Rapid economic growth and ‘the four Ds’ of disruption, deprivation, disease and death: public health lessons from nineteenth-century Britain for twenty-first-century China?

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Summary
Rapid economic growth has always entailed serious disruption: environmental, ideological, and political. As a result the relationship between economic growth and public health is complex since such disruption always threatens to spill over into deprivation, disease and death. The populations of most current high-income, high-life expectancy countries of ‘the West’ endured several decades of severely compromised health when they first experienced industrialization in the last century. Although health technologies have moved on, the social, administrative and political disruption accompanying economic growth can still impede the delivery of health improvements. The case history of 19th-century laissez-faire Britain is explored in some detail to demonstrate the importance of these social and political forces, particularly the relative vigour and participatory nature of local government, linking to recent work on the importance of social capital in development. For a country like China today, paradoxically, there is nothing that needs such careful planning as a ‘free market’ economy.

keywords Britain 19th century, China 21st century, economic growth, public health, social capital, politics/political economy

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Introduction
The relationship between market-led, rapid economic growth and human health and welfare may be most accurately characterized as an antagonistic or, at best, a dialectical one, which is critically mediated by politics. British historical evidence – and the record of many other advanced economies of western Europe as well as Japan, USA and Australia – indicates that rapid economic growth directly causes critical social insecurities and health problems (Szreter 1997). It necessarily brings, as its direct and immediate corollaries, not security and prosperity but disruption. Unless mediated by effective social and political responses, this disruption can result in deprivation; and this in turn may lead to disease and death. These, then, are ‘the four Ds’ of rapid, market-led economic growth: disruption, deprivation, disease and death.

In the early 1980s the record of mortality decline in China was exciting great interest as an example of very substantial health improvements since the 1950s, attained despite a relatively low national income and only moderate economic growth rates (Halstead et al. 1985). China has since come to experience extremely rapid economic and urban expansion, achieving a rate of growth of G.D.P. of 9.8% per annum 1979–97 (Guo 1997). However, recent studies have shown that mortality is no longer improving in the manner of the previous several decades, especially among prime working-age young male adults (Banister 1997). An examination of the relationship between rapid economic growth, health and politics in the European past in 19th-century Britain may hold some general lessons even for societies as different as those of the contemporary Asian-Pacific region, such as China.

The four Ds are always potential outcomes of rapid economic growth, but only the first ‘D’ of disruption is necessarily a universal accompaniment of the process. By disruption, I mean, firstly, disturbance in the physical and biological environment – the ecological relationship between humans and the habitat; secondly, ideological foment involving the cultural negotiation of new values and norms; thirdly, institutional and administrative destruction and construction; fourthly, political conflict among the competing social groups involved,
some of them relatively new social formations thrown-up as the agents of economic change. Deprivation, disease and death only follow if there is no adequate response to the challenges of disruption.

Note that the argument here is not, then, a luddite one of simply being against economic growth. Rather, the thesis is that the causal relationship between market-orientated economic growth and enhanced welfare is a paradoxical, or a dialectical one. The occurrence of rapid economic growth may be viewed, in the long run, as a necessary condition for improvements in human health and welfare – through its provision of the necessary material resources for the delivery of enhanced social and health services. But in the shorter run the direct consequences of the more unrestrained forms of economic growth can be inimical to the health and welfare of the majority of individuals living in a society subjected to these processes. The crucial further point is that the punitive short-term does not automatically turn into the more beneficial longer-term, simply through the passing of time, as in the pernicious myth of the ‘invisible hand’ or ‘trickle down’. The lesson of history is that it is only through the awkward and complex processes of political conflict and ideological negotiation over the allocation of resources between differently empowered social groups that rapid economic growth can be harnessed to yield beneficial outcomes: rising living standards, health and welfare of true economic and social development.

Economic growth and disruption

The period of most rapid economic and urban growth in 19th-century Britain was preceded by several decades of more moderate acceleration in economic activity and urban expansion from at least the 1730s onwards, during which mortality declined significantly, with national expectation of life at birth rising from about 32 years to about 40 years across the 18th century (Wrigley & Schofield 1981). From the 1820s onwards, however, there was no further rise in national life expectancy for almost half a century (until the 1870s). This was precisely the period in which the British economy and British cities were consistently experiencing unprecedented rates of growth. China also experienced moderate growth in combination with falling mortality from the 1950s until the more spectacular growth rates of the present decade, when health improvement has begun to falter.

When we look in detail at the reasons for the lack of further improvement in national life expectancy in Britain after the 1820s, we find that while the rural population continued to enjoy gradually rising life expectancy, the largest and fastest-growing industrial cities suffered a mortality crisis in the 1830s and 1840s, with life expectancy in such cities as Manchester, Glasgow and Liverpool falling to levels not seen since the mediaeval Black Death (Szreter & Mooney 1998). There is evidence that even much smaller, but similarly fast-growing industrial towns also experienced deteriorating mortality conditions, indexed in rising infant mortality rates across this same period (Armstrong 1981; Huck 1995; Szreter & Mooney 1998).

The simple fact of rapid growth, size or density of settlement is not a plausible reason for the timing of this deterioration. Many of the affected towns had been growing rapidly for nearly a century before the 1830s and were to continue to grow just as rapidly after 1870 without producing catastrophic health consequences in either period (Armstrong 1981; Szreter & Mooney 1998). There are two important clues in the epidemiological evidence as to why the second and third quarters of the 19th century were so problematic. Firstly, sanitation and crowding (infectious) diseases, such as infant diarrhoea and digestive tract problems in infants aged 3–24 months, along with typhus, typhoid and cholera were all rising in incidence (Woods 1993; Wrigley et al. 1997); and secondly Glasgow evidence shows that smallpox mortality returned to plague that city in the 1830s and 1840s, after it had almost been eradicated in the 1800s and 1810s following the introduction of Jennerian vaccination (Flinn 1977).

Both of these developments are indicative of a breakdown in the second quarter of the 19th century in urban administration and environmental health services. Apparently these had been sufficiently well-organized to deliver an effective preventive health programme against smallpox in a city like Glasgow during the first two decades of the century, while the nation was engaged in a war of survival with Napoleon’s France. But thereafter things were allowed to slip. Certainly, there is corroborative evidence for this view. For instance, despite steadily increasing urban wealth, there was a failure in the 19th century to maintain the previous 18th-century momentum of hospital building in this period, with serious consequences for the provision of urban medical services (Cherry 1980).

Why was there a failure of urban administration in this period? It is here that there seem to be possible lessons for contemporary China. Indeed, there may be quite general lessons for the industrialising societies of the Asian-Pacific area about the nature of rapid, market-driven economic growth which can be drawn from the British experience, despite the evident, enormous differences of time and space that lie between them.

In the fast-growing industrial towns of Britain in the first half of the 19th century, environmental deterioration occurred through a configuration of three socially divisive forces, which were themselves intimately related to, indeed entailments of Britain’s free-market pattern of economic growth. Firstly, inequality of incomes and wealth was growing apace, through the processes of capital accumulation, the seizing by an energetic and fortunate few of commercial opportunities and the
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After the 1835 municipal reform act, most industrial towns were continually receiving rural in-migrants, often in great surges during times of depression (Anderson 1971; Pooley & Cruze 1994). The in-migrants – all rural newcomers to the city and many of them Irish – tended to fill the least secure and lowest-paid jobs available (Anderson 1971).

Thirdly, in the larger cities there was the process of residential segregation or ‘suburbanization’, as it has been termed by (Dyos & Reeder 1973). Due to the social and cultural aspirations of the commercial bourgeoisie, the wish to avoid the soot of the smoke-belching factory and the crowding of the city centre, along with the commercial logic of speculative land development, there was a powerful, centrifugal residential movement of the wealthy towards the city’s perimeter, usually in an upwind, westward direction. The reciprocal of low-rent, low-quality housing for low-paid workers was an essential condition for the perpetuation of the free-market economic model of growth, with its competitive dynamic of capital-accumulation among employers, won directly at the expense of their workers’ wages (Dyos & Reeder 1973).

However, these three dynamic forces were not, alone, responsible for the deprivation, disease and death which occurred in Britain’s industrialising cities. Why was there no effective political and administrative response at national or local government level to the environmental and welfare problems occurring at this time? The reason for this returns us to the first ‘D’ of disruption. Rapid economic growth entails the disruption of established social relations, ideologies and structures of authority; this created political and administrative paralysis in Britain’s industrial cities. Britain’s 18th century towns had been continually improved by a small ruling oligarchy of wealthy landlords, merchants and gentlemanly professionals who took a literally proprietorial pride in ‘their’ town (Borsay 1989). Rapid economic growth in the 19th century was throwing up a plethora of new men quite alien to this traditional elite: many of them of relatively modest wealth but hungry for more, many from very humble backgrounds and owing allegiance to one of the proliferation of new, nonconformist religious congregations springing up in these new and altered times. Although they were much divided among themselves, the new factions were at least united in their suspicion of ‘Old Corruption’ and their wish for liberal reforms to give political powers to men like themselves: of industry and ability but without breeding or family connections.

After the 1835 municipal reform act, most industrial towns were consequently in the hands of a newly reformed liberal corporation supported by a predominantly petty bourgeois electorate. This new political force was to become the major source of obstruction to municipal improvements over the ensuing three decades of relative prosperity because this diverse and growing amalgam of petty capitalist rate-payers, with their numerous doctrinal and congregational differences, could all agree on only one thing: not to spend each other’s money if at all possible. They were certainly not ignorant of the appalling health-threats they faced, as William Farr kept up a constant barrage of propaganda documenting year by year, even week by week, the frightening urban death rates (Szreter 1991). Interestingly, we also know that this was a society quite capable of devising the necessary practical measures to preserve even infant life on the most dangerous lengthy voyages on crowded ships. (Curtin 1989; Haines et al. 1996).

This was the heyday of mid-Victorian prosperity and global trading expansion for the British. The commercial classes were now ideologically confident and committed to their own radical liberal economics. During the 1980s and 1990s we have once again lived through such an age, with the New Right’s neo-liberal political economy, its lauding of individual freedom and disdain for public spending. Britain in the mid-19th century was the original age of liberal political economy and a triumphalist confidence in individualism, nonintervention in the workings of the urban and industrial economy; and low levels of taxation, including low municipal rates and low levels of Poor Law, or ‘welfare’, relief. In 1834 the infamous New Poor Law was passed, which dramatically cut the nation’s expenditure on welfare payments to the sick, old and poor from 2% of national product (probably the highest proportion in the Europe at that time) to only 1% (Lindert 1994). This was precisely analogous to the programme of cutbacks in welfare which ‘restructuring’ has imposed on the poor of the entire world during the last two decades and, once again, the only outcome has been more misery and mortality for the poor. The ‘retrenchment’ and ‘economy’ campaigns of British nineteenth-century radicalism-liberalism were pursued with equal enthusiasm, at national and local government levels, respectively, by the age’s leading liberal politician, W.E. Gladstone, and by the ratepayers’ associations of every town (Biagini 1992).

Water and health

A brief examination of the relevant aspects of the history of water in the growing industrial cities of 19th-century England shows how it was the socio-political dimensions of the all-important first ‘D’ of disruption – and their eventual resolution from the late 1860s onwards – which critically influenced the health and welfare of the urban population of Britain during its period of most dynamic economic growth. Of course, comprehensive water supply and sanitation for the urban poor is a classic problem in the economics of the provision of public goods (Pigou 1920). The scale of demand for clean water created by rapid urbanization is so great that the investment costs involved are beyond the financial logic of any commer-
cial operation, so long as the majority of customers remain too poor to pay more than a token amount for their water. It therefore requires political will and collective organization to cope with the challenge of supplying the less wealthy majority to ensure the health of all. That cities such as Manchester and Birmingham could have grown into the hundreds of thousands of inhabitants by 1861 and still not have secured for themselves a comprehensive water supply, let alone an integrated mains sewerage system, seems scarcely credible. But then there are still today many barraca slum populations in the world’s largest cities which face similar problems.

Despite the passing of the nation’s first, famous Public Health Act in 1848, which permitted cities to take out subsidized loans from central government (Exchequer) funds to provide their populations with adequate water and sewerage facilities, and despite municipalization of the water supply, this was not, in fact, undertaken for health-promotion purposes. It was the significance of water as an industrial raw material which was often the real primary consideration in moving the council to expand the town’s water supply, consuming in many cases half of the extra capacity created after 1848 (Hassan 1985).

The tell-tale sign of the industrial and commercial, rather than health-promoting, motivational forces behind the municipal expansion of water supply from the late 1840s until the late 1860s lies in the very partial manner in which Edwin Chadwick’s great ‘Sanitary Idea’, the engineering inspiration behind the 1848 Public Health Act, was being acted upon during that period. Chadwick envisaged the healthy city as having every house connected-up both to a clean water supply and to a water-borne mains sewerage system. However, Hassan’s research has shown that while the volume of constant-pressure water supplied rose substantially in most towns, there was remarkably little effort or expenditure devoted to the other half of the engineering blueprint laid down by Chadwick as the means to attain healthy cities.

There were plenty of new mains water supply pipes being laid under dug-up streets from the 1840s onwards, but as late as 1871 the Royal Sanitary Commission found that most provincial cities had not yet built the integrated, arterial sewerage systems necessary to avoid contamination from wastes. This was despite the fact that in the 1854 cholera epidemic E.C. Snow had famously and conclusively demonstrated the role of waste-contaminated water supplies (the Broad Street pump in London) in transmitting the most dreaded affliction of the Victorian age. Furthermore, except where the wealthier residents paid for it in their own suburban villas, before the 1870s there was little effort devoted to connecting-up, en masse, individual homes to the enhanced urban water supplies, a development which would inevitably have also led to the need to link such homes to an arterial sewerage system.

That it would, incidentally, have been administratively, logistically, technically and financially within the capabilities of mid-19th century British municipalities to have engineered the kind of sanitary facilities needed to help combat their health problems is beyond doubt. As a society the mid-Victorians certainly had both the sanitary engineering technology and the wealth. During the 1840s and 1850s, town councils proved themselves quite able to think big and act big where rail communications were concerned, requiring the mobilization of massive capital. City centres were re-fashioned on a grand scale as land-hungry rail lines, stations and marshalling yards were driven through the centres of all large towns (Kellett 1993). Unlike comprehensive watering and sewerage, the commercial advantages of rail connection were incontrovertible to a political nation of shopkeepers.

Disruption resolved

From the late 1860s, however, the true dawn of a more genuinely and practically effective public health movement began and from the following decade onwards there was an ever-increasing momentum of investment in domestic water supply and sewerage (Szreter 1988). There was at last a widening appreciation of public health aims as a high priority among this subsequent generation of politicians, town officials and the wider political, voting class of the largest industrial cities. This was part of a new social movement, the ‘civic gospel’ of consciousness, pride and duty on the part of the urban elite to provide civic leadership for their urban communities (Henmook 1973). Explicit parallels began to be drawn in Birmingham and Liverpool between themselves and the proud city-states of Renaissance Italy or classical Greece, as models for the corporate conversion of mere industrial prosperity into positive human progress, civilization, art and learning (Briggs 1963). From the 1870s, positions of public leadership in the big cities were increasingly sought by leading, practical men of substance and vision as positions of personal honour (Briggs 1963). The officials involved in delivering municipal services began to professionalize, reflecting the enhanced sense of status attaching to their employer, the town council (Szreter 1996).

A further critical development was a change in the urban electoral constituency, potentially much more responsive to these ambitious patrician plans. The hold of rate-payer ‘economy’ over municipal politics was formally broken at the end of the 1860s when the voting power of the petty bourgeoisie, enthroned since the liberal reforms of the 1830s, was submerged in the new, wider national and local franchises created by the Second Reform Act of 1867 and the collateral Municipal Franchise Act and Assessed Rates Act (both passed in 1869). These gave votes to many working-class men and even to some women. (Waller 1983; Read 1994). The results of these electoral reforms increasingly brought into the calcula-
tions of municipal politicians questions of how best to cultivate the interests of the respectable and more prosperous segment of the manual working-classes – few of whom were actual ratepayers. Joseph Chamberlain, Mayor of Birmingham from 1873 to 1876, was the first major political figure to seize the opportunity to construct a philosophically coherent programme of practical policies to appeal to this changed constituency; ‘municipal socialism’ (Fraser 1993).

Chamberlain undercut the traditional petty bourgeois cry for ‘economy’ by arguing that failure to spend on the town’s environment was false economy, causing untold costs to the health and working efficiency of the town’s populace; ‘true economy’ required investments whose value should be assessed over the longer-term. Such views commanded respect when they came from one of the city’s most successful and well-connected businessmen – Chamberlain managed the region’s principal screw-making enterprise (Marsh 1994). Following Chamberlain’s lead, serious and sustained efforts to improve the living conditions of the urban working-class now came to be seen as potentially paying high political dividends in other cities. The ‘civic gospel’ spread with something of a rivalry now developing between the town halls of many of Britain’s great ‘city states’ during the last quarter of the century, as they competed with each other for salubrity, sanitary provision, healthy amenities and the lowest death rates.

Once the political will was committed to invest in the urban environment, technical problems of how to finance the pursuit of votes through this goal were now seriously addressed. This prompted the active search for fiscal mechanisms to achieve the electoral promises of urban improvements for the minimum current costs in local rates. Not the least of Chamberlain’s personal contributions to the effectiveness of ‘gas and water socialism’, as the policies of the civic gospel were referred to by their detractors, was his capacity to devise bold financial strategies, skills learned in his earlier business career. The principal techniques developed in most cities were those of taking out large, long-term, low interest loans (deferring costs for current improvement onto future generations) and of raising indirect taxation through ‘municipal trading’ – running local monopoly services such as gas, electricity and trams at a profit in order to create revenue for the city to fund its improvements (Millward & Sheard 1995). As Figure 1 shows, at least during the last three decades of the century, life expectancy in Britain’s largest industrial cities began to rise significantly above the level it had been at in the 1820s, before the ‘4 Ds’ had taken their toll.

**Conclusions**

I would suggest that Britain’s 19th-century history of the relationship between economic growth, health and politics exhibits at least four aspects which may have more general relevance and which may apply to late 20th-century China and the rapidly growing economies of the Asian-Pacific region more generally.

Firstly, given that dramatic economic growth necessarily involves disruption of extant sources of authority, as new forms of wealth and sources of power emerge, it seems likely that the intra-elite conflicts and cross-cutting clashes of interests among different grades of property and local centres of power, along with religious denominational rivalries, of the sort found in the British historical case, will typically characterize such rapid economic growth in most societies. The resulting competitive socio-political situation can cause serious and prolonged health problems for relatively deprived sections of the population (whether urban or rural) if, as in Britain, political and administrative paralysis ensues. The politically negotiated bargaining to promote costly environmental improvements or to regulate, inspect and police those business practices which detrimentally exploit the environment or workers, can all too easily, in these circumstances, become bogged down for decades by sectional conflicts and defensive political stand-offs; hence it took decades for British cities to invest in the water technologies they desperately needed.

Secondly, the British case does indicate the great importance of constitutional arrangements and of political organization, particularly the extent to which the poorer sections of the urban and industrial worker community have an effective political voice. This is not, however, simply a matter of working-class votes, though they can be critically important in the right circumstances, as the period from the 1870s onwards shows in Britain. However, equally important at that
point was an imaginative political leadership effectively focusing the energies of the working-class voters on backing a practical programme for the alleviation of their health and environmental problems: in nineteenth-century Britain this leadership came as much from a new urban patrician group as from the working-class itself – clearly a cross-class political alliance.

Thirdly, there is the complex issue of popular ideas and conceptions of property rights, property interests and legitimate forms of local and central state taxation and appropriation. As the political history of the late 20th century has shown, the libertarian British are peculiarly sensitive to central and local government direct appropriations in taxes and rates from their current incomes, which they resent as an imposed and compulsory forfeit from what they believe they have personally ‘earned’. Yet they can remain relatively supine in the face of even quite sharp rises in indirect taxation on their consumption activities (V.A.T. in the late 20th century), because they view the latter as essentially voluntary and elective. Although different cultures vary in their attitudes in this respect, the generalisable implication is that, given the enormous costs of maintaining the health and environment of the populace during rapid economic growth, politically successful solutions will probably depend on devising financial mechanisms, such as the indirect taxation of municipal trading, which treat popular property and associated fiscal sensitivities with great respect.

Finally, the British historical case indicates the importance of ‘the state’ in determining the relationship between economic growth and the health of the population. But it simultaneously demonstrates that a much more nuanced, variable, and even decentralized conception of ‘the state’ is required, embracing much of what is often termed ‘civil society’, especially local government and the public service professions. Both to promote economic success and to avoid public disquiet over the health and welfare costs borne by many citizens in a growing ‘market’ economy, there needs to be careful attention to investment in the institutions of trust and communication which sustain ‘social capital’ or civic participation (Coleman 1990; Putnam 1993). This is particularly relevant to contemporary policy debates. Since the recent collapse of the empire of command economies administered from Moscow, there has been a misplaced certainty among western politicians, economists and social and policy scientists that societies at all stages of economic development should submit themselves to the ‘advantages’ of relatively unimpeded free markets, with as little planning and direction from ‘the state’ or from other noncommercial institutions as is possible.

In fact, there is nothing that needs such careful planning as a ‘free market’ economy, if it is to avoid engendering the disruption, deprivation, disease and death of ‘the 4 Ds’. Thus, in order to successfully foster the move towards a more market-orientated economy in contemporary China, paradoxically it may well be necessary in the short term to expand certain strategic, managing departments of the central state and associated functions of local government, even though the long-term goal is to reduce the state’s degree of direct intervention into the economy. Those studying in detail the relationship between ‘social capital’ and economic success now emphasize the importance of ‘coproduction’ across the false dichotomies of ‘public vs. private’ and ‘market vs. state’, showing that sustainable economic success is most likely to occur through co-operative, highly negotiated engagement between ‘the state’ (often in the form of resource-and infrastructure – providing local government agencies), and local businesses and representative bodies of local workers and residents (Wade 1990; Burawoy 1996; Evans 1996a,b; Ostrom 1996; World Bank 1998). The current turmoil and economic distress in many of the fastest-growing ‘Asian Tiger’ economies unfortunately further vindicates the generality of the thesis offered here: that the multidimensional disruptions of economic growth are powerful forces and that governments which succeed too well in maximising the rapidity of growth may imperil their capacity to manage the four Ds.

For the Chinese government in the early 21st century, there would seem to be three principal, practical policy lessons to be drawn from both British 19th-century history and current, late 20th-century East European and Pacific history. Firstly, not to push down too hard on the accelerator of market economic expansion in a country which is already experiencing rapid economic growth. Secondly, to monitor very carefully the indicators of the ‘four Ds’, in particular trends in wealth and income distribution and in the health patterns of different sections of the population, especially the most vulnerable and marginal groups. Thirdly, to consider experimenting with some form of representative democracy, which is a major facilitator of civic trust and social capital. An appropriate forum for such experiment would be at the local government level of rural counties, towns and small cities, in order that local administration of these important population centres can remain sensitive to the health conditions and social needs of their populations as they experience rapid economic change. It is this which gives the best chance of ensuring that the inevitable first ‘D’ of economic growth, disruption, will not lead on to the highly undesirable further three ‘D’s’ of deprivation, disease and death.

References
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