

INTERGENERATIONAL SOCIAL MOBILITY IN BRITAIN: THE CURSE OF COAL

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The existence of a North-South divide has long been a feature of the British economy. In this essay, Daniel Fallen Bailey traces the origins of this divide back to the industrial revolution. He argues that this divide is not the result of deindustrialisation of the once prosperous North but rather predates and was widened by Industrial Revolution. In particular he highlights the pernicious effects of people choosing not to pursue education.

Introduction

In 1986, Margaret Thatcher's government applied for assistance from the European Regional Development Fund, as the 'serious economic plight and poor future prospects of much of Britain's north' required urgent attention (Martin, 1988 p.390). A Census of Employment report in 1987 confirmed a 'catalogue of economic decay' (Martin, 1988 p.390), proving the existence of a significant employment gap between north and south. This sparked a political debate in the 1980's which centred on a Britain of 'Two Nations'; a depressed north and a prosperous south (Martin, 1988).

Worryingly in 2015, we not only see that this economic divide still exists, but that it has actually widened. Reports released over the last number of years have re-sparked this debate by showing that the scale of divergence has intensified over a number of indicators including; employment, population, educational outcomes and growth. For example, The Cities Outlook Report (2015) shows that from 2004 to 2013, for every 12 jobs in the South and South-East, only one was created elsewhere in the UK. In terms of population, they find that only 2 cities outside the South feature in the top 10 fastest growing cities, with the northern city of Sunderland the only city to see negative population growth over the period.

As for economic growth, Tyler *et al.* (2014) show that the divergence between the fastest and slowest growing cities from 1981-2011 clearly displays a broad geographical divide, with the 'laggards' mainly comprising of Northern cities. On top of this, research conducted by the lecturers union UCU (2009) on the number of degree holders per UK constituency, display "gross inequalities" in educational outcomes (Curtis, 2009a, 2009b).

Their results show that in poorer areas, the percentage of the working-age population with a 3rd level degree has fallen in the decade up to 2009, while in traditionally wealthier areas, it has pulled further away, and can be up to 50 per cent higher in some areas.

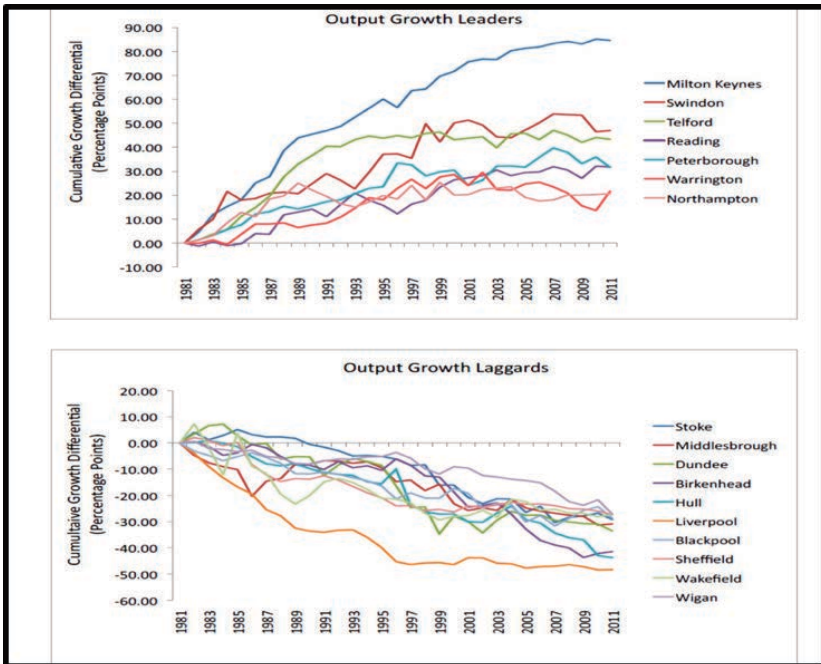


Figure 2: Cumulative Differential Output Growth Paths: Fastest and Slowest Growing Cities, 1981-2011 (Source: Tyler et al., 2014:20)

Rooted in History

This essay aims to delve into the roots of this divide. Motivation for research in this area stems from the fact that there is a striking correlation between the cities classed as the most under-performing in recent decades (based on the examples listed above), and the centrality of these same cities to the success of Britain's Industrial Revolution in the early 19th century. Many of the worst performing cities in the sources listed above make up Martin's (1988) categorisations of the Industrial and Manufacturing Heartlands of Britain. We know from the work of authors such as Allen (1979, 2009) and Fernihough and O'Rourke (2014), that the industries within these heartlands, (such as coal, metallurgy and textiles) were central to Britain's economic success during the period.

However, this striking correlation is easily misinterpreted as implying that these areas of Britain were once relatively well off, and that deindustrialisation of these heartlands lead to the relative economic decay we see now in these reports. This essay believes that this view is incomplete. Instead, it supports the ideas put forward by Massey (1979), Martin (1988) and Southall (1983), who all claim that; despite the importance of these industries to Britain's economic success, the economic divide described above has been a persistent aspect of British history, occurring long before the period of deindustrialisation in the 1970's and 80's which first sparked the debate. They support the notion that this dichotomy was evident as far back as the early 19th century, and that the onset of the Industrial Revolution only served to consolidate the divide.

A New Narrative

This essay, applying the intuition of Gregory Clark (2014), aims to present the argument that the Industrial Revolution both consolidated and amplified an economic divide between the north and south of Britain, and thus led to a persistent lack of intergenerational social mobility in the country, the effects of which can arguably still be seen today. Clark uses surname analysis to show that surnames within certain occupations reflect events from centuries before, in a way that wouldn't be possible if intergenerational social mobility was high. In this framework social mobility today is both lower and class differences more persistent than we would have originally believed.

Resting on this logic, this essay argues that a UK city, town or constituency's proximity to one of these industrial heartlands at the turn of the 19th century matters for its social mobility and economic outcomes today. Rooted in this argument are three underlying assumptions regarding a person living in one of these areas, and thus located next to one of these Northern industrial centres. They are as follows:

1. In being located next to or near one of these industrial centres, you were likely to be employed, or dependent upon someone employed, in the industries of coal mining, metallurgy or textiles.
2. If employed in one of these industries, you were likely to have been engaged in that employment from a young age (i.e. likely to have undergone child labour).
3. You were likely to have been classed among the poorer cohorts of society, and have been paid a wage lower than the national average.

If these assumptions hold true, then once combined they have very important implications for the likely path taken by a given individual located in these areas. The most important of these implications is that they were more likely to have forgone the opportunity to in-

vest heavily in their education. This idea rests on the basic theory of opportunity cost. The adoption of technological change associated with the onset of the Industrial Revolution (Fernihough and O'Rourke, 2014) created a significant and positive shock to the demand for low-skilled employment in the industries of coal, metallurgy and textiles (Allen, 2009). Suddenly, the opportunity cost associated with staying in school widened dramatically. More relevant even, is the fact that given the relatively low wages earned in these industries, the surplus of demand for workers also widened the opportunity cost of keeping kids in school, as they too could be supplementing household income by working in these low-skilled sectors.

As a result of these implications, so long as industrial output was still relevant to the British indigenous economy and thus, a stable form of employment, decisions by workers to forgo investing in both their own and their children's education persisted. However, these seemingly rational decisions were inherently vulnerable to cyclicity. Von Tunzelman (1981, as cited in Martin, 1988) and Massey (1979) both cite the interwar years of the 20th century as a turning point for these industries. The onset of the Great Depression of the 1920s and 30s began a period of deindustrialisation in Britain, where industries such as coal mining, shipbuilding and heavy engineering went into decline. The most intense period of decline occurred in coal mining in the 1980s. Between 1981 and 2004, English and Welsh coalfields shed 222,000 jobs, or 90 per cent of all British coal industry employment (Beatty *et al.*, 2005).

Assuming the persistent forgoing of education by workers in these sectors in the decades up to deindustrialisation, this paper argues that there was no intergenerational legacy of skills in any other areas to fall back on after deindustrialisation occurred. Therefore, the divergences in economic outcomes between the north and south of Britain become more pronounced only after the interwar years, and intensify even more after the 1980's. This is reflected in the data cited at the outset of this paper. The narrative outlined here makes the argument that the origin of this divide lies firmly in the period of Industrial Revolution in Britain.

Coal, Metallurgy and Textiles—How Important?

The assumption that an individual living next to an industrial heartland was likely to have been employed in one of these three industries rests on the belief that these sectors were substantial in size, growing consistently, and important to the success of the Industrial Revolution in Britain.

Evidence for this can be found in the literature. For example, it is widely accepted that technological change was the main driver of the Industrial Revolution (Mokyr, 2009). However, Crafts (1985) argues that this technological change was a narrow phenomenon, very much localised to certain industries. Crafts believes that the upsurges in productivity

associated with the Industrial Revolution in its early stages should not be understood as widespread, but rather, centralised in textiles and metallurgy (Ibid). Productivity in all other manufacturing industries remained stagnant in pre-modern backwardness for the first half of the 19th century (Crafts, 1985). This idea is reflected in the data we see for these industries. McCloskey (1981) finds that the cotton industry contributed 18 per cent per annum to national productivity growth between 1780 and 1860. Cotton also grew from 6 per cent of all British exports to 34 per cent between 1785 and 1855 (Findlay and O'Rourke, 2007). As for metallurgy, Allen (1979) outlines how Britain was a major supplier of iron and steel to world markets around this time. He claims that midway through the 19th century, the British iron industry was the most efficient in the world.

A crucial factor underpinning the success of these industries however, was coal. Allen (2009) emphasises that the success of these industries was dependent upon the mass exploitation of cheap coal. Because of Britain's relatively high wage economy, he argues, it became cost effective to adopt new technologies which up to then had not been widely used. These new technologies involved capital intensive machinery, which were powered by coal (e.g. the steam engine). As Coal was cheap and labour relatively expensive these machines were increasingly substituted for labour (Allen, 2009).

On top of this, given the British Empire's continued expansion overseas, new export markets were consistently being created. This justified the further expansion in the output of exported goods, namely; cotton and iron (Allen 2009, 1979). Since these industries were fuel intensive, this expansion in output spurred demand for coal, since coal powered the new machinery they were increasingly employing. Overall therefore, we can begin to understand why the industries of coal, metal and textiles were central to the story of Britain's Industrial Revolution. Britain's expanding international dominance, coupled with the adoption of productive new technologies facilitated the growth of the cotton and iron industries, which, in turn facilitated the growth of the coal mining industry.

Locational Factors

The first assumption of this model is underpinned by the belief that coal, metal and textile industries were all clustered around one another. Upon examining the literature, we can see there is sufficient evidence to suggest that this was the case.

Firstly, coal was bulky and heavy, and thus costly to transport. Therefore, in an era before the transport revolution of the late 19th century, the logistics of coal transportation prevented any heavy industry which was reliant upon coal from locating in places where coal wasn't readily available (Matthias, 1983, as cited in Fernihough and O'Rourke, 2014). Secondly, where coal was used up in the production process there were substantial cost savings to being located close to where coal was mined (Wrigley, 1961).

To conclude, Fernihough and O'Rourke (2014) find that the availability of coal mattered for population growth, and thus, economic activity in general across Europe from 1800 onwards. Given what we know about the importance of textiles and metallurgy to economic activity over this period in Britain, a convincing picture therefore begins to emerge that to be close to coal is to be close to all three of these industries. As Pollard (1981) puts it: 'the map of the British Industrial Revolution, it is well known, is simply the map of the coalfields' (Pollard 1981, as cited in Fernihough and O'Rourke, 2014). This naturally increases the likelihood of employment in one of these sectors, which is a central assumption to this research.

Child Labour and the Industrial Revolution

Child Labour encompasses the darker aspects of Britain's Industrial Revolution. This is captured by Charles Dickens' description of the factories which employed children as "dark satanic mills." Child labour is a harsh reality associated with the time, and for the purposes of our second assumption, there is plenty of literature suggesting that it was focused in the industries we have mentioned throughout.

Tuttle (2001) uses British Parliamentary Papers to outline the extent of the phenomenon throughout the Industrial Revolution. Importantly, she claims that child labour was not a national market. Instead, it was a regional problem, where high instances of child labour were found most frequently in manufacturing districts. For example, both Nardinelli (1980) and Tuttle (2001) argue that child labour formed a significant portion of the labour force in textile mills. In 1833, children under the age of 13 comprised 10 to 20 per cent of the textile workforce, and this number rises as high as 57 per cent when children between the ages of 13 and 18 are included (Tuttle, 2001). The figures are just as stark for coal mining. In 1842, children formed between 19 per cent and 40 per cent of the overall labour force in British coal mines (*ibid*).

An important characteristic of employment in factories and coal mining is that it was very often hereditary. Humphries (2013) shows that for boys born between 1821 and 1850 whose father was engaged in either mining or factory work, the mean age for them to start work was 8 years old, the lowest of any job in their study (excluding casual labour). Humphries (2013) also shows that for this same cohort, almost 40 per cent of children working in mining or factory jobs were following in the footsteps of their fathers. Both Humphries (2013) and Tuttle (2001) claim poverty to be a significant factor driving child labour, with parents sending kids to work in search of much needed income.

Opportunity Cost

The literature up to now has outlined some very important aspects of the British Industrial Revolution. Firstly, the industries of coal, textiles and metallurgy were central to its suc

cess, and were all likely to cluster around one another. Secondly, child labour tended to be focused in these sectors, and this tended to be driven by poverty as well as hereditary factors. As outlined previously, if these facts hold true, then they have one very important implication for an individual living in a region close to a coal field/industrial centre, which is that they were likely to forgo the opportunity to invest heavily in education. It is therefore important to understand the mechanisms at work here, which made people who faced these realities forgo the opportunity to educate themselves and their children.

The theory of opportunity cost is essential here. The onset of the Industrial Revolution would have constituted a positive shock to the demand for unskilled labour. Atkin (2015) and Black *et al.* (2005) provide examples of positive shocks to labour market opportunities for the unskilled, and how it serves to widen the opportunity cost of education. Black *et al.* (2005) notes how the Appalachian coal boom of the 1970's raised the earnings of high school dropouts relative to graduates. The authors estimate that a 10 per cent rise in the wages of dropouts resulted in a 5 to 7 per cent reduction in high school enrolments. Atkin (2015) outlines how a period of major trade reforms in Mexico altered educational outcomes via the local expansion in export manufacturing employment for high school dropouts. For every 25 jobs created it was found that one pupil dropped out at grade nine, 3 years before graduation (Atkin, 2015).

It is fair to suggest then, that the consistently positive growth in the industries of coal, metal and textiles during the Industrial Revolution (2 to 3 per cent per annum in coal and iron; 7 per cent per annum in cotton; Findlay and O'Rourke, 2009), as well as the continued expansion of international dominance by the British Empire (Massey, 1979) would only ever have impacted negatively on workers' perceptions of the opportunity cost of education.

Thus, the decision not to invest in education persisted so long as the decision to work rather than study appeared a rational one. So long as the momentum of the Industrial Revolution kept on growing, so too did the numbers choosing to follow in the footsteps of previous generations in these northern industrial areas by starting work young. A pattern begins to emerge, made up of low wages, consistently low educational outcomes, and inherent vulnerability to the trade cycle. This pattern unravels once the period of deindustrialisation sets in, and it becomes clear that certain groups in British society have been victims of region. Such is the argument of this essay, which the literature outlined above has shaped.

Conclusion

This essay has put forward the idea that the increasing economic divide between northern and southern Britain has its roots within the British Industrial Revolution. It hypothesises

that the surge in industrial output during that period set in motion a perpetual cycle of underinvestment in the education of those whom it employed. This created a generation born into a region that was utterly one-dimensional in skills set. As a result, the economic prospects of this cohort were inherently vulnerable to trade cycles. Post deindustrialisation therefore, this dichotomy unravelled.

The 'Metropolitan South', with its experience in commerce, banking, finance and government constituted as fertile soil for the modern economy, infinitely more dynamic and better suited to the way in which complex economic, social and governmental issues overlap today (Martin, 1988). Conversely, the 'Industrial North' was to experience persistent economic decay. If this is indeed the case it provides major justification for policies aimed at equal access to education, which seek to eradicate the possibility of being a victim of region in Britain. However, until these issues are addressed it remains the true in Britain today, as it was during the Industrial Revolution, that:

'The burden fell most heavily, both then and subsequently, on those regions which created her prosperity' (Southall, 1983:400).

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