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The virtuous spiral of Smithian growth: colonialism as a contradiction[1]

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Abstract

As the world experiences a fourth industrial revolution - in Information Technology - we look back at how things turned out in the first Industrial Revolution, which began when Adam Smith was writing *The Wealth of Nations*. For the historical record, we draw on the recent study of *Power and Progress* by Daron Acemoglu and Simon Johnson, who describe how the benefits of innovation were – or were not - spread across society in Britain at that time.

This paper focuses on the case of India under colonial rule, however, where two themes emerge. First, how the transfer of technology under the control of a private company – based in London and granted monopoly powers by the British government - was enough to stymie the 'virtuous spiral of Smithian growth' for a century or more. Second, how two centuries of colonial control also deprived the indigenous population of what Amartya Sen has claimed is the key insurance against famine - namely democratic accountability.

The paper end with brief remarks on how industrial policy in India of today could help spread the benefits of the current IT revolution. [185words]

Keywords: Adam Smith; specialisation; development; colonisation; famine; case studies in economic history

JEL Codes: B12, F54, L12, Q1, O30

1. Introduction

Guided by his theory of comparative advantage, David Ricardo regarded a nation's natural endowments as the key determinant of its international trade. In *The Wealth of Nations,* however, Adam Smith had developed another, less pre-determined, perspective. Amartya Sen (2016, p. 286) explains:

[1] Thanks are due to Duncan Foley and Gaurav Gupta for comments and suggestions.

> The benefits of specialization - economies of scale, and skill formation - create and expand opportunities for trade and exchange. To get the benefits of specialization in some field, however, a country does not have to be, Smith's reasoning indicated, blessed with a pre-existing a natural advantage: *specialisation creates its own resource base*. [italics added]

To see why this can lead to a process of continuing growth, Duncan Foley outlines what he dubs the 'virtuous spiral of economic development':

> The links between the division of labor and the extent of the market create a system of positive feedbacks, in which increases in the division of labor lower costs, raise real incomes, and extend the market, thus leading back to more increases in the division of labor. This process creates a self-reinforcing positive spiral of economic development. For Smith, this positive feedback process is the deep secret of the wealth of nations. Foley (2016, p. 10)

2. Specialisation : a success story – for some - in Britain

For Britain at the time of the Industrial Revolution, specialisation did indeed lead to a profound expansion of trade - and a lasting increase in the rate of economic growth. But it took many years - and substantial political pressure - for the benefits to be spread more fairly across British society. As Katherine Moos (2020) points out, for example, it took the passage of Factory Acts to address the 'social coordination problem' of workers' health and the environment being ruined by externalities as firms maximised their individual profits[2].

A sweeping account of 'the struggle over technology and prosperity' in Britain at the time of the Industrial Revolution[3] is provided in the recent monograph by Daron Acemoglu and Simon Johnson (2023), hereafter A&J. With regard to the effect on other countries, however, things looked very different. 'Even technologies that created the beginnings of shared prosperity in Britain could, and did, plunge hundreds of millions of people around the world into deeper misery' they say, A&J (p. 207). And India is cited as a case in point. Why so?

2a. First Mover Advantage

[2] "It seemed to the interest of each capitalist to squeeze as much labor as they could out of the working class family, but the overall welfare and quality of life of the workers was also of importance to the capitalist class as a whole, since a healthier, better educated, and better rested working class was more productive." Foley, private communication.

[3] And also in USA post World War II.

The first thing to note is that global leaders of new technologies can reap the benefit of 'first-mover advantage'. Because the Industrial Revolution started in Britain, it could, acting as a 'Stackelberg leader', choose to produce at a high level and stake a greater claim of the world market for industrial goods than 'Stackelberg followers' would find profitable[4].

A more significant factor, however, was that the period of the Industrial Revolution in Britain (1750 – 1910) coincided with an era of colossal colonial expansion.

2b. Colonial control

In his assessment of the Indian experience, Tirthankar Roy (2012, p. 208) stresses the benefits of 'market integration' under colonial rule.

> Marxists are right in suggesting that modern empires, and especially the British Empire in India, were keen to sustain market integration. The agents of integration of special interest are law, language, and knowledge. … The consequence of the imperial umbrella of law, language and skills were various. At the broadest level, it created conditions for commodity and factor market transactions. Technological spillover from the joining of British know-how with Indian capital, labour, and natural resources was considerable. India's precocious industrialisation cannot be explained otherwise.

He does go on to concede, however, that there is a fundamental contradiction involved in pursuing market integration within an imperial framework.

> Market integration entailed a faith in liberalism and freedom, whereas the very act of subjection of other societies entailed a denial of freedom. Roy (2012, p,209)

In fact, as William Dalrymple points out in his account of the *Relentless Rise of the East India Company*:

> it was not the British government that seized India in the middle of the eighteenth century, but a private company. India's transition to colonialism took place through the mechanism of a for-profit corporation, which existed entirely for the purpose of enriching its investors…. Dalrymple (2019, p. 194).

[4] Game theory texts such as Rasmusen (1989, pp. 85, 86) show how the Stackelberg equilibrium differs from that of Cournot as the first-mover advantage allows the leader to earn higher profits by expanding its own production, with the effect on prices forcing the follower to contract.

Adam Smith was, of course, famously critical of monopolies: for in the pursuit of private profit they seek actively to distort the workings of the 'invisible hand' of competitive pricing. His critique of the 'monopoly of colony trade' as exercised by the East India Company (founded in 1600 but taking increasing control over Indian affairs after the battle of Plessay in 1757) concludes with the damning observation that:

> Such exclusive companies … are nuisances in every respect; always more or less inconvenient to the countries in which they are established, and destructive to those who have the misfortune to fall under their government. Smith (1776/1976, p.641).

Countries subject to colonial rule were not only faced with a first-mover staking claim to a large market share. They were also subjected to many extra impediments, where the first-mover had the ability to manipulate tariffs, for example[5], and to channel the flows of finance and technical know-how so as to privilege its own production and hobble that of its colonial dependents.

Even for a first-mover like Britain, it took almost a century before the benefits of technical progress were spread across British society more widely, via higher labour incomes and better working conditions. And this only came about as a result of significant legal and political changes giving more power to the working class.[6]

Meanwhile, India was in the hands of a private corporation acting as sovereign, with narrow objectives but unbridled power. Although the East India Company was effectively 'nationalised' a hundred years later, the stage had been set for official British rule which was to continue until independence in 1947.

5. India and Britain: some historical detail on output per capita

By way of background, Angus Maddison's summary figures for Indian output per capita (at constant prices) from 1600 to 1947 are provided in Table 1. On outcomes for the colonial period, shown in the last three columns, he comments:

> In the first century of British rule, the changes in the social structure and replacement of the old methods of governance led to continuance of the fall in per capita income which had started at the beginning of the eighteenth century as the Moghul state disintegrated. From 1857 to

[5] "The destructive effects of the industrial revolution [in Britain] were considerably cushioned by absolute growth in demand and by various protective devices fashioned in the mercantile era. … By contrast, protective devices were used – perversely - to further cripple the indigenous industries of India.*",* Bagchi (1976, p. 137)

[6] A concise summary of A&J's account of how the benefits of technical progress were distributed in the UK from 1750 to 1910 is available in Miller (2023).

independence in 1947, there was a slow rise in per capita income. Maddison (2001, p. 113).

For comparison, he also provides figures for output per head in Britain, line 2. The last line shows the ratio of Indian output per head to that in Britain fell from around 40 % to 20% in the first century of colonial rule (and to 10% in the second).

	1600	1700	1757	1857	1947
India	550	550	540	520	618
UK	974	1,250	1,424	2,717	6,361
Ratio	56%	44%	38%	19%	10%

Source: Maddison (2001, p. 112). (1990 int. dollars.)

Table 1: *Comparative Macroeconomic Performance of India and Britain, 1600-1947*

In her Tawney lecture on India's colonial experience, however, Professor Bishnupriya Gupta (2019) emphasizes the need for disaggregation; and traces separately the evolution of industrial and agricultural output per head, as shown in Figure 1, covering the sub-period 1600 - 1871.

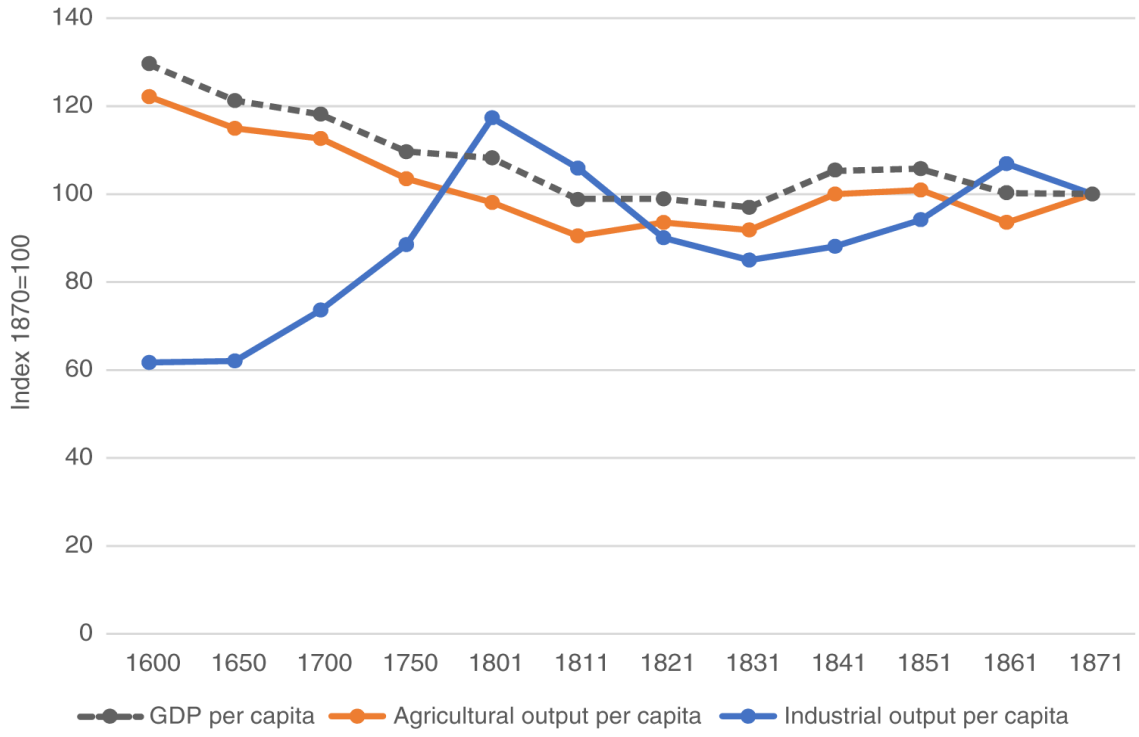

Figure 1.Indian GDP per capita, agricultural output and industrial output, 1600–1871 (1871=100)

Note that, after 1750, industrial output per head rises as textiles were initially shipped from India; but this rise was not sustained. Indeed, labour productivity in manufacturing was lower in 1870 than it was at the beginning of the century! Note also that, since the industrial sector was so much smaller than agriculture[7], the time series for output per head moves more closely in line with that of agriculture, which was more or less stagnant in the nineteenth century.

Hence, at least for the nineteenth century, India was missing out on the 'virtuous spiral of Smithian growth'. As Professor Gupta (2019, pp.804, 805) observes:

> Integration into the world economy did not improve the economic fortunes of colonial India. The growing trade in textiles in the seventeenth and eighteenth centuries coincided with declining incomes. Faced with rising imports of industrial goods from Britain, industrial output declined from 1800 and exports of agricultural goods increased. The economy did not move into the stage of modern economic growth.

6. Deindustrialization In the nineteenth century.

The time series for industrial output per head in India presented in Figure 1 helps illustrate what A. K. Bagchi (1976) dubbed the deindustrialisation of India. More detail on this is provided by A&J (p.208) as follows:

> The East India Company had prevented the export of cotton goods back to India. But this part of its monopoly on trade ended in 1813, resulting in a massive inflow of textiles, particularly from Lancashire, into the Indian market. This was the beginning of the deindustrialization of the Indian economy. By the second half of the 1800s, domestic spinners supplied no more than 25 per cent of the country's market, and probably less. Village artisans were driven out of business by cheap imports and had to fall back on growing food or other crops.

What about the substantial public investment in the railway network under colonial rule? Impressive as it was, this did little to stave off deindustrialization, for under the 'Dalhousie doctrine' of 1853, the civilian objectives[8] of railway investment were to improve access to raw cotton for Britain, to help sell

[7] The share of agricultural output in GDP in 1800 was over 60 per cent.

[8] There was a military objective too, for "rail was used to move troops around the country in response to local trouble… a key part of how a few thousand British officials could rule over a population of more than three hundred million". A&J (pp. 209,210)

European manufactured goods; and to attract British capital into Indian iron and steel industry, where 'almost everything required from the railways came from England." (Tharoor, 2016, p.209).

In fact, as Professor Gupta (2019, p. 808) points out, though 'formerly an industrial exporter, India slowly integrated into the global economy of the British Empire as an agricultural exporter.' So what of agriculture, to which many displaced textile workers turned?

7. Agriculture - and famine

There was inadequate investment in agriculture so, as seen in Figure 1, agricultural productivity stagnated.

Public infrastructure investment to improve agricultural productivity by irrigation was evidently insufficient. Indeed "in the capital account, irrigation received less than 10 percent of the expenditure on railways," despite the fact that "returns on public investment in irrigation were comparable to returns on railways." Gupta (2019, p. 808).

Private efforts, moreover, fell victim to a type of 'poverty trap'.

> Cultivators themselves, in both landlord and non-landlord systems, were too poor to make investments in land. Colonial India did not have institutions in place to provide access to credit to the cultivators, who were dependent on local moneylenders for any type of credit that carried high interest rates. Therefore, essential investments, particularly the building of wells, did not materialize under private initiative. Gupta (2019, p. 813)

For A&J, the precondition for socially responsible technical progress is that the benefits be shared across society. By analogy, a precondition for a morally defensible agricultural policy would be that it strives to prevent death from starvation in times when food is in short supply. In their view, however:

> The British never invested enough in irrigation, inland waterways, and clean water, and they never focused on the power of railways on feeding people at times when they had no other sources of food or could not afford what was provided by the market. … Eventually, rail links became an effective element of famine-prevention policy. But not until after the British had left India. A&J (2023, p. 210)

The extent to which colonial occupation held back industrial progress may be a matter for debate involving counterfactual history[9]. But what of its responsibility for millions of deaths in the relentless series of major famines throughout the period of British rule[10]?

As Shashi Tharoor (2016, p. 177) points out, Amartya Sen's research has established

> that famines are nearly always avoidable, that they result not from lack of food but lack of access to food; that distribution is therefore the key; and that democracy is the one system of government that enables food to be distributed widely and fairly.

He also confirms that, since colonial rule ended and India became the world's most populous democracy, there have been no major famines there.

8. Conclusion

Acemoglu and Johnson's commentary on how India was impacted by the first Industrial Revolution ends on a sombre note. "Technology has huge potential to raise productivity and can improve the lives of billions of people" they say but this comes with the warning that "the path of technology is often biased and tends to deliver benefits mainly to those who are socially powerful. Those without political participation or voice are often left behind." A&J (p. 210)

In the here and now, with the rapid developments in new Information Technologies, the world is experiencing a fourth industrial revolution. Hopefully, the lessons of history can help avoid the privations endured by so many in the first Industrial Revolution, so that countries like India - as they ride the wave of progress - can act to ensure the benefits are widely spread.

According to Gupta and Basole (2020, p.341), however, it appears that currently

> Indian experience is part of a global trend of 'premature deindustrialization', wherein peak share of manufacturing in value-added as well as in employment (around 15%) is being reached at a much lower level of per capita income than in the past.

Nonetheless, their investigation of the outlook for IT and ancillary service activities in the Business Process Management (ITBPM) sector of India offers

[9] In the pessimistic assessment of Acemoglu and Robinson (2019, chapter 8), for example, India is portrayed as a society trapped in a Cage of Norms.

[10] Tharoor (2016, pp.177, 178) lists ten, along with fatality figures that, in sum, bear comparison with those of the Great Chinese Famine under Chairman Mao.

prospects of positive progress. For they conclude that 'continued and coordinated policy support for ITBPM has the potential to expand the industry and, in the process create a large number of jobs in other sectors as well.' Gupta and Basole (2020, p.360). In fact, they cite an employment multiplier of three to four[11].

When the history of these times comes to be written, will this be in the record to show how the benefits of technical change were distributed more widely around Indian society?

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[11] i.e. every new tech job creates 3 to 4 additional jobs in the overall economy.

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