they enjoyed higher standards of nutrition than now.

These conclusions are based on averages; and actual consumption of workers must have fluctuated considerably more in the sixteenth century than now, for the improvement and cheapening of transport have reduced the impact of local crop failures.

II. Productivity of Land and Labour

To make some inferences on the condition of other people, it is necessary to consider another body of evidence. Let us look at some figures of representative yields of crops in Akbar's time, and compare them with recent yields.

It appears that the yields of all crops were higher in Akbar's time. The least decrease in yields has been in the case of wheat and rice, crops whose yields are the most sensitive to water inputs. In their case, extension of irrigation and improved water management would seem to have counteracted the general declining tendency in yields. The overall fall in yields is considerable; this is probably why the yield figures in *Ain* have not been given serious attention by historians. However, the decline in yields becomes perfectly plausible if we consider the factors that might have caused it.

The fall in yields can be explained to a substantial extent by population growth. For one thing, cultivation was extended to

6. Habib, *The Agrarian System* . . . p. 97.

TABLE 2
YIELDS PER HECTARE IN AKBAR'S TIME AND RECENT TIMES

(*Kg./hectare*)

	Akbar's time[7]			*1959-60 to 1962-63*[8] *average*		
	Best	Middle	Worst	Punjab	U.P.	India
Wheat	1891	1260	932	1207	917	834
Rice (common)	1786	1313	985	1077	722	971
Barley	1891	1313	880	971	870	862
Jowar	1366	1103	788	179	557	494
Cotton	1050	788	525	271	135	109
Sesame	840	630	420	335	152	169
Mustard	1103	893	538	536	418	410
Linseed	683	551	394	420	206	227
Gram	1366	1103	788	771	624	613

TABLE 3
AVERAGE LAND YIELDS IN DISTRICTS WITH THE HIGHEST YIELDS AND PRODUCING 20 PERCENT OF INDIA'S OUTPUT, 1967-68

(*Kg./hectare*)

	India	*Selected districts*	*Yield in selected districts ÷ Average Indian yield*
Wheat	1103	2048	1.86
Rice	1032	1710	1.66
Gram	732	1169	1.62
Barley	1038	1480	1.44
Bajra	405	872	2.15
Jowar	545	979	1.80

7. Abul Fazl, *Ain-e-Akbari*, tr. H. S. Jarrett, ed. J. N. Sarkar, Royal Asiatic Society of Bengal 1949, Vol. II, 69-71.

8. Min. of Food and Agriculture, *Estimates of Area and Production of Principal Crops, 1961-62 and 1962-63 (Summary Tables)*, 1964, Table 2.1.

lands with progressively lower yields. On the basis of calculations given later, we can say that the total of food consumption of Akbar's empire must have been about a fifth of the present level. What would be the effect on yields if food consumption fell to a fifth of the present level and the production were concentrated in the districts with the highest yields? As Table 3 shows, yields would rise by 60 to 115 per cent. The yields of rice, wheat, barley and gram would rise above the average yields of Akbar's time.

Further, as population grew, crops like rice and wheat which (with greater labour inputs) gave higher yields per hectare pushed out low-yield and low-value crops like jowar, bajra, sesame or linseed to progressively poorer lands, and the yields of the latter fell relatively more. This is corroborated by Table 2.

The above two factors are sufficient to explain most of the observed fall in yields. For the sake of completeness, however, we may also enumerate agronomic factors.

If the proportion of land under cultivation was less than a fifth of what it is today, the proportion of land under some form of permanent plant cover—grass, shrubs or tress—must have been considerably higher in Akbar's time. It is known that plant cover slows down the run-off of rain water, and increases its percolation into and storage by the soil.[9] Hence even with the same rainfall as today, crops must have received a more abundant and more stable water supply.

Finally, the larger proportion of land under coarse grains, jowar and bajra, implied more straw for animals. For jowar and bajra yield more than twice as much straw as grain, while the straw-grain ratio for wheat is 1.1-1.2, and for rice a mere 0.8-0.9.[10] Uncultivated land also must have supplied more fodder for animals. And more fodder meant more manure, which might have contributed to higher yields.

Thus, we have good reasons to trust the *Ain's* yield figures, and to conclude that yields then were 25 to 300 percent higher than now. Higher yields per hectare in Akbar's time, with the same techniques

9. N. V. Kanitkar, *Dry Farming in India*, Indian Council of Agricultural Research, Delhi, 3rd ed., 1968, p. 131.

10. National Sample Survey, Vol. 32(1), Table 4.3.

as today, must have also entailed higher productivity per worker, but not in the same proportion. The labour going into preparation of the field, ploughing, sowing and weeding would be more or less related to the area cultivated irrespective of the yield. Harvesting labour, however, would be proportional to the crop; productivity in reaping would therefore be little affected by yield per hectare. On the assumption that productivity was the same as now in harvesting and higher in proportion to yield per hectare in other work, we can make an approximate estimate of the agricultural productivity in Akbar's time compared to its recent level.

TABLE 4
AGRICULTURAL PRODUCTIVITY PER WORKER IN AKBAR'S TIME

	Proportion of harvesting[11] *labour (per cent)*	*In Akbar's time*	
		Yield per hectare (Recent North Indian level=100)	*Productivity per worker*
Wheat	35	125	116
Barley	35	150	133
Mustard	50	200	150
Linseed	50	200	150
Gram	38	150	131
Rice	33	150	134
Jowar	41	400	277
Cotton	20	400	340
Sesame	43	250	186

It emerges from the Table 4 that while the productivity per worker was about 16 to 50 per cent higher in rabi crops and in rice, it might have been two to three-and-a-half times the recent level in dry kharif crops. In recent years, the proportion of rabi crops in foodgrains production has been about a half in UP and two-thirds in Punjab. If proportions in Akbar's time were similar, the overall

11. National Sample Survey, Vol. 32(1), Table 3.5; Vol. 32(2), Table 2.16; Vol. 32(3), Tables 1.11 and 1.15.

productivity per worker would have been about twice as high. Averages of the indices in Table 4 weighted by recent consumption patterns as well as their variations approximating towards the pattern in Akbar's time (discussed in Section III) range between 2.2 and 2.4.

The conclusion we have reached is very different from that of Moreland, who was a careful and percipient student of Akbar's age. He wrote:

> "The final result of this analysis cannot be stated in precise or arithmetical form. We do not know the income of commodities which India yielded at the close of the sixteenth century, and any dogmatism as to its amount would be unjustifiable, but the data appear to me to be sufficient to indicate that, taking the country as a whole, the average per head cannot have been greatly different from what it is today. The main lines of agriculture have not changed, and the tendencies affecting the amount of production have operated in opposing directions. On the one hand there is the undoubted fact of a great increase in population, which has necessitated the cultivation of inferior soils, and thereby reduced the average of production per head; on the other hand there have been the introduction of new and more remunerative crops, the provision of increased facilities for irrigation, and other changes in detail, which have increased the average income of large portions of the country to an extent more than sufficient to mask the operation of the former tendency. We cannot state the results in quantitative terms, but it is obvious that the change on balance is not very great. Individual students may fairly form different opinions on the question whether the average income of commodities produced by the rural population of India is on the whole a little greater, or a little less, than it was, but the available data indicate that the order of magnitude has not altered materially; a given number of people, peasants and labourers together, raise somewhere about the same amount of produce as the same number raised in Akbar's time, and if producers were in a position to consume all the produce

they raised, we should reach the conclusion that their economic condition has not greatly changed."[12]

While we claim that output per worker was higher in Akbar's time, higher output per worker does not imply a proportionately higher food consumption per head of agricultural population, for lead revenue, which comes to less than 1 per cent of agricultural production, used to take away a third or more of it[13]. If taxation were equal to a third of the produce then, and the dependency ratio in agriculture the same as now, per capita food consumption of the agricultural population could have been at least a third higher than now. Considering the uncertainties regarding the average productivity and tax rates, the best we can say is that food consumption must have been significantly higher.

Our conclusion is therefore that the standards of food consumption of both the urban workers and the peasants were probably higher in Akbar's time than in the early sixties. The consumption of industrial commodities, on the other hand, was lower, and in many cases considerably lower, than at the present time.

The difference arises from the fact that Moreland greatly underestimated the extent of expansion of area under cultivation as well as its depressing influence on yields. By comparing the revenue statistics of *Ain* with those of his own time, Moreland concluded that the land under cultivation in Akbar's time was about the same as in the beginning of this century in the western Gangetic plain, and about a fifth of the early 20th century figure in the eastern Gangetic plain. This conclusion presupposes that all land enumerated in *Ain* was cultivated. It is more likely that much land was cultivated only occasionally when the season or the factor supply happened to be particularly favourable, and also that revenue officials had some incentive to overstate the area of land under cultivation.

As regards the fall in yields, Moreland gave an example in which

12. W. H. Moreland, *India at the Death of Akbar*, Atma Ram and Sons, Delhi 1962, 115-116.

13. C.S.O., *Statistical Abstract, India 1968*, Tables 170 and 174; Habib, *The Agrarian System* . . . pp. 190-196.

the yield of a crop on best land was twice the yield on worst land, and showed that the effects of an extension of land under cultivation by up to 50 per cent were not great.[14] In fact, the increase in area that has taken place is of the oder of a few hundred per cent,[15] and even if we agree with Moreland that "the reduction in average yield is a small figure compared with the percentage of increase in cultivation", it turns out to be large enough to be consistent with the difference we have found between yield figures in Akbar's and our times.

III. Standards of Consumption

We shall now attempt to reach more precise couclusions regarding the decline in consumption levels since Akbar's time. There is no information directly bearing on per capita foodgrains consumption in Akbar's time. We can, however, place certain limits on it on the basis of what is known about current consumption levels and the tax rates of Akbar's time. Specifically, we would assert that the per capita consumption in Akbar's time must have been between today's average and the highest level recorded today in any income class. Further, the marketed and taxed surplus of foodgrains in Akbar's time would not have been less than now, and could have been as high as 60 per cent. Thus, we have four limits to foodgrains consumption in Akbar's time of which we can choose the inner two for further analysis. We shall now elaborate this argu-

14. *Ibid.*, 109.

15. This is contrary to Irfan Habib's estimate. According to him, the increase in the cultivated area between the early eighteenth and early twentieth centuries exceeded a hundred per cent only near the Terai; elsewhere it was between a quarter and a half (*ibid.*, 22). He does not make a direct estimate of the cultivated area under Akbar; but there also his estimates would be higher than ours. The difference arises from his assumption that the relative proportions of "the area cropped", "current fallows", and "cultivable wastes other than fallows" remain stable over time (*ibid.*, 6). Our view is that given the large fluctuations in the population and the abundance of land in the earlier centuries, a far higher proportion of the land than now was cultivated only occasionally; the average area cultivated formed a much smaller, and fallows and cultivable waste a much larger, proportion of the measured area than they do today.

ment, working at this stage in terms of aggregate per capita consumptiion.

There are two levels of current consumption that seem to be of interest to us. First, there is the national average. The present national average is probably below the average in Akbar's time for two reasons: first, because agricultural productivity at that time was higher and would have permitted higher per capita consumption, and second, because the low level of foodgrain consumption in modern India is, we believe, partly associated with the emergence of relatively sedentary, indoor occupations with industrialization—occupations which must have been much less important in Akbar's time.

This suggests the second benchmark, viz. the current level of rural consumption. Unfortunately, the source of data on national consumption, viz. statistics of output and foreign trade, is different from the source of information on rural and urban consumption, viz. the National Sample Survey, and they are mutually inconsistent. For national consumption we have used statistics of output and foreign trade because they are more comprehensive. From the National Sample Survey we may note that rural per capita foodgrains consumption was 39.7 per cent higher than urban in 1960-61.[16] Further the consumption of the rural class with the highest per capita expenditure (Rs.55 per month and over) was 74.0 per cent higher than the rural average. Taking the rural population to be 82.0 per cent of the total as shown by the 1961 census, it can be shown that the foodgrains consumption of the top expenditure class was 82.8 per cent higher than the national average. The top expenditure class probably ate about as large a quantity of food as it would wish; and its consumption might be taken as an upper limit.

Let us now turn to the surplus in Akbar's time. Akbar's revenue administration aimed to collect a third of the value of gross produce in zabti area.[17] In Habib's view, however, "The actual imposition even on an average must have considerably exceeded one-third of

16. National Sample Survey, Vol. 138, Tables 1.9.0 and 2.9.0.

17. Moreland, *India at the Death of Akbar*, 96.

the produce."[18] He cites rates going up to two-thirds and three-quarters. Since labour productivity was considerably higher at that time, such high tax rates are not implausible. Besides, one must not equate a high overall tax rate with an equally large surplus in terms of each crop. Since almost the entire output of commercial crops like cotton and indigo would normally be marketed, a high tax rate in terms of money can be consistent with a much smaller marketed surplus in foodgrains. And recorded tax rates must be taken as the lower limit of the marketed surplus. Hence we can plausibly take 0.6 to be the upper limit, and one-third [the lower limit of the marketed surplus as a proportion of the value of agricultural output in Akbar's time. According to the only available estimate for recent times, the comparable proportion in 1950-51 was 33.4 per cent.[19]

We now make the following assumptions:

(1) The per capita consumption of agricultural and non-agricultural classes amongst the rural population was the same in recent times. This implies that the per capita consumption of the rural population and the agricultural population was the same.
(2) The average size of family in the agricultural population is the same now as in Akbar's time. This also implies that the ratio of agricultural output per worker to output per head of agricultural population is also the same.
(3) Per capita consumption in Akbar's time was the same among rural and non-rural as well as agricultural and non-agricultural classes.

The rest of the argument can be best presented with the help of the following symbols.

C—per capita consumption.
V—value of output per head of agricultural population.

18. Habib, *The Agrarian System ...*, 192.
19. Dharm Narain, *Distribution of the Marketed Surplus of Agricultural Produce by Size-level of Holdings in India 1950-51*, Asia, 1961, 33-35.

W—value of output per agricultural worker.
L—ratio of agricultural workers to agricultural population.
s—ratio of surplus to agricultural output.

Superscripts R and A stand for rural and agricultural; symbols without superscripts refer to the entire population. Subscripts 0 and 1 refer to Akbar's and recent times respectively.

As mentioned earlier, rural per capita consumption of foodgrains in 1960-61 was 39.7 per cent above urban, and the proportions of rural and urban population in the total were 82 : 18. Hence rural per capita consumption was 5.4 per cent above the national average.

$$\frac{C_0}{C_1} = 1.05 \frac{C_0}{C_1^R}$$

$$= 1.05 \frac{C_0^A}{C_1^A} \text{ by assumptions (1) and (3).}$$

$$= 1.05 \frac{V_0^A}{V_1^A} \frac{(1-s_0^A)}{(1-s_1^A)}$$

$$= 1.05 \frac{W_0^A}{W_1^A} \frac{L_0^A}{L_1^A} \frac{(1-s_0^A)}{(1-s_1^A)}$$

$$= 1.05 \frac{W_0^A}{W_1^A} \frac{(1-s_0^A)}{(1-s_1^A)} \text{ by assumption (2).}$$

As stated in Section II, averages of the ratios weighted by recent consumption patterns as well as their variations approximating towards the pattern in Akbar's time range from 2.2 to 2.4. Thus,

$$2.4 \geqslant \frac{W_0^A}{W_1^A} \geqslant 2.2$$

Further, $0.60 \geqslant s_0^A \geqslant 0.33$,

and $s_1^A = 0.33$

Hence $2.52 \geqslant \frac{C_0}{C_1} \geqslant 1.39$

Earlier, we postulated the limits

$$1.74 \geqslant \frac{C_0}{C_1^R} \geqslant 1.00,$$

i.e.

$$1.83 \geqslant \frac{C_0}{C_1} \geqslant 1.05.$$

Taking the two inner limits out of the four we have obtained, we get

$$1.83 \geqslant \frac{C_0}{C_1} \geqslant 1.39,$$

or approximately

$$1.8 \geqslant \frac{C_0}{C_1} \geqslant 1.4.$$

In other words, per capita foodgrains consumption in Akbar's time was 1.4 to 1.8 times the recent level. A larger proportion of foodgrains output—especially of gram and coarse grains—must have then been fed to army horses; hence the difference in human consumption between then and now would be less than the above ratios suggest.

Let us now come to the composition of consumption. The second column of Table 5 gives the consumption pattern of agricultural goods in 1960-61. The third and fourth columns give the same figures multiplied by 1.4 and 1.8 respectively. The figures in those two columns were modified in three ways to get approximations of the consumption pattern in Akbar's time. First, Akbar's empire was largely confined to northern India, and would have contained a smaller proportion of rice-eating population than India today. Hence the per capita consumption of rice is assumed to have been lower. Second, the consumption of commodities in whose production labour productivity was relatively higher in Akbar's time must have been cheaper. Hence their consumption is assumed to have been more than proportionately greater. Third, the proportion of jowar, barley and gram which were possibly also used as fodder for army horses, in the foodgrains consumption has been increased.

TABLE 5
PER CAPITA CONSUMPTION OF MAJOR AGRICULTURAL PRODUCTS IN 1961-62 AND IN AKBAR'S TIME

(Kg. per head)

	1961-62 Consumption			*Assumed consumption in Akbar's time*	
	Actual[20]	*Multiplied by*			
		1.4	1.8	Low	High
Wheat	**32.2**	45.1	58.0	**35.0**	50.0
Rice	**78.6**	110.0	141.5	**15.0**	25.0
Jowar	**17.6**	24.6	31.7	100.0	125.0
Barley	**7.2**	10.1	13.0	**20.0**	25.0
Gram	**13.3**	18.6	23.9	**50.0**	65.0
Other foodgrains	41.1	57.6	73.9	46.0	52.0
Total foodgrains	190.0	266.0	342.0	266.0	342.0
Mustard	**3.4**	4.2	5.4	**10.0**	14.0
Linseed	**1.0**	1.4	1.8	**5.0**	8.0
Sesame	**0.9**	1.3	1.6	**5.0**	8.0
Other oilseeds	14.9	15.3	19.6	5.0	10.0
Total oilseeds	15.8	22.1	28.4	25.0	35.0
Cotton	22.1	30.9	39.8	6.0	11.0

There are two commodity groups besides foodgrains for which we have data from *Ain* as well as for recent times, viz. oilseeds and cotton. In the case of oilseeds, we have assumed about twice as

20. *Estimates of Area and Production, op. cit.*, Table 1; *Statistical Abstract, India 1963 and 1964*, Tables 1, 18 and 95.

high a level of consumption in Akbar's time as now, because labour productivity in oilseed production was particularly high. We have, however, assumed considerably lower per capita consumption of cotton than now because cotton consumption has since gone up owing to the cheapening of cloth with the advent of mechanized production.

IV. Population

We shall now proceed to make an estimate of the population of Akbar's India. The land revenue of Akbar's empire was 363 crore dams in 1580 and 516 crore dams in 1595-96.[21] The second figure probably has the more comprehensive coverage, and we shall work in terms of it. If we knew the land revenue collected per capita, we could divide it into the total land revenue to get the total population. The crop rates of land revenue under Akbar are known; hence to work out the land revenue per capita, we would need to know the per capita area sown under different crops. The area would depend on the yield of land, on which we have reached certain conclusions earlier, and on consumption per head. We shall now describe the calculations, presented in Table 6, in greater detail. Most of the figures that serve as a starting point are either published figures or figures derived in Tables 1—4 above, a few that have been assumed are placed in brackets.

Row 1 gives the area per head of population in 1961-62 under different crops. It may be noted that the principal crops listed covered almost three-quarters of the area cultivated. The remaining quarter was under crops for which yield and revenue statistics could not be derived or inferred from *Ain*—new crops like maize, groundnut, potato, tea and coffee, or crops which were less important in Akbar's time, like jute. Row 2 gives the approximate ratio of yields in Akbar's time to recent yields; if divided into row 1, it would give the land that would have been required per capita in Akbar's time to achieve the recent output per head.

21. Habib, *The Agrarian System . . .*, 399.

TABLE 6

CALCULATION OF PER CAPITA LAND REVENUE IN AKBAR'S TIME

	Wheat	*Rice*	*Jowar*	*Barley*	*Gram*	*Other food-grains*	*Musta-rd*	*Linseed*	*Sesame*	*Other oil-seeds*	*Cotton*	*Other crops*	*Total*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1. Per capita land under cultivation 1961-62 (bigha-e-Ilahi)[22]	.135	.341	.177	.033	.094	.303	.031	.020	.023	.067	.077	.500	1.801
2. Yield in Akbar's time (1961-62=100)	125	150	400	150	150	(250)	200	200	250	(200)	400	—	—
3. Per capita consumption 1961-62 (kg./year)	32.2	78.6	17.6	7.2	13.3	41.1	3.0	1.0	0.9	10.9	22.1	—	—
4. Ratio of imports to output 1961-62 (per cent)	17.3	0.9	—	—	—	—	—	—	—	—	—	—	—
5. Assumed per capita consumption in Akbar's time (kg./year)													
(*a*) High	50.0	25.0	125.0	25.0	65.0	52.0	14.0	8.0	8.0	10.0	11.0	—	—
(*b*) Low	35.0	15.0	100.0	20.0	50.0	46.0	10.0	5.0	5.0	5.0	6.0	—	—

1	2	3	4	5	6	7	8	9	10	11	12	13	14
6. Per capita land under cultivation in Akbar's time (bighas)													
(*a*) High	.197	.073	.314	.076	.306	.153	.072	.080	.080	.246	.010	.402	2.009
(*b*) Low	.138	.044	.251	.061	.235	.136	.052	.050	.050	.154	.005	.294	1.470
7. Average land revenue rate (dams/bigha)[23]	58.07	42.19	35.18	42.35	36.48	(40.00)	27.58	24.75	31.36	(25.00)	77.66	(50.00)	—
8. Per capita revenue (dams)													
(*a*) High	11.44	3.08	11.05	3.22	11.16	6.12	1.99	1.98	2.51	6.15	0.78	20.10	79.56
(*b*) Low	8.01	1.86	8.83	2.58	8.57	5.44	1.43	1.24	1.57	3.85	0.39	14.70	58.47

22. *Estimates of Area and Production, op. cit.*, Table 1.
23. *Ain* (Jarrett-Sarkar), *op. cit.*, 76-86.

Row 3 gives the per capita consumption of various crops in 1961-62. Of the quantities consumed, a substantial proportion of wheat and a small proportion of rice were imported. Since there were no significant imports into Akbar's empire, more land would have been required to achieve the same consumption as in 1961-62, other conditions remaining the same. Hence the area per head under various crops in 1961-62 has been raised in the ratio of imports to production, given in row 4, before further calculation. (This involves the assumption that additional land diverted to wheat and rice would have given the same yield per hectare as the average.) Row 5(*a*) and 5(*b*) reproduce the two limits of the pattern of consumption in Akbar's time which were derived in Table 5.

The information in rows 1-5 enables us to work out the land required per capita in Akbar's time for the listed crops. Row 6(*a*) gives the land required to achieve the consumption level of row 5(*a*), and row 6(*b*) the same for row 5(*b*). Since we have data for crops which covered only three-quarters the area in 1961-62, it is necessary to make an assumption for the rest. Much of this land is under commercial crops today. Since the degree of commercialization of Akbar's empire (measured in terms of the output of commercial crops per capita) was very probably lower than now, we have reduced the ratio of land under other crops to land under crops and enumerated from 38.5 percent for 1961-62 to 25 percent for Akbar's time.

Row 7 gives the land revenue rates of different crops per bigha. The rates assumed are simple averages for four northern provinces of Akbar, viz. Delhi, Agra, Oudh and Allahabad, roughly comprising the present Punjab, Uttar Pradesh and Haryana. We have averaged the last five years' figures from the nineteen years' rates (i.e., the rates for 1576-80) in the hope that they are more reliable and that they pertain to a period nearest to the one to which the other figures in *Ain* refer. (The nineteen years' rates give only minimum and maximum figures for each province and year; we have taken their average.)

Again, it is necessary to make some assumption about the average revenue from land under crops for which we have no detailed information. Among them are the most important commercial

crops like sugar cane, opium and indigo, whose crop rates were extremely high—e.g. 80-120 dams per bigha for common sugar cane, 180-200 dams for superior cane and 100-130 dams for poppy.

The view we have taken is that while the bigha rates for these crops were high, their per capita consumption and per capita land under cultivation must have been quite low, as in the case of cotton for which we have some information. Hence most of the land we have not been able to classify must have been under low-value crops. We have therefore taken a low average bigha rate of 50 dams for the unclassified land, which is slightly higher than for foodgrains.

Per capita land revenue is now calculated by multiplying rows 6 and 7, and shown in row 8. The limits of land revenue per head are worked out at 58.47 and 79.56 dams.

Dividing these figures into the total land revenue of 516 crore dams, we obtain population estimates of 6.49 and 8.83 crore or, let us say, 6.5 and 9 crore for Akbar's empire. In view of the evidence we have presented earlier to show that the standards of food consumption were substantially higher than now, we consider that the actual population was nearer the lower limit of 6.5 crore.

The closeness of this figure to Moreland's for Akbar's empire (including Gujarat and Bengal)—7 crore—is striking.[24]. But there are important differences in detail. Whilst Moreland assumed that the standards of consumption were substantially the same in Akbar's time and early twentieth century,[25] we have assumed that there was a large decline in the intervening period. On Moreland's assumption of unchanged standards of consumption, our estimate would exceed 9 crore.

We now summarize the conclusions we have reached in this paper.

A. The mean standard of food consumption in Akbar's empire was appreciably higher than in the India of early sixties.

24. Moreland, *India at the Death of Akbar*, 18-21. An estimate near to Moreland's has been derived by J. M. Datta by postulating certain secular growth rates of population ("A reexamination of Moreland's estimate of population of India at the death of Akbar", *Indian Population Bulletin*, April 1960, 165-182).

25. Moreland, *India at the Death of Akbar*, 115.

B. The marketed surplus (in value terms) was substantially higher than the statutory land revenue rate of one-third. (Nothing is thereby implied, however, regarding the marketed surplus of foodgrains, or the proportion of non-agricultural population.)

C. The population of Akbar's empire (excluding the areas of present-day India that he did not govern) was about 6-7 crore.