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Economic Conditions in Early Modern Bengal: A Contribution to the Divergence Debate

TIRTHANKAR ROY

This article contributes to the debate on relative levels of living in the early modern world by estimating the income and probable range of income growth in Bengal before European colonization. The exercise yields two conclusions, (a) average income in Bengal was significantly smaller than that in contemporary Western Europe, and (b) there is insufficient basis to infer either growth or decline in average income in the eighteenth century.

When did divergence begin? According to one view, Western Europe had higher standards of living than the rest of the world in the eighteenth century, and present-day international economic inequality had pre-industrialization roots.¹ According to another, standards of living had been similar between China and Europe in the eighteenth century, suggesting that divergence had a later origin.²

The Indian evidence used in this debate is exploratory. One author draws an optimistic picture of South India in the eighteenth century, and considers colonialism to be the main differentiating variable between Britain and South India in the nineteenth century.³ The argument builds on estimates of wage, which other authors have criticized.⁴ Another recent contribution rejects the hypothesis that India and Europe were similar in terms of market efficiency.⁵ As this test shows, regional markets in South Asia in the eighteenth century had been weakly integrated, which should caution us against relying too much on fragmentary data on wages to infer levels of living. Estimates of long-term trends in living standards based on wages show a sharp decline in

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¹ Landes, *Unbound Prometheus*, pp. 13–14; and Maddison, “Comparison.”

² Pomeranz, *Great Divergence*.

³ Parthasarathi, “Rethinking.” Parthasarathi extends the finding to Bengal in “Agriculture.”

⁴ Broadberry and Gupta, “Early Modern Great Divergence”; and Allen, “India.”

⁵ Studer, “Great Divergence.”

the real wage in early modern India, but this finding needs to be confirmed with other benchmarks.⁶ The differences in findings leave room for a reexamination by estimating income rather than the wage. An estimate of income is also the necessary first step in comparisons on national accounts aggregates.

The present article provides an estimate of the average income of Bengal in 1763 before European colonization began. Bengal is an appropriate region for such an exercise for three reasons. First, many contemporaries believed that Bengal was one of the richest regions of India, containing fertile land, plentiful water, and a large cotton textile industry. An estimate of income for Bengal should represent an upper bound of the plausible range of income for the South Asia region as a whole. Second, Bengal was the earliest region to be colonized by the English East India Company, and was colonized the longest. An early estimate of the income of Bengal is a tool to assess the impact of colonial rule on long-term development.

Third, because of its commercial, administrative, and military significance in the eighteenth century, statistical sources on the region are relatively rich. Between 1765 and 1815 a number of tracts on the economy of the region were written by merchants and officers connected with the company. These tracts contain statistical data on aggregates such as taxation, population, and cropped acreage, as well as standard yield, rent, and wages. Tax data were reliable, population and acreage were inferences, and yield, rents, and wages were informed estimates. In this article, I use the tax data to estimate an income, derive averages based on reconstructed population and acreage, and apply consistency checks on the averages using the third data set on yield, rents, and wages.

SOURCES, METHODS, AND RESULTS

Bengal in 1763, the year of the study, was an independent state that had broken away from the Mughal Empire with little change in its administrative structure.⁷ The territory was geographically diverse. It included the fertile lower Ganges alluvial flat land, the less productive Bihar plains, the semiarid uplands in the west, and the fertile but remote southern seaboard. In the year of the study, the state collected taxes from intermediaries variously called *zamindars*, *talukdars*, or *maliks*, who in turn collected rent from the peasants, retained a portion, and delivered the rest to the royal treasury. It is generally held that the rental

⁶ Allen, "Real Wages."

⁷ On political history, see Marshall, *Bengal*.

assessment was very high, as much as half of gross output.⁸ However, lands gifted to religious figures, mosques, and temples, or offered to peasant communities for development of cultivation, attracted lower rents. What proportion the intermediaries sent to the treasury is not exactly known. The amount they delivered, however, is known. In 1765 the English East India Company assumed charge of the fiscal administration of Bengal. The Rs. 26 million that had been fixed by the erstwhile ruler of Bengal as aggregate taxes in 1763 became a point of reference for the Company officers who took interest in taxation.

Between 1765 and the early nineteenth century a number of individuals connected with the new administration tried to estimate the present value of land in order to arrive at a measure of taxable capacity. I have been able to locate four such estimates that deserve attention. In 1791 George Smith, a private merchant close to the company, estimated the aggregate agricultural output in a normal year by multiplying estimated average grain consumption by population, and adding export of grain to that figure.⁹ James Grant, the Chief Sheristedar (the Accountant General) of Bengal until the position was abolished in 1789, estimated agricultural production (1785) by multiplying the extent of cultivable land by the value of yield per acre. With an estimate of the population of peasants, gross product per capita was derived. In 1791 a third set of numbers was produced by Robert Kyd, who calculated per capita income of peasants in a district in the western Gangetic plains by dividing the assumed value of rent collected per acre with a plausible rent-output ratio.¹⁰ The most well-known exercise in this class was performed by H. T. Colebrooke.¹¹ Having first estimated population, Colebrooke developed quantities of per capita consumption of a number of agricultural articles. Multiplied by prices and by population, these quantities added up to a gross output value. The results of these four attempts are shown in Table 1. The measure of aggregate production differed greatly between these attempts—the difference owed to the conjectural assumptions about land area and population. On the other

⁸ For a discussion, see Marshall, *Bengal*, p. 62.

⁹ Smith's papers contain important description of economic conditions. These papers have been used by A. Tripathi, who describes him as "a resident merchant," *Trade and Finance*, p. 5. He is referred to as a prominent resident of Calcutta by Hickey, *Memoirs*. One of the objectives of the report cited here was to offer a scheme of loans to induce peasants to clear wastelands in Bengal.

¹⁰ Kyd was lieutenant colonel in the Bengal Army, and the founder and honorary superintendent of the Botanical Garden at Calcutta. His papers can be found in IOR Mss Eur F95, 1791. For a biography of Grant, see Embree, "Grant."

¹¹ Colebrooke (1765–1837) was a company officer, sanskritist, and jurist, and a chief justice of the Supreme Court. See Gombrich, "Colebrooke."

TABLE I
INCOME IN BENGAL IN THE EIGHTEENTH CENTURY (Rs.)^a

		Total (million)	Per Head	Per Acre
Grant (1785)	Gross product of land	210	25	18
Smith (1791)	Net product of land	117	11	
Kyd (1791)	Gross product of land			12
Colebrooke (1784)	Gross product of land	329	14	11
My estimate (1763)	Income ^b	338	12.3	12.5

^a The rupee, at 2s, is the current rupee, the other measure sicca rupee was 2s 3.84d.
^b Corresponds to 1.01 acres per person, agricultural income of Rs. 294 million and income from textile manufacture of Rs. 44 million. The implicit shares of the state, landlords, and peasants are 8, 35, and 57 percent of agricultural income, respectively. Peasant income per capita is Rs. 7. Tax and rent per acre are Rs. 0.97 and Rs. 4.98, respectively.
Sources: See the text for sources and methods.

hand, the average figures were located much nearer each other, suggesting that the rates of taxation, land yield, and consumption per head were more reliable.

The most reliable number of all was tax delivered to the state. On the assumption that land taxes maintained a stable relationship with actual output, I follow Kyd’s approach of using the income of the government to infer the income of the population. Adapting the method of estimation to the information content, I define per capita income in three ways:¹²

$$G(1-s)/N = Tc(1-s)/N = (A/N)(G/A)(1-s)$$

Where

- G = gross output value
- s = proportion of seeds in gross output
- N = population dependent on agriculture
- T = tax delivered to the treasury
- $c = 1/t$, where t is the proportion of tax in gross output value
- A = acreage cropped

The calculation of per capita income proceeds in four stages. T , tax delivered to the treasury as distinct from rent collected from the peasant, is the starting point of this exercise. In the first stage, gross output value

¹² I assume that the only intermediate input that is actually paid for is seeds (taken at 8 percent of output), which is a fair assumption in a primarily rain-fed and under-manured cultivation system, which much of Indian agriculture was until the nineteenth century. I make no distinction between peasants and wage laborers, considering that eighteenth-century Bengal was primarily a peasant economy.

is derived by dividing T with three possible values of t , and inserting values for s and N . This gives us three estimates for per capita income. In the second stage, the plausibility of these three estimates is tested. The checks are carried out on four ratios derived from the initial estimate—these are rent rates, tax rates, land-man ratio, and yield. A certain level of G derived from the first stage implies a pair of acreage per head (A/N) and yield per acre (G/A). I apply independent findings on these ratios to examine the plausibility of the first-round estimates. In the third stage, and having selected the most plausible income by this iteration, I derive a distribution of this income into three major classes—the state, the landlord, and the peasant, as follows:

$$[Gt] + [G(r-t)] + [G(1-r-s)]$$

where r stands for the proportion of rent collected by the tax-collecting intermediary over gross output value. The three terms represent the total incomes earned by the three sharers of land income: the state, the intermediaries, and the peasants, respectively. A value of r is assumed. So far, the calculation addressed income earned from agriculture alone; that is, N is the population dependent on cultivation, and T is assumed to be exclusively derived from land tax. In the final stage, an independent estimate of income earned in manufactures is also developed.

What was the taxable acreage? At the turn of the eighteenth century, there are two numbers that are more consistent with the probable land area than was Grant's assumed acreage.¹³ Ignoring some uncertainty introduced by the fact that the precise land area of Bengal in 1763 was not known, the cropped acreage in 1763 is taken to be 25.7 million based on the available estimates.

How many lived on the land? Population figures offered by Grant and Smith are too low. Colebrooke estimated the population of Bengal and Bihar at 30 million, based on a census of the Purnea district (c. 1800). He defended this figure by an ingenious device, estimating salt consumption per head. Salt sale was a government monopoly, so that the production of salt could be measured with reasonable accuracy if one assumed, somewhat tenuously, that smuggling was absent. The number can be tested by other means. It was stated that Bengal lost about a third of its population in the 1770 famine. A calculation based

¹³ P.P., 1812 (377), pp. 322–25, 414; and Colebrooke, *Remarks*, p. 12. The Fifth Report estimated cropped area at 44.8 million acres in 1807/08, and Colebrooke placed the cropped area of Bengal at 31 million acres about 1784. Colebrooke's basis for the acreage estimate was surveys of parganas Sharifabad and Tajpur conducted in 1790, showing that three-eighths of land area were subject to taxation and in actual tillage. He assumed that about half of the lands unassessed were also under cultivation.

on collectors' reports of 22 million in 1789, is consistent with a figure of 30 million in 1763.¹⁴ A recent reconstruction projects the rate of change recorded in the census period 1871 to 1921 backward to arrive at a population of 41 million for Bengal in 1761.¹⁵ The territory of Bengal that produced the tax returns was about a quarter smaller than the territory used for this study, so that, 30 million is again consistent with this information. Inferences based on a later demographic trend can be questioned, since the natural increase in population in the region was apparently large in the nineteenth century, due to the rare occurrence of famines and migration into industrializing lower Bengal.¹⁶ But these processes began late in the nineteenth century. Several measures of density of population are available for the early nineteenth century.¹⁷ Assuming that natural growth and industrialization were small in extent before 1822, the weighted average density for 1807–1822 can be applied backward to the estimated area of Bengal in 1763, which again yields a population of 30 million.

At least three authors, Grant, Colebrook, and Francis Buchanan, placed the percentage of population dependent on agriculture in the 80 to 85 percent range.¹⁸ In some textile districts of lower Bengal, the proportion was smaller.¹⁹ On the other hand, in the uplands and the seaboard, craft and commerce employed few people. Further, a certain proportion of the “artificers” and manufacturers in any standard treatment of occupations in this time likely consisted of part-timers who also took part in agricultural work on the margin. On balance, 80 percent is a reasonable conjecture.

How was the output shared between classes? What were the probable values of r and t ? “In the rule for dividing the crop,” Colebrooke wrote, “whether under special arrangements or by custom, three proportions are known.”²⁰ In these three arrangements, the landlord received 50 percent, 33 percent, and 40 percent of gross output, and the peasant the remaining part. I take 40 percent as the average assessment. Land tax is the only major exaction considered. Customs and ground rent were not large and unlikely to bear on the estimate substantially.

With these numbers in hand, the money received in the royal treasury as a proportion of gross sale value of crops is adjusted until the implied income becomes consistent with other benchmarks. I consider three

¹⁴ Colebrooke, *Remarks*, pp. 14–15. On famine mortality, see Bose, *Peasant Labour*, p. 10.

¹⁵ Deb Roy, “Population.”

¹⁶ See discussion in Guha, “Population History.”

¹⁷ Shakespear, *Memoir*, p. 4; Beverley, “Census of Bengal”; and *The Oriental Herald*, p. 11.

¹⁸ Buchanan cited in Bagchi, “Deindustrialization.”

¹⁹ Datta, *Society*, p. 43.

²⁰ *Remarks*, pp. 53–54.

proportions. In estimate I, the proportion that the king actually received is 20 percent, in estimate II, 10 percent, and in estimate III, 8 percent. The percentages that landlords retained become 20, 30, and 32 respectively. Estimate I suggests a family income of Rs. 12.5, which is below the reported annual wage of farm servants in this time in Bengal. Estimates II and III lie close to each other, but estimate III satisfies the consistency checks better. In particular, the rent rates, tax rates, land yield, prices, and incomes implied by estimate III lie sufficiently near the numbers we obtain from independent archival sources.

I begin with rent rates. Grant set the average rent assessment at Rs. 4.5 per acre, whereas average rent assessment implicit in the third estimate is Rs. 4.98 per acre. An unpublished report based on a tour of the fertile lands on the southwestern coast (1767) yields Rs. 5.15 as the average.²¹ Contemporary reports suggest that the *zamindars* collected an amount per acre that was about four times what was sent as taxes to the royal treasury. The third estimate produces such a ratio.

The gross output value implies an average annual yield per acre of 500–550 kgs rice equivalent.²² Independent estimates of yield of the principal crop of Bengal, winter rice, suffer from many ambiguities. First, it is not clear whether the estimates referred to unhusked paddy or husked rice. Ordinarily, the proportion of rice was about 60 percent that of paddy. Second, whereas all estimates refer to the units *maund* for weight and *bigha* for land area, the definition of these two units varied over time and between regions.²³ Finally, any analysis of grain yield in Bengal needs to be sensitive to the large variation in fertility between the alluvial flats, the uplands, and the seaboard.

From the late nineteenth century, official statistics overcame these ambiguities by specifying yield in rice, calculating “standard yields” based on crop-cutting experiments, standardizing the unit of measurement, and collecting figures for every district. I have located two sets of district yield data from the late nineteenth century.²⁴ These

²¹ IOR, Mss Eur F331/35. It is not clear who the authors of this journal were. The text mentions in one point the words, “Mr. Graham’s notes.”

²² The yield figures follow from gross output value and farm-gate prices. A trend was fitted to 12 observations of retail prices of rice in major local markets between 1760 and 1810 (excluding the famine year), (R^2 0.47), and the predicted number for 1763 is taken. Based on Calcutta Gazette, from Seton-Karr, *Selections*, p. 203; Price, *Five Letters*, p. 158; Narain, *Indian Economic Life*; Colebrooke, *Remarks*, p. 102; and IOR/H/392. Datta’s series produces a predicted value of rice price in 1763 in close proximity to what I find using different sources. Both these estimates suggest a price of about Rs. 0.04 per kg. Farm-gate prices should have been about Rs. 0.020–0.024, given the extremely large profit margins in rice trade usual in late eighteenth century.

²³ In eighteenth century Bengal, both the Akbari *maund* (25 kgs) and the colonial *maund* (37 kgs), and the *ilahi bigha* (0.67 acres) and the *raiya bigha* (0.33 acres) were in usage.

²⁴ Hunter, *Famine Aspects*, pp. 17, 36, 64, 94, 100, 105, *passim*; and Bengal, *Season*.

two sets suggest average yields of rice in Bengal of 444 kgs per acre (1866) and 409 kgs per acre (1901). The average yield in deltaic districts tended to be a quarter above these numbers. I have also located four estimates of a “large” yield of rice from the late eighteenth and early nineteenth centuries.²⁵ The observers were based in deltaic lower Bengal, and reported the upper end of the range of yields. In all cases, the unit of measurement can be ascertained. The average of these numbers, 540 kgs, lies in close proximity to the late nineteenth century estimates. The correspondence lends credence to the earlier set of numbers. For, in the intervening century, there is no significant evidence of either a dramatic improvement or a deterioration of resource endowments and technologies in agricultural production in Bengal to warrant expectations of a rise or a fall in yield. Having noted that correspondence, I scale down the latter number by 25 percent to estimate an average yield for Bengal, in this case, 405 kgs per acre. On average, a third or a quarter of the gross output value could be harvested from crops that did not compete with rice. If we take a third of value to come from non-rice crops, the rice equivalent of gross output should be 525 kgs per acre, within the range suggested by the gross output value.

The final check involves wages. I have located nine estimates of wages of farm laborers from Bengal and Bihar covering the time span 1784–1810.²⁶ These wages, when deflated by average rice prices, do not show a trend. Projecting the absence of a trend in real wage backward, the average money wage in 1763 was about Rs. 10. As this comes to roughly a third of the income of a peasant family, I consider the number to be plausible.

Outside agriculture, private commerce and manufacturing were important occupations. I leave commerce alone, because of the consistent overlap between trade and government before and after British takeover.²⁷ The major occupation remaining to be addressed is textile production. Based on Grant’s figures for production of cotton in

²⁵ Hamilton, *East India Gazetteer*, p. 122; Colebrooke, *Remarks*, pp. 101, 107; and Kyd, IOR Mss Eur F95, p. 21. Datta reports four other estimates from lower Bengal. The units of measurement are not defined. On the assumption that these figures referred to rice in the husk, large *maund* and small *bigha*, the average yield was 633 kgs per acre, see Datta, *Society*, p. 41.

²⁶ The sources are Law, *Sketch*, p. 60; P.P., 1812/13, (377), *Select Committee*; Colebrooke, *Remarks*; John Stracey’s note in P.P., 1812/13 (122), *Select Committee*, p. 48; William Bruce Smith, merchant in Bengal, *ibid.*, p. 100; and Thomas Munro, *ibid.*, p. 124. In all cases, I assume the rupee was the current rupee (2s) and that workers were fully employed for eight months in a year.

²⁷ The three prominent business houses in the 1750s, Jagatseth, Omichand, and Khwaja Wajid, had the state as their principal client. Whereas they did earn money from independent commercial enterprise, a certain part of their income can be seen as redistribution of tax resources.

Bengal, the implied average consumption of cotton cloth in 1763 was 6.7 yards. This is believable since in 1900, the average Indian consumption of cotton cloth was 11.5 yards. If we assume export of cloth to be approximately 30 million yards, and average consumption 7 yards, the production of cotton cloth in Bengal was in the range of 250 to 260 million yards.²⁸ Taking Grant's assumed price, Rs. 0.43 per square yard, and assuming the value added to be 40 percent of output value, Rs. 44 million was the income in cotton textiles. This number can be verified with reference to the production capacity of an average weaver, employment intensity, and the number of weavers.²⁹ The average income in textiles, between Rs. 7 and Rs. 10, was marginally higher than that in cultivation, as we would expect. The last row in Table 1 summarizes the results of the exercise.

IMPLICATIONS

The calculations carried out so far have larger implications for comparisons with other countries and comparisons within India over its early modern history. The results confirm the view that incomes in India and Western Europe were unequal before the Industrial Revolution.³⁰ The average income in Bengal in 1763, at Rs. 12.5 or £1.25, was one-fifteenth of the income in England and Wales about this time. The silver equivalent of these incomes diverged in the same fashion. The grain-equivalent income was one-fifth of the income of England.³¹ The average resident of Bengal was not poor in absolute terms. A peasant income per capita of Rs. 7 translated into access to calories that was above that required for nutritional adequacy. Assuming a third of income was spent on clothing and other necessities, the remaining income was sufficient to procure a quantity of rice that

²⁸ The estimate of cloth production, income from textiles, and average cloth consumption are close to the range derived by Prakash for the turn of the seventeenth century. However, significant differences exist with respect to population and the income attributable to external trade, see Prakash, "Bullion for Goods," p. 13.

²⁹ I use spinner-weaver ratios considered reasonable by Guha, "Handloom Industry," and Prakash, "Bullion for Goods," to derive population; average earnings of spinners and weavers are reported in Sinha, *Economic History*, vol. 1, p. 165; and I assume that a weaver worked full-time for eight months in a year. A conservative estimate is Rs. 33 million as the total net income in textiles. Consistent numbers for artisan income are also available from William Fairlie, merchant, P.P., 1812/13 (122), *Select Committee*, p. 115; and Francis Buchanan, cited in Ghosal, *Economic Transition*, p. 13.

³⁰ Allen, "Real Wages"; and Broadberry and Gupta, "Early Modern."

³¹ The price of rice in Bengal was Rs. 0.024 per kg, or £0.0024 in 1763. Most records of wheat prices in contemporary England suggest an average in the neighborhood of 4s per bushel, or £0.008 per kg, see Mingay, "Agriculture," p. 144; and Granger and Elliott, "Fresh Look," pp. 257–65.

would ensure 2,200 calories for each adult and about half that for each child. On the point of caloric adequacy, the Bengali peasant was as well-placed as counterparts in Europe and the Yangtze delta were in the mid-eighteenth century.³² However, subsistence risks were higher in Bengal than in Europe. On this point, Bengal resembled China more than it did Western Europe. The consumption adequacy fell apart if grain prices increased. Prices more than doubled in 1769 and 1770, turning a scarcity into a violent famine.

The results also shed light on debates on the economic history of India in a period of transition of empires. According to one interpretation, the collapse of the Mughal Empire in the early eighteenth century and erosion of state capacity led to revenue farming, local conflicts, atrophy of capital formerly connected with imperial finance, decline of luxury manufactures in the towns, and thus, an overall decline.³³ A revisionist interpretation, on the other hand, sees the end of the empire as encouraging commercial accumulation and leading the landed elite to forge partnerships with merchants and bankers. Strong regional states such as Bengal emerged, in this view, from the ashes of the empire, to devise “efficient tax gathering procedures,” encourage “rural investments,” and foster “a more prosperous agriculture.”³⁴ Taking the story forward, other authors hypothesize a gathering crisis from the middle of the eighteenth century with the rise of colonialism and deindustrialization.³⁵ Another paper contends, based mainly on trends in price, that the crisis had origins in a depression of land yield owing to climatic and political factors.³⁶ Rising prices are read quite differently as signs of commercialization in yet another work.³⁷ And finally, one author speculates that a “high-level equilibrium trap” turned into a disadvantage as growing population and “pressure on the resource base . . . constrained effective domestic demand for mass consumer goods.”³⁸ This study infers economic growth mainly from population growth in India.

³² Pomeranz, “Standards of Living.”

³³ Habib, “Eighteenth Century”; and Ali, “Recent Theories.”

³⁴ Bayly, *Rulers*; Bayly, “Epilogue”; Perlin, “Proto-Industrialisation”; Prakash, “Trade and Politics” and “Great Divergence”; and Chaudhury, “European Companies.” The cited texts are from Stein, “Decade”; see also Marshall, “Introduction.”

³⁵ The title of Chaudhury, *Prosperity to Decline*, articulates this view. For a sympathetic review of the large scholarship debating the “beginnings of economic decline” in eighteenth-century India, see Frank, *ReOrient*, pp. 267–68. See also Perlin, “Proto-Industrialisation”; and Parthasarathi, “Rethinking.”

³⁶ Clingingsmith and Williamson, “Deindustrialization.” Other scholars have explained trends in price as an effect of supplies of specie. For a discussion on price statistics, see Haider, “Prices and Wages.”

³⁷ Datta, *Society*, pp. 26–27.

³⁸ Frank, *ReOrient*, p. 301.

The numbers derived here casts doubt on the “efficiency” of the precolonial state. The numbers make the state in 1763 appear a potentially weak political actor in relation to the landlords. The tax-income ratio turns out to be far too low for a powerful state. Such poverty could make the state vulnerable to the disaffection of the intermediaries, and eventually colonization.

What can we infer on trends in well-being in the eighteenth century? The method followed in this article can be projected backward to 1722, when a large-scale tax settlement was conducted upon a substantially similar territory. Between 1722 and 1763 tax collection increased from Rs. 14.3 million to Rs. 25.6 million, an increase of 79 percent. The price of the chief product, rice, increased in the same time span by 80 percent.³⁹ Trends in the tax-income ratio can at best be assumed on the basis of qualitative assessments of the authority of the state over *zamindars* in an earlier era. Based on what we know at present, a constant tax-income ratio in the eighteenth century is as good an assumption as any. On that assumption, aggregate real income did not change.

Trends in per capita income would have depended on acreage per person and yield per acre. Recent research on the eighteenth century observes extensive agricultural growth, settlement of migrant peasants and laborers, and in some cases, their resettlement in regions deserted due to famine or war.⁴⁰ In all cases, these moves were labor-intensive. Acreage expansion involved either acreage decline somewhere else, or population growth. Acreage expansion, then, should have left acres per capita unchanged, and income per capita should have depended on yield alone. Changes in rice yield required variable application of biological input. All evidence on the matter suggests that the intensity of biological inputs in Bengal agriculture was low and invariable.⁴¹ There is no report of incentives offered by the new states to induce yield-raising actions. On the contrary, the regimes “did not have much to do with the complex production system, having no institutional basis at all for its planning.”⁴² I would side with the view, expressed for northern India by William Moreland, S. Moosvi, and A. Heston, and generalized to Bengal by B. B. Chaudhuri, that the productive capacity of land did not change in the seventeenth and eighteenth centuries.⁴³

³⁹ Datta, *Society*, p. 77.

⁴⁰ For a discussion, see Chaudhuri, *Peasant History*, chap. 2.

⁴¹ Datta, *Society*.

⁴² Chaudhuri, *Peasant History*, p. 93.

⁴³ The position that “no significant change in productivity per unit of area for the major crops between the sixteenth century and the latter half of the nineteenth can really be

What we can be certain about is that the state was struggling harder to wrest more money from the intermediaries in the middle of the eighteenth century. The economic history of Bengal in this time displayed the syndrome that P. J. Marshall calls “fiscal terrorism.”⁴⁴ A great many taxes had been imposed recently and as desperate measures.⁴⁵ When the company took charge, the need for a simple yet effective fiscal system was keenly felt, and led to the removal of the chief of finance, Muhammad Reza Khan. The company’s military offered a credible threat when the Company put pressure upon the intermediary groups to deliver more. The increased pressure showed up in the financial market. The highest interest rates recorded in Bengal in the 1770s, 36–60 percent per year, were charged on money advanced by indigenous bankers to *zamindars* to enable them to meet their tax obligations. In some present-day accounts, these interest rates reflected a shortage of specie in Bengal. But interest rates were not high in all transactions. Secured loans and mercantile debts carried the more conventional interest rates of 12 percent.⁴⁶ The banker-*zamindar* transaction was complicated by the particular demands made on the *zamindars*.⁴⁷ Defaults among *zamindars* rose, bankers formed cartels against them, and eventually some of the bankers set up as landlords.⁴⁸

It appears that average real income in Bengal did not change much between 1722 and 1763. Nor did it change between 1763 and 1881. In 1881 two calculations produce a nominal agricultural income per head in Bengal in the range of Rs. 16–17.⁴⁹ Between 1763 and 1881 the price of rice in Bengal, and average income, both increased 35–38 percent. In the face of such income stability before and after colonization, we can conclude that natural production conditions, and not colonialism, influenced trends in per capita income in the long run.

postulated,” Moosvi, “Note,” was earlier stated by Moreland, cited in Desai, “Population.” See also Heston, “Standard of Living.”

⁴⁴ *Bengal*, p. 72.

⁴⁵ Out of the Rs. 25.6 million that Mir Qasim, the Nawab, had hoped to collect in 1763, *tumar jumma* or income from people recorded in the rent rolls accounted for about half. The remaining half was raised from temporary or extraordinary imposts, some of it levied to cover the possibility that the local assessors and collectors fraudulently excluded names from the registers.

⁴⁶ Interest rates were 10–12 percent on ordinary debts, 9 percent on the company’s loans on average, and 12–36 on mercantile loans depending on the length of the term, P.P., 1812/13 (306), *Papers*, p. 56; and P.P., 1772b, *Select Committee*, p. 329.

⁴⁷ On these conflicts, see also Sinha, *Economic History*, pp. 134–35.

⁴⁸ P.P., 1772a, *Select Committee*, p. 335.

⁴⁹ Cited in Heston, “National Income,” p. 455.

CONCLUSION

This article reconstructs income of late-eighteenth-century Bengal using the income of the state as the basis. The results carry lessons on divergence, and on living standards, political economy, and economic growth in early modern Bengal. The picture drawn here suggests a fiscally weak state, dependent on livelihoods that earned a smaller income than Western Europe. The income was sufficient to secure consumption adequacy on average, if not food security. This article does not find evidence to infer either growth or decline in per capita income between the early eighteenth century and the late nineteenth century. Transition to colonial rule made little visible difference to the peasants. More plausibly, real income per head did not change because natural resource endowments rigidly constrained potential land yield.

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