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# **THE DEVELOPMENT OF MODERN INDUSTRIES IN BENGAL**

**REINDUSTRIALISATION, 1858–1914**

Indrajit Ray



# The Development of Modern Industries in Bengal

Bengal's traditional industries, once celebrated worldwide, largely decayed under the backwash effects of the British Industrial Revolution in the first half of the nineteenth century. Although colonial ambivalence is often cited as an explanation, this study also shows that a series of new industries emerged during this period.

The book reappraises the thesis of India's deindustrialisation and discusses the development status of the traditional industries in the early nineteenth century, examines their technology, employment opportunities and marketing and, finally, analyses the underlying reasons for their decay. It offers a study of how traditional industries evolved into modern enterprises in a British colony, and contributes to the broader discussion on the global history of industrialisation.

This book will be of interest to scholars of Indian economic history as well as those who seek to understand the widespread effects of industrialisation, especially in a colonial context.

**Indrajit Ray** is Professor in the Department of Commerce at the University of North Bengal, India.

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Reindustrialisation, 1858–1914

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To  
my late father and philosopher-guide,  
Harendra Nath Ray,  
and  
my mother and schooldays home tutor,  
Srimati Minati Ray



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# Foreword

A previous book, *Bengal Industries and the British Industrial Revolution (1757–1857)* (Routledge, 2011), established Indrajit Ray's reputation as the foremost authority on economic transition in Bengal in the early modern times. Ray reaffirms his position in the field with this second book, which follows up the story to the early twentieth century and, in the process, describes the transition from a craft-based industrial system to modern manufacturing more fully.

The origin of large-scale mining and manufacturing enterprise in India is a well-researched subject. The standard works on Indian industrialisation from the nineteenth century, by Morris David Morris, A. K. Bagchi, Rajnarayan Chandavarkar and R. K. Ray, are still widely read and remain benchmarks in the field. Within this scholarship, the story of the industrialisation in Bengal has been explored in considerable detail. Books written by A. Z. M. Iftikharul-Awwal and M. Mufakharul Islam have contributed significantly to that theme. Directly or indirectly, these works have attempted to show how industrial pioneers and early entrepreneurs solved the problems of obtaining capital, technology and labour, and how that process took a distinctive trajectory in Bengal, among other reasons, because British capital dominated investment in this region. With the field being so well developed, a great deal of recent research has moved into exploring niche questions, and produced journal articles rather than books.

Ray's new book, by contrast, takes the discourse back to the bigger picture. *The Development of Modern Industries in Bengal: Reindustrialisation, 1858–1914* offers a rich narrative of the emergence of large-scale modern enterprise in Bengal from the middle of the nineteenth century. More successfully than other works on industrialisation, it describes the regional economy in detail, detailing the prehistory of large-scale enterprise in this region, the origins of capital and labour, business enterprise and organisation, and the persistence and decline of traditional industry in the same fields in which mechanised work emerged. In short, it presents a more complete and coherent picture of industrialisation, in which the connecting thread is the regional economy of Bengal.

Historians of world industrialisation will find the book especially useful for two innovations it introduces. First, it incorporates the experience of handicrafts and manual labour in mining and manufacturing within the account. The

mainstream historiography of industrialisation tends to treat the machine-using factories as a species of production distinct from and incompatible with the handicrafts. In recent times there has been a reaction against the tendency to see machines and crafts in sharp opposition, with a hard border separating the two spheres. Some historians have begun to recognise that craft production persisted into present times and that manual work persisted inside the mechanised factory. This book does not dispute that there were spheres of decline and obsolescence within the crafts as large-scale industry emerged; but it also shows how extensive craft production was, who these producers were, what they did to adapt to the competition, and when these adaptation strategies failed. In the process, the book pays fuller attention to labour-intensive methods in a story primarily of the rise of capital-intensive industry. Second, Ray integrates the history of Bengal with current debates and discourses in global economic history. Drawing on his well-known work on the concept of deindustrialisation, and with a diverse but rich set of case-studies, Ray sets boundaries on the concept, and suggests how it should be applied as a research tool.

A work in the best tradition of source-based research, *The Development of Modern Industries in Bengal* successfully connects its subject matter to major themes in world history as well as regional economic history – a task Ray is uniquely able to perform. It represents a major advancement in the field.

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October 2017

## Preface

The historicity of Bengal's modern industries has occupied my interest since the early 1990s. The interest has possibly been sustained so long in view of my living surroundings and the nature of my job. My home town is Barrackpore, an industrial suburb of Calcutta, where life rhythms followed the sirens of mills in my boyhood days – getting up from the bed, going to schools and colleges, and so forth. There were paper mills, jute mills, engineering firms and a host of ancillary and small-scale industries. Many of my friends work there; moreover, two of my younger brothers own export-based firms in the leather industry (Bengal is now pioneer in this line). I thus come across the stories of industrial life, their problems and prospects, whenever I stay in my home town. On the other hand, the university where I have been teaching for three decades is located in the foothills of the Himalayas, the so-called Terai region, which is dotted with tea gardens. Only a few kilometres away to the east is the Dooars, where, again, tea plantations are the mainstay of livelihood. The steep slopes of the Himalayas containing tea bushes start no later than 20 minutes' journey by road on the north. The university is thus surrounded by tea gardens, each stretching over several hectares of land, which looks like a great piece of green carpet. British culture still prevails in these gardens, as reflected in their social life (especially the club culture, manners and etiquette) and working schedules. Regular interactions take place between the university teachers and the tea gardens, with various meetings, seminars and the annual general meetings.

I started my career as a consultant in a public-sector undertaking, the West Bengal Consultancy Organisation, which provided consultancy services to industries in respect of the setting up of new ventures, revival of sick units, market surveys and so on, as also to the government for regional industrial planning. My experience in those projects has enriched my view of industrial historiography in developing countries. I also worked for a couple of years in a premier chamber of commerce in Calcutta, the Bengal National Chamber of Commerce and Industries, where, along with other assignments, I looked after three industrial associations as the secretary-in-charge: the Eastern India Glass Manufacturers' Association, Indian Tea Exporters' Association and Bengal Rice Mills' Association. My interactions with industrialists in the chamber, and various discussions at meetings of the industrial associations, have provided



me analytical insights into the problems of industries. Let me add that the University of North Bengal gave me an additional assignment as the head of the Department of Tea Science for a couple of years. For the students' interest, and also for the department's sake, I had to maintain a close liaison with the tea gardens in North Bengal. Frequent interactions with tea garden management have enlightened me about various facets of tea plantation in this region. All these explain why my interest in these topics has been sustained for such a long period.

For this project I have never sought for any financial support. Nor did I take any study leave from my university to visit libraries or for drafting the manuscript. Contemporary reports and documents are scattered across various libraries in Calcutta. More important libraries that I have consulted are the National Library, Calcutta; the Commercial Library, Calcutta; the West Bengal State Archives, Calcutta; the Company Law Board Library, Calcutta; and the libraries of the Bengal National Chamber of Commerce and Industries, the Bengal Chamber of Commerce and Industries, the Indian Tea Association and the Indian Jute Mills' Association. Staying at home during my annual vacations (twice a year for more than a month each), I completed my library work in Calcutta, and prepared the manuscripts after normal assignments at the university department.

# Acknowledgements

At the outset I acknowledge the late Bhabatosh Datta, a great teacher in economics, who, in the early phase of this project, advised me to study the period from 1858 to 1914 exclusively. Though initially hesitant as to the materials that could be gathered for this period, I subsequently understood the depth of Bengal's industrial historiography in the second half of the nineteenth century, and could thus fathom the weight of his advice. I here also acknowledge Professor Amiya Kumar Bagchi, who enlightened me as to the importance of industrial employment in the discussion of economic history in an erstwhile colony such as Bengal. Through his critical bent, he impressed on me the art of reading economic history in a peripheral region. I am also indebted to Professor Tirthankar Roy, who, apart from writing the foreword of this book, has painstakingly read the early drafts of some chapters and given invaluable suggestions.

I have also been enlightened by discussion in various seminars. I specifically mention the Hi-PoD (Historical Patterns of Development and Underdevelopment) conference on India and the great divergence, organised under the auspices of the Centre for Economic Policy Research (CEPR) at Fort Neemrana, Rajasthan, India, on 19–20 September 2011. I wish to thank the participants in the conference, especially Stephen Broadberry, Bishnupriya Gupta, Debin Ma, Sevket Pamuk, Rajat Datta and Tirthankar Roy.

I am indebted to the staffs of the National Library, Commercial Library and West Bengal State Archives, all in Calcutta, who untiringly supplied me books and documents in the course of my study in those libraries. I also acknowledge the secretaries of the Bengal National Chamber of Commerce and Industries, Bengal Chamber of Commerce and Industries, Indian Tea Association and Indian Jute Mills' Association, who allowed me to study books and documents in their libraries, especially the rare documents pertaining to the early years of those associations.

I am also indebted to two anonymous referees at Routledge who critically reviewed this book proposal and suggested certain issues to deal with. In the course of the review process, and subsequent to its finalisation stage, I received many suggestions, and also clarifications of my doubts, from Emily Kindleysides, senior editor in economics at Routledge and the commissioning editor of this book. I acknowledge her contribution to this project. For similar

contributions, I also acknowledge Natalie Tomlinson, who became the acting editor in the absence of Emily Kindleysides. I must thank also Laura Johnson, senior editorial assistant (economics), and Lisa Lavelle, editorial assistant (economics), both at Routledge, who were my main points of contact at different stages of the publication process. I also acknowledge with thanks the prompt service and sincere cooperation of Matthew Twigg, production editor (geography, tourism and economics) at Taylor & Francis Group; Ruth-Anne Hurst, production editor at Out of House Publishing, who was the project manager for this book; and Mike Richardson, the freelance copy-editor, who completed his task to my satisfaction.

Some chapters of this book, or parts thereof, have been published in various journals/books. Most of them have been revised/enlarged for the present publication, but, without the copyright permissions from the publishers of these journals/books, this book could not have taken its present shape. In this context, I acknowledge with thanks Routledge, for giving me permission to incorporate a chapter of the book *A New Economic History of Colonial India*, edited by Latika Chaudhary et al., and Taylor & Francis, for giving permission, on behalf of the Economic History Society of Southern Africa, to incorporate an article published in the journal *Economic History of Developing Regions*. I am equally indebted to Sage Publications India Pvt. Ltd, for permissions to use the enlarged versions of my two articles in the *Indian Economic and Social History Review*. I also acknowledge Springer, for giving me licence to reproduce the material used in one of my chapters in *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, third edition, edited by Helaine Selin.

# 1 Introduction

The present chapter introduces the book in three respects: (i) the study area and the period of interest; (ii) the subject matters; and (iii) the limitations of the study. These are discussed in three subsequent sections that follow. Section I does not, however, introduce Bengal in terms of its political history, physical geography or anthropological features, as those are discussed in my previous work (Ray 2011). Rather, it defines the geographical boundaries within which the present study concentrates, since several changes occurred in this respect during my study period.

## I

Modern industries started emerging in Bengal from around the middle of the nineteenth century, which motivates me to concentrate on this period. Coal mining entered into a high-growth trajectory in the 1840s, and, using the European charcoal technology for the first time, pig iron began to be manufactured at the Mohammad Bazar Iron Works in 1855. In addition, the first steam-powered jute mill was opened in 1855, commercial tea plantations were launched in 1856 and the first modern paper mill was set up in 1861. But some of these industries (in particular, iron smelting, jute processing and paper making) had ancient legacies in a cottage environment. To understand their strength and weakness in the contemporary industrial milieu, and also their contributions to Bengal's subsequent reindustrialisation, I look back to the first half of the nineteenth century, or even the second half of the eighteenth. Moreover, when a modern industry has its roots prior to the study period, I take the liberty of starting the discussion accordingly.

This study specifies 1858 as its commencing year. It is a landmark in Indian historiography since, on 2 August 1858, the British parliament promulgated the Government of India Act 1858 (21 & 22 Vict. c. 106), whereby India's governance was transferred from the East India Company to the British Crown (for the original act, see Keith 1922: 370–82). It was followed by Queen Victoria's proclamation on 1 November 1858 to the 'Princes, Chiefs, and People of India' (ibid.: 382–6), underlining that economic prosperity and social advancement in India 'can only be secured by internal peace and good government'

## 2 Introduction

(ibid.: 383–4). The Secretary of State was employed as a link between Britain and India; a council of 15 members was set up to assist him; an Indian Civil Service was created for the purpose of administration; and the Crown appointed a Governor General (the first viceroy) for India and governors for the presidencies (GOI 1909: 30–1). For Bengal, however, the Governor General looked after the office of governor, as Calcutta was then the capital of India, with the assistance (since 1854) of a lieutenant-governor (ibid.: 16).

Bengal's administrative jurisdiction remained largely unaltered in that transitional phase, however (ibid.). Similar to the practice in other presidencies, there was a Council in Bengal, which devised the code of 'Regulations' for its governance. Any territory, added by conquest or otherwise, came under those regulations. But when a territory was acquired, but not annexed, it was treated as a non-regulation province. There were both regulation and non-regulation provinces under the control of the lieutenant-governor of Bengal (GOB 1868: 1). The presidency then comprised eight divisions in the former (Bhaugulpore, Burdwan, Chittagong, Cuttack, Dacca, Nuddea, Patna and Rajshahi) and six divisions in the latter (Assam, Chotanagpur, Cooch Behar, Sonthal Pergunnahs, the Chittagong Hill Tracts and Cachar), with 36 and 19 districts, respectively. For 1866–7 the district-wise area and population of Bengal presidency are shown in Appendix 1.1. The appendix aggregates population to 37,535,890 over an area of 199,514 square miles, so that its population density comes to about 188 persons per square mile.

This administrative set-up was first modified in 1874 when the Assam division was separated to constitute a new entity, the North-East Frontier Non-Regulation Province (for the administrative set-up in 1880, see Figure 1.1). A large number of tea estates that had sprang up in Assam and Sylhet valleys were thus excluded from the province of Bengal. A more extensive partition followed in 1905, however, whereby a number of districts belonging to Eastern Bengal were separated. Together with the North-East Frontier Non-Regulation Province, they constituted the Eastern Bengal and Assam Province. Some important districts that Bengal had then lost were Dacca, Mymensing, Faridpore, Backergunj, Tipperah, Noakhally, Chittagong, Rajshahi, Dinajpore, Jalpaiguri, Rangpore, Bogra, Pabna, Malda and Sylhet. In addition, five Hindi-speaking districts of Chotanagpur were transferred from Bengal to the Central Provinces and six Oriya-speaking districts were annexed from the Central Provinces to Bengal.

Although the move was officially declared to be for administrative convenience, its underlying motivation came under sharp attack in view of its partitioning of Bengal along religious lines (Roy 2009; Gordon 1973; McLane 1965). Bengal's industrial economy was also dislocated, as the raw-material-cum-foodgrain zones largely belonged to Eastern Bengal, juxtaposed to the development of major industries in and around Calcutta. As people apprehended its consequences for the polity and economy of Bengal, popular agitation then broke out across the province. The *Swadeshi* movement, as it is called, also had important economic dimensions. In the belief that the partition would

damage Bengal's economic prosperity, the movement called for the boycotting of foreign goods, and motivated Bengali entrepreneurs to serve the cause of development. Many indigenous (*Swadeshi*) enterprises were set up as a result (Bhattacharyya 1986).

The partition of 1905 was partially modified in 1912 by the unification of five major Bengali-speaking divisions with the province of Bengal. Two more policy decisions followed. First, Bihar and Orissa were included in a separate province, with Assam as another province. Bengal's loss in this partitioning was that a number of coal mines belonging to it were transferred to the province of Bihar and Orissa (see footnote \*\*\* of Appendix 3.1). Second, the capital of India was shifted from Calcutta to Delhi.

The study area of this book is confined largely to the post-1912 administrative jurisdiction of Bengal. Post-1858 Bengal is referred to, however, in the deliberations on some of its traditional industries (especially iron smelting and paper making) in the early nineteenth century.

The study runs through 1914. The inter-war period is deliberately avoided because of its great dissimilarity to the previous epoch in respect of the industrial environment. Contrary to the political tranquillity and economic stability from 1858 to 1914, the subsequent period witnessed booms for some industries and a dislocation of supply chains for others, with World War I, the post-war recessions, the Great Depression of 1929 and, finally, the preparations for World War II. For variations in opportunities and constraints, the industries behaved dissimilarly in this turmoil-struck phase. Confining the focus to the 1858–1914 period, the study seeks to examine on the basis of purely economic principles how Bengal was reindustrialised.

## II

Bengal's traditional industries, once famous around the world, decayed to a large extent in the first half of the nineteenth century. In the second half, however, a series of new industries arose on the basis of modern technology and organisation. This volume seeks to identify the underlying reasons thereof. Situating the argument on the global movement of capital with theoretical underpinnings and empirical support, it responds to a logical curiosity: what motivated the contemporary movement of capital? To this end, this study takes up five major industries that arose in Bengal during the second half of the nineteenth century – coal mining, iron smelting and its downstream activities, jute processing, paper making and tea cultivation – and discusses various government policies and Bengal's comparative advantages in these lines of production. It analyses in detail how, on the strength of their comparative cost advantages, these industries successfully competed in contemporary markets. In jute and tea, Bengal's industries virtually monopolised the global market by the close of the nineteenth century, replacing Dundee and China, respectively. In coal, iron and paper, they became formidable competitors to British industries, which had a monopoly in India's domestic market. Furthermore, it critically examines

various facets of the industries – land, labour, capital and enterprise, in addition to technology and raw materials – so that the contemporary industrial progress can be properly understood. Three of the industries – jute processing, iron smelting and paper making – had earlier been part of Bengal's traditional sector, which had been extensively developed on the strength of local technology and manpower, but which are conspicuous by their absence from historiography. This book discusses the development status of these traditional industries in the early nineteenth century; examines their technology, employment opportunities and marketing; and analyses the underlying reasons for their decay. It helps us to comprehend how traditional industries were able to surpass themselves and transform into modern enterprises in a British colony. Finally, this book reappraises the long-standing debate on India's nineteenth-century deindustrialisation by juxtaposing the demise of Bengal's traditional industries in the first half of the century with its reindustrialisation in the second half. These analyses significantly enrich the industrial historiography.

There are eight chapters that follow. Chapter 2 critically analyses the status of economic development in Bengal in the early modern age. In particular, I seek to explain why, notwithstanding its ancient economic prosperity, Bengal encountered an economic slowdown in the early modern age. This is a prelude to this study on Bengal's industrial history from 1858 to 1914, and also contributes to the literature on the 'great divergence'. It offers a critique of the existing hypotheses insofar as they fail to account for the Bengal experience sufficiently. In particular, the accent on demographic-ecological crisis as an explanation for Asian regions falling behind seems inapt for Bengal. I propose an alternative theoretical framework based on Adam Smith's understanding of the pre-modern process of economic development, and especially the role of capital inflow in the process. This alternative is tested against a detailed analysis of the monetary-fiscal trends in early modern Bengal.

Chapter 3 seeks to analyse the growth pattern of coal mining in Bengal during the nineteenth century, and also its underlying causations. It reveals that, although a first attempt was made in 1774, regular excavations of coal took off only around the middle of the next century. I argue that mining in Bengal suffered initially from a hostile attitude by the colonial government and improper institutions, and later from a lack of mineralogical knowledge, inefficient transport network and the scarcity of labour. Once the style of governance had been changed under the rule of the British Crown, the impediments disappeared. My analysis shows how these successive events domestically established comparative cost advantages in favour of Bengal coal, enabling it to successfully compete with British coal in India's domestic market in the second half of the nineteenth century. Its export ventures, especially in South and South-east Asia, are also discussed.

Chapter 4 discusses iron smelting and its downstreams in the nineteenth century. Although Bengal had a rich heritage in this field, it succumbed to market competition in the colonial era. A series of large-scale projects were started in the period from 1774 to 1879, but they could not survive. Only from 1880

onwards did the industry grow rapidly. This chapter highlights various aspects of traditional iron smelting in Bengal, and analyses the issues of deindustrialisation. This is followed by a discussion on the development process of large-scale iron smelting, with an emphasis on its comparative cost advantages vis-à-vis the United Kingdom. It argues that the failure of large-scale iron smelting in the early British rule, as also its success thereafter, may be explained by the contemporary colonial policy of store purchasing.

Chapter 5 seeks to situate Bengal's jute industry during the nineteenth century in a global perspective. It was a long-established cottage industry in Bengal that entered the global market before the advent of jute technologies in Dundee, and grew together with the Dundee mills through the mid-nineteenth century. The subsequent emergence of modern mills in Bengal further aggravated the market competition. In view of the inadequate analysis in the existing literature, I intend to investigate four important questions on the contemporary jute industry: (i) what was the development status of the traditional jute industry in Bengal around the middle of the nineteenth century; (ii) when did it enter into the phase of decline; (iii) what were the sources of comparative advantages between the Dundee and Calcutta mills; and (iv) what were the nature and consequences of the competition between them? These issues are discussed, and also quantified, wherever possible, on the basis of contemporary data and information. The welfare implications of the Bengal jute industry are also examined.

Bengal's paper-making industry is the theme of Chapter 6. It was a medieval art in Bengal, which prospered through the early nineteenth century on the basis of local raw materials, native manpower and a domestic market, but it started declining in the early 1860s. From the late eighteenth century a number of European projects also materialised, but they failed to survive in the long run. Finally, a series of successful ventures were inaugurated. This chapter analyses these different phases of paper making in nineteenth-century Bengal, highlighting the technology, raw materials, labour, capital and marketing. Finally, the colonial store purchasing policy is discussed at length, to establish that periodic amendments to it brought swings in the industry in the second half of the nineteenth century.

Chapter 7 discusses the tea plantations in Bengal, which were developed on the basis of British capital, tribal labour and what were designated as 'wastelands' in the Himalayas. In contrast to the prevailing trend in the literature to discuss plantations from the viewpoint of a colony (especially to highlight its dualistic features), the present chapter analyses the development of tea cultivation in Bengal from the global perspective. It shows that the plantations served the British interest by creating a vast, profitable outlet for British capital, and thus explains why the imperial administration promoted its development through favourable wasteland policies, efficient transport infrastructure and soft fiscal measures. Bengal also benefited thereby, as substantial employment opportunities were created, and a vast tract of wasteland was developed. Contemporary data and information are gathered to these ends from various archival sources.



I also discuss how, on the basis of its comparative advantages, Indian tea occupied the global market, where China had previously had a monopoly.

Chapter 8 summarises the findings of the chapters on the different industries, categorising them under four headings: (i) the state of major industries around 1914; (ii) capital and entrepreneurs; (iii) land and labour; and (iv) market and government policies. For topical interests, I elaborate certain general aspects of the contemporary industrial economy that have only been adumbrated in the texts – such as the managing agency system, the migration of labour and fiscal policies. The chapter concludes with a brief discussion of the basic changes in the industrial landscape of Bengal during this phase of reindustrialisation.

Finally, Chapter 9 addresses the long-standing debate on Bengal's nineteenth-century deindustrialisation. The question of India's deindustrialisation in the nineteenth century was raised by Marx, as well as by the political leaders in India's nationalist movement. But empirical support was in seriously short supply. It was much debated in the twentieth century, both theoretically and empirically. This chapter identifies the genesis of the debate, and briefly reviews its relevant theoretical and empirical underpinnings. On the basis of my previous industry-wise studies (Ray 2011), as also the present one, this chapter seeks to verify whether deindustrialisation took place in Bengal during the colonial period.

### III

There are three major limitations to this study. The first one concerns the number of industries it examines. Although I discuss here only five major industries in Bengal, there were in fact many other industries, belonging to both the traditional and the modern sectors. A survey by the Department of Industries on Bengal's cottage industries in 1929 (GOB 1929) reports 95 such industries, of which four prevailed over others across the province. These were hand loom weaving, brass and bell metal manufacturing, soap making and tanning (*ibid.*: 5–9). The report underlines that 'hand-loom weaving is far and away the most important and valuable and widespread cottage industry of the province. From no district or centre is it absent, while in some centres such as Santipur in Nadia, Chowmohani in Noakhali, Sonamukhi, Vishnupur and others, practically the whole population is absorbed in hand-loom weaving and subsidiary occupations as their principal source of livelihood' (*ibid.*: 5). As to brass and bell metal, the survey reports the turnover at 'many lakhs of rupees' (*ibid.*: 6) and the level of employment at 36,471.

Side by side, many modern industries outside the purview of this book arose in this province. They belonged to various industrial groups such as textiles, minerals and metals, foods, drinks and tobacco, chemicals, and so on. The number of factories in these industries, and their average daily employment levels, are shown in Table 1.1.

Table 1.1 excludes jute mills (85 factories, with employment at 325,865), engineering (196 factories, with employment at 65,557), iron and steel (two factories, with employment at 9,049), and paper and printing (73 factories,

Table 1.1 Factories in Bengal outside our purview, 1920s

Industry	Number of factories	Average daily employment
Textiles (other than jute)	32	14,132
Minerals and metals (other than iron and steel)	6	742
Food, drinks and tobacco	547	29,405
Chemicals, dyes, etc.	111	14,540
Processes relating to wood, stone and glass	34	4,905
Processes relating to hides and skins	7	751
Gins and presses	680	36,680
Miscellaneous	15	2,401
Total	1,432	103,556

Source: P.P. 1930: 662–71.



Figure 1.1 Bengal Presidency in 1880

Source: Presidencies and provinces of British India. Retrieved 22 July 2017 from [www.wikiwand.com/en/Presidencies\\_and\\_provinces\\_of\\_British\\_India](http://www.wikiwand.com/en/Presidencies_and_provinces_of_British_India).

with employment at 10,612). This excluded list gives the number of factories at 356 and the employment level at 411,083, so that the total number of factories in Bengal comes to 1,788, with an employment level of 514,639. Industries under our study thus constitute 19.91 per cent of the total number

of factories, but 79.88 per cent of their level of employment. Indeed, the inclusion of printing (along with paper mills) largely inflates the number of factories, but not the level of employment to that extent, as it was 4,393 in paper mills as against 10,612 in that group (P.P. 1930: 659). Moreover, statistics on tea plantations and coal mining are not reflected in these figures, as they were not included under the Factory Act. If joint-stock companies are considered for 1917–18 (P.P. 1920: 232), however, their number is reported at 582 for manufacturing, plantations and mining (excluding companies belonging to the banking and loans sector, insurance, navigation, railways and tramways, other trading companies, and land and building), whereas the figure is 464 for tea plantations, coal mining and jute mills. The industries under this study thus account for 79.72 per cent of joint-stock companies. Therefore, we are assured that the present volume covers a major segment of contemporary modern industries in Bengal.

The second limitation relates to the absence of any comparative study between Bengal and other provinces of India, especially Bombay and Madras. This is in a sense a compulsion for me, since the industries that I study here were developed mainly in and around Bengal on the basis of their historical legacies and/or natural endowments. It is also deliberate in the sense that this reading seeks to evaluate the competitiveness of Bengal's emerging industries in the global market environment – against British industries in particular, except for tea plantations, where China was the market leader.

Lastly, notwithstanding their topical interest amongst academia, certain issues, such as the trade union movement, labour welfare and the recruitment system of migratory workers, are not discussed. Temptations to do so are resisted in view of a rich literature on them (see, for example, Sen 1999; Bose 1986; Siddique 1995; de Haan 1995; Chakrabarty 1989; Saha 1978; Das Gupta 1976; Simmons 1976; Seth 1940). The book is instead more focused on the least discussed areas of Bengal's industrial historiography for 1858 to 1914.

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*Appendix 1.1 Details of administrative divisions in Bengal, 1866–7*

<i>Division/district</i>	<i>Area (sq. miles)</i>	<i>Population</i>	<i>Division/district</i>	<i>Area (sq. miles)</i>	<i>Population</i>
<b>Bhaugulpore/</b> Bhaugulpore	4,121	1,082,650	Chumparun	3,781	750,000
Monghyr	4,200	925,040	Patna	2,242	872,000
Purneah	5,275	729,114	Saran	3,000	1,200,000
Sonthal	5,375	522,000	Shahabad	4,403	1,600,000
Pergunnahs					
<b>Burdwan/</b> Bancoorah	4,683	74,300	Tirhoot	9,216	1,854,297
Beerbhumi	2,330	827,624	<b>Rajshahye/</b> Rungpore	4,500	1,259,362
Burdwan	2,682	1,088,813	Bogra	2,000	400,000
Hooghly	1,457	1,370,120	Dinagepore	3,829	1,000,000
Howrah	550	520,000	Malda	1,484	305,563
Midnapore	5,031	1,558,450	Moorshedabad	2,439	967,619
<b>Chittagong/</b> Noakhally	3,000	544,998	Rajshahye	3,035	710,290
Chittagong	2,717	800,000	Pubna	2,044	281,366
Chittagong Hill Tracts	7,000	NA	<b>Assam/Durrung</b>	2,912	178,163
Tipperah	3,600	1,000,000	Nowgong	8,712	247,500
<b>Cuttack/</b> Balasore	2,049	494,056	Sebsaugor	2,821	226,000
Cuttack	3,061	1,293,884	Kamroop	3,348	400,000
Pooree	4,082	643,536	Luckimpore	5,000	117,393
<b>Dacca/</b> Backergunj	4,000	866,632	Cossyah and Jynteah Hills	5,000	118,925
Dacca	3,138	950,000	Naga Hills	NA	NA
Furreedpore	1,500	624,476	<b>Chota Nagpore/</b> Hazareebaugh	7,028	750,000
Mymensing	6,586	947,240	Lohardunga	7,000	750,294
Sylhet	5,500	1,504,289	Maunbhoom	6,396	528,340
Cachar	5,000	200,000	Singbhoom	3,998	289,789
<b>Nuddea/</b> Jessore	3,651	957,152	<b>Cooch Behar/</b> Western Dooars	NA	NA
Nuddea	3,296	551,220	Darjeeling	800	85,000
The 24 Pergunnahs	2,523	593,079	Gowalparah	2,672	230,000
City of Calcutta	7.81	377,924	Garrow Hills	NA	NA
<b>Patna/Gya</b>	5,439	1,367,392	Native state of Cooch Behar	NA	NA
<b>Total</b>				<b>199,513.81</b>	<b>37,535,890</b>

*Notes:* Sonthal Pergunnahs and Cachar are included in Bhaugulpore and Assam divisions, respectively, as those were subordinate to the commissioners of respective divisions. The city of Calcutta was not included in any division.

*Source:* GOB 1868: iii–v (app. A).

## 2 Economic slowdown in the early modern age

### Alternative explanations under the ‘great divergence’ hypothesis

The great divergence debate reminds us that, sometime in the past, certain regions which are relatively poor today were more developed than currently wealthy countries. Later on, their relative positions changed. The debate asks two questions: when did they reverse their position; and why did the relative position change? The present chapter concentrates on the second of the two questions.

The debate concedes that, in order for regional comparisons of economic development to be meaningful, the regions should be reasonably homogeneous internally in respect of economic conditions and socio-economic and political institutions. I argue in section I that this condition held true for Bengal. What is the hypothesis being tested about Bengal in this chapter? In the divergence debate, there are two schools of thought on the relative position of regions and the causes of a change therein. One view is that, on the strength of superior institutions, Western Europe forged ahead of Asia – in particular, China and India – well before the Industrial Revolution (North and Thomas 1973; Landes 1969). The second view, sometimes called the California school, identifies the divergence as occurring towards the end of the eighteenth century or at the beginning of the nineteenth (Pomeranz 2000; Frank 1998; Wallerstein 1986; Parthasarathi 1998). This revision is also challenged in some recent studies (Roy 2010; Broadberry and Gupta 2006; Studer 2008). This study claims that Bengal encountered a lower trajectory of per capita income growth in the early modern period, and it was further depressed in the colonial era. This is consistent with all positions in the divergence debate. The originality of the study consists in the further suggestion that, in order to explain the trend, we should consider not only the exceptional traits of Europe but also the exceptional traits of Bengal itself. Many historians agree on the economic slowdown (or its continuation) in Bengal (or India) since 1757.<sup>1</sup> I seek to verify whether the existing hypotheses available from the divergence literature can explain the trend or not.

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