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Industrialisation and de-industrialisation: England divides

Charles F. Foster and Eric L. Jones

The changes that led to the first industrialisation were cumulative, aided by occasional positive shocks that were largely fortuitous.¹ At the heart was the emergence right from the sixteenth century of a business culture, originally in the whole country and most vigorously in the south. But from the seventeenth century this culture was seduced in the south by the gentry, while market opportunities redirected entrepreneurship to the agricultural sector and overseas and wholesale trades: manufacturing activities were slowly stifled or abandoned. In the north manufacturing and the business culture remained energetic, hence economic development in the two halves of the country started to follow separate paths.

Treating England as a single unit is understandable; after all there were common elements at the national level, such as the legal system and national economic policy. A national approach is nevertheless over-generalised. Averages obscure the bifurcation of north and south, and cloud the market integration that permitted their trade and complementary specialisations. Tracing change no further back than the use of coal to power steam engines is likewise misleading. This is a simplification because intermediate patterns were produced by successive developments and market integrations. Yet it was the north-south divide that came to predominate. Each great region traded on its comparative advantage, amplifying developmental prospects all round. This process deserves a larger role in economic history than it is usually given.

The eventual mechanisation of industry was obviously unprecedented. It was also rapid by historical standards but plainly did not arise *ex nihilo*. While the analysis here may seem gradualist it is so only in the sense that no tree acquires its leaves without a considerable spell in bud. Nor is the argument couched in the standard form of a search for a single independent variable that sparked off all the others. The weight is placed on interacting, self-organising developments, sustained by a political and legal framework which (despite exceptions and confusions) may be seen in retrospect as flexible. Central to the case is the slow separation of manufacturing from arable farming and the agglomeration effects that ensued when each activity became concentrated in given geographical areas. The model relies on business competition within an increasingly integrated national market, which obliged firms to attend to cost-cutting and, together with improved transport and communications, encouraged them to concentrate in larger units and ever larger towns. Competition was responsible for the concentration, partly through reinforcement by supportive trades and services emerging around the larger industrial groupings.

Rents, prices and locations

Our study rests in greatest detail on archival research into north-west England, particularly the Mersey basin in Lancashire and Cheshire.² The southern counterpoint is based on work referring to a dozen counties, of which half in south-central England have been considered in

¹ We are grateful for comments to John Anderson, Tom Arkell, John Hartwick, and Sir Jeremy Morse.

² Charles F. Foster, *Seven Households* (Northwich: Arley Hall Press, 2002) and others referenced below.

some depth.³ Change starting in the early sixteenth century was what led to conditions prompting the economy to expand. From about 1520 rents and food prices rose rapidly. A little earlier, in 1481, the courts had recognised that most occupiers of farms had copyhold rights, giving them security of tenure at a fixed rent. The rise in rent began to transfer part of the capital value of the land from landlord to tenant.

By 1640 rents were ten to fifteen times higher than they had been in 1500. Food prices had risen six and a half times but the wages of agricultural labourers were only two to three times higher. An underlying cause of these changes seems to have been that almost all farmland was already occupied when the population began to climb after 1500. This was what created a new class of very poor people who had no land.⁴ Social dysfunction among the landless was seen as a consequence of the inflation.⁵ In 1632 the Somerset justices of the peace attributed the growing numbers of bastard children to drunkenness. By 1638 the West Riding alone contained two thousand alehouse keepers and five hundred others who brewed without licences. Puritanism was partly a reaction against a perceived collapse of morals.

For the old class of families who occupied small farms on copyhold, usually of five to forty acres, inflation brought a little windfall of capital as their land became worth £5 to £10 per acre, whereas what they had to pay for it was adjusted upwards only at long intervals. The effects of the 'rent revolution' were varied. Gentry who owned estates and others with freehold land were normally significantly better off, the gains on the lands they farmed themselves offsetting any losses on tenanted land. But on crown land and the lands of the monasteries and church, it was very damaging. This was because most such land was occupied by tenants. In 1500 these three types of owner may have received 40 to 50 per cent of the annual value of the nation's land; by 1640 it was probably only five to 10 per cent.⁶

This striking redistribution of wealth also affected regions differently. For simplicity, three main zones may be distinguished: the Highland Zone (including the western side of the country), which here will be called the 'north'; the Lowland Zone (including East Anglia) which it is convenient to call the 'south'; and London. The Highland and Lowland Zones differ in terrain, climate and soils, which affects their respective production possibilities under any given technology, including methods of farming. Southerners were startled by the wildness of society in the 'dark corners of the land' of the far north and west, so different from Dutch-like East Anglia.⁷ Interactions among these regions explain much of the course of England's development. Where appropriate we will relax, or rather refine, the geographical labels; the context should make clear what is meant.

Where the land was suitable for grain that could be profitably transported to the great market of London landowners were keen to establish the large farms which were most efficient for growing cereals. They strongly resisted copyhold tenure and devised methods to undermine it. Hence in these areas land became increasingly consolidated into large farms. Small farmers began to disappear but the villages were preserved. The agricultural population came to consist of a few working farmers, who mostly did not own their land, and their

³ Eric L. Jones, *Locating the Industrial Revolution: Inducement and Response* (Singapore: World Scientific, 2010).

⁴ Charles F. Foster, *Capital and Innovation* (Northwich, Arley Hall Press, 2004), pp 69-75.

⁵ Kevin Phillips, *The Cousins' Wars: Religion, Politics, & the Triumph of Anglo-America* (New York: Basic Books, 1999), p.376.

⁶ Foster, *Capital*, pp 43, 56-67, 173-5; Robert C. Allen, *Enclosure and the Yeoman* (Oxford, Clarendon Press, 1992), pp 55-77.

⁷ Phillips, *Cousins' Wars*, pp.43, 375.

skilled workers, plus a larger number of poor villagers who supplied the labour to harvest the crops in summer and did simple manual work in winter, for example weaving.⁸

In the south and east some districts were pastoral, with dairying and sheep farming. In these areas, woollen manufacturing and other industries were still growing in the seventeenth century. The western side of England from Cumbria to Devon was pastoral, although the south-west did retain a substantial arable area. In most pastoral areas there seemed little incentive to make larger farms and a three-life leasehold system became established. This approximately divided income from the land between landlord and tenant.⁹ These arrangements created a society in the north-west where about two-thirds of families had some capital. This surprising finding emerges from an analysis of the rare 1660 Poll Tax returns for the Northwich Hundred in Cheshire and the Blackburn Hundred in Lancashire. Combining the Poll Tax figures with those of the Hearth Tax of 1664 allows a large sample of 7,181 families to be surveyed.¹⁰

London was the largest market and the greatest port. Goods for export were sent there and imported goods were distributed from there to the rest of the country. It soon became the centre to which most manufactures were sent for redistribution within the country and was the hub of coastal shipping as well as of the road system. But this dominance had other effects. London's ballooning population and high cost of living, combined with crowded, unhealthy conditions for the poor, led to high mortality. Wages had to be raised substantially to attract workers. By 1700 wages in London were two to three times higher than in the north and west of the country and this effect only disappeared about 50 miles from the centre.¹¹ It influenced the location of manufacturing - for example only the final stages of clothing manufacture could be carried out profitably in London. A tailor could cut and sew a gentleman's suit there but the cloth, the linings, the buttons and the thread were made more than 50 miles away. Throughout the seventeenth and eighteenth centuries manufacturing in London moved up the value chain, replacing a series of products with higher-value finished goods.¹²

These forces pushing manufacturing out into the rest of the country created opportunities for regional specialization. A good example is the framework knitting industry which produced hosiery. Machines for this work had been invented in the Nottingham area in Elizabeth's reign. The work left London and for more than three centuries became concentrated around Nottingham, Derby and Leicester, despite the fact that the original product – knitted silk stockings – was sold almost exclusively to the very rich in London. This specialisation allowed an intense division of labour to develop so that by 1739 frame-smiths, setters-up, sinker makers, stocking needle makers, joiners and turners were as numerous as the stockingers who operated the machines.¹³

Industry and trade had expanded rapidly in the second half of the sixteenth century. The woollen industries throughout the Lowland Zone (east, south and west) were still growing until the first decade of the next century, but in 1614 royal interference – in

⁸ Margaret Spufford, *Contrasting Communities: English Villagers in the 16th and 17th centuries* (London, Cambridge U Press, 1974), pp 67 – 71; Albert C. Chibnall, *Sherington: Fiefs and Fields of a Buckinghamshire Village* (London, Cambridge U. Press, 1965).

⁹ Foster, *Capital*, p 58.

¹⁰ Foster, *Capital*, pp 144 –151; Charles F. Foster, *Cotton Manufacture and wealth distribution in Lancashire 1600-1780, Italy 1100-1650, Germany 1300-1650*. *Transactions of the Lancashire and Cheshire Antiquarian Society*, forthcoming.

¹¹ Elizabeth W. Gilboy, *Wages in Eighteenth Century England* (New Haven, Conn., Harvard U. Press, 1934), pp 10-12, 95, 107, 180-3.

¹² Jones, *Locating*, p.242.

¹³ J. D. Chambers, *Nottinghamshire in the Eighteenth Century* (London: P. S. King & Son, 1932), p.95.

particular the Cockayne project – dealt business a severe blow. This was soon followed by Charles I's personal rule. Between 1620 and 1641 about 80,000 people, two per cent of the population, left England, one quarter of them going to New England. They were mostly well-off people and many were in trade or were skilled craftsmen from the textile areas in the eastern counties or the West of England. A large proportion consisted of disgruntled Puritans from within a fifty-mile radius of Groton, Suffolk, which lies within the Lowland Zone or 'south'.¹⁴ Their decision probably stemmed from uncertainty as to whether their property, religion and way of life would be secure under the King.¹⁵

The Civil War and Commonwealth period was a watershed. Following Charles I's execution vigorous business activity was quickly resumed and from then on increased in volume and became more or less continuous. Because a majority of the old gentry had supported the King their influence in the countryside was diminished. In Cheshire, for example, the old manorial rule that tenants could not let their land to 'strangers' fell into disuse and the three- life leaseholders were able to leave farming and invest their capital and energy in business.

Standard histories emphasise political contention yet the economy shrugged off much of it. Despite the wrangling, upsets and genuine threats that persisted into the eighteenth century, investment must have seemed fairly secure right from 1650. The Cromwellian elite thought so and was emboldened to erect a surprising number of country houses during the 1650s (with 'ostentatious humility of design' but grand buildings nevertheless).¹⁶ Charles II's settlement confirmed their luck. The military officers who had bought land during the Commonwealth may have lost most of it, except in Ireland, but merchant families typically held what they had acquired. Investment rose on all fronts after the Restoration and especially after the elite settlement following the Glorious Revolution of 1688. Adam Smith felt able to call the years between 1660 and 1760, 'the happiest and most fortunate period of them all.'¹⁷

The contrast with the Civil Wars was stark. By the end of the wars there had been several massacres, more than 150 towns and 50 villages had been damaged, 200 country houses had been ruined and over 50,000 people made homeless.¹⁸ It may not be surprising therefore that only two Acts for river improvement were passed during the Civil War and the Commonwealth period. This activity required big expenditures with long gestation periods and relied on coordinated agreement among many landowners, which was more awkward than most investment decisions. During the sixteenth century there had been eight Acts for river improvement and after 1660 the activity was virtually continuous, with particular bursts in 1662-1665, 1697-1700 and 1719-1721, which suggests that the 1640s and 1650s were little more than a lull during the early phases of a long upward trend.¹⁹

J. R. Green quoted the post-Restoration bishop of Salisbury, Burnet, as acknowledging the economic achievement of the Commonwealth: 'we always reckon those eight years of the

¹⁴ Phillips, *Cousins' Wars*, pp.18, 22.

¹⁵ David H. Fischer, *Albion's Seed. Four British Folkways in America* (Oxford, Oxford U. Press, 1989) pp 28-36.

¹⁶ Tim Mowl and Brian Earnshaw, *Architecture without Kings: The Rise of Puritan Classicism under Cromwell* (Manchester: Manchester University Press, 1995).

¹⁷ Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (New York: Modern Library, 1937), pp.328-329.

¹⁸ Will Coster, 'Massacre and Codes of Conduct in the English Civil Wars', in Mark Levene and Penny Roberts (eds.), *The Massacre in History* (New York: Berghahn Books, 1999), pp.91-92; Stephen Porter, *Destruction in the English Civil Wars* (Dover, NH, 1994).

¹⁹ T. S. Willan, *River Navigation in England 1600-1750* (London: Frank Cass, 1936), pp.28-30.

usurpation a time of great peace and prosperity.²⁰ Close-up they do not look especially peaceful years, politically-speaking, but they do exhibit considerable pent-up demand, as does the rebuilding of towns in the 1650s and 1660s, i.e. before the Glorious Revolution. A favourable view of the Commonwealth period pushes back the onset of Adam Smith's happy and fortunate period. The more one looks, the more the period 1614 to 1650 appears as a tragic interruption of an expansion that had been taking place since at least Elizabeth's reign. After Charles I was executed investment in infrastructure resumed with each generation able to hand the next a superior endowment.

The north-western concentration of industry

Manufacturing activity resumed too. Examination of four of the important industries developed in the north-west between 1500 and 1780 shows their growth was the result of the vigorous entrepreneurship and innovative skills of local families who had started to have a little capital at their command in the late sixteenth century.

Firstly, what became known in the 1780 to 1800 period as 'engineering' began early alongside the rich coal mines of the Wigan area. By the 1550s a metal-using industry was producing brass and pewter pots and pans for the kitchens of the better off; by 1590 bronze bells were being cast.²¹ Iron was also being cut into nails and blacksmiths were widespread. All these metals had to be imported into the Mersey - probably to Warrington. In the 1590s the watch and clock business began near Liverpool, no doubt using metals from the same sources and helped by coal mined at Prescot. By 1599 Thomas Dallam, from the Warrington area, travelled to Constantinople with a clockwork organ which he had made, as a present from Queen Elizabeth to the Sultan Mehmet III.²² By the 1680s many special tools had been developed, including one that cut the teeth of watch and clock wheels more accurately than could be done by hand. From that period onwards it is likely that most of the watches and clocks sold in England included parts, if not whole movements, made in this area.²³

The second industry was cheese-making. From 1500 until the mid-seventeenth century most of the cheese consumed in London had come from Suffolk. In the late 1640s cattle disease in Suffolk opened the way for a 20-ton cargo of Cheshire cheese to be sent to the capital in 1650. Its rich full milk taste won it a market and by 1687 a total of about 1800 tons per year was going south. By 1729 Cheshire was supplying nearly 60 per cent of London's cheese and less than ten per cent came from Suffolk.²⁴ Before the 1780s cheese was the principal farm product of the whole of the Dee & Mersey basins.²⁵

The third industry was the production of salt. From the Conquest onwards the large profits made from producing salt in the Cheshire 'wich' towns (the largest being Nantwich) were divided between the King and the local gentry. From the 1590s onwards sources of salt outside the wiches began to be exploited. By 1680 major works around Northwich, using the

²⁰ John Richard Green, *A Short History of the English People* (London: Macmillan, 1898), p.589.

²¹ Anthony J. H. Latham, *Wigan 1540-1640: Pre-industrial growth and development in south Lancashire*, in John H. Wilson, ed., *King Cotton – a tribute to Douglas A. Farnie* (Lancaster, Crucible Books, 2009), pp 260 – 3; *Cheshire & Lancs R. O.*; many local inventories from 1550.

²² *Hakluyt Soc.*, vol. 87, 1893; *BIOS Reporter* (on line), July 2003, vol. XXVII, No 3.

²³ F.A.Bailey & T.C. Barker, *The Seventeenth Century origins of Watch-making in south-west Lancashire*, in John R. Harris, ed., *Liverpool and Merseyside* (London, Cass 1969), pp 7 – 8; Albert E. Musson & Eric Robinson, *The origins of engineering in Lancashire*, in ch 13 in *Science and Technology in the Industrial Revolution* (Manchester, Manchester U. Press, 1969), pp 427 – 458.

²⁴ Charles F. Foster, *Cheshire Cheese and Farming in the north-west in the 17th and 18th centuries* (*Northwich, Arley Hall Press, 1998*), pp 6-7, 22 & 91.

²⁵ Foster, *Cheshire Cheese*, pp 8 – 9 & 24.

latest technology, were exporting 1000 tons per year. In 1694 a revenue-raising tax scheme suggested by the manufacturers, which taxed all salt but kept out foreign supplies, helped production soar to over 10,000 tons per year.²⁶ In the 1730s and again in the 1750s two local businessmen engaged in the salt industry made large investments in waterways – the Weaver Navigation (1730-1732) and the Sankey Navigation (1755-1758). These enabled Cheshire salt to become the cheapest in the world.²⁷ Cheese and salt were the cargoes that transformed Liverpool from a small fishing port with only 1000 inhabitants in 1660. But it was the entrepreneurial foresight of its merchants, who built a Wet Dock there between 1709 and 1720, that enabled the town to capture the American trade and become a city of 34,000 people by 1770.²⁸

The fourth industry was cotton manufacture. Linen had always been produced in the area from the flax or hemp grown on every farm. In the sixteenth century it was marketed from strings of horses which went south to visit any community that did not produce its own linen.²⁹ When raw cotton first arrived in London in bulk from the Levant around 1600, Lancashire weavers seized the opportunity to start making jeans and denims, known as fustians, using their linen for the warp and cotton for the weft.³⁰

After 1651 ships returned to the Mersey every year to collect more cheese. The cargoes they brought from London transformed industry and agriculture in the north-west. Dye-stuffs from all over the world helped the cotton and woollen industries.³¹ Grains, and particularly barley, do not grow well in the area. It had not been possible to import them because there were no balancing exports. Cheese filled the gap: from the 1650s Cheshire could concentrate its agriculture on what suited it best – grassland dairy farming. Being able to import grain also helped the cotton industry, which had arrived in the Bolton-Blackburn area about 1600. Before 1500 these moorland valleys had been very thinly populated because of the difficulty of growing grain there. Once it became possible to import grain new settlers moved into the hill country to supply the labour for spinning the imported cotton and weaving the finished fustians.³²

Continual innovations like those described above, which turned the Cheshire salt industry from the antique relic of 1590 into a most competitive business by 1760, were repeated in all the other industries. Cheshire farms were enlarged from an average of 25 to 30 acres to between 65 to 100 acres, which was the most efficient size for producing the large cheeses that Londoners liked. The number of acres needed to support one dairy cow was reduced from about 10 in the 1700s to about 6.5 by the 1760s and the annual quantity of cheese produced per cow rose from 2 cwt. in 1717-1719 to 2.5-3 cwt. by the end of the century.³³ Improvements in transport were also significant. North-western farms provided the grassland for cart-horses as well as cows, and it was northern horses that were normally used for road transport to London. Various factors allowed an increase in the weight one cart could draw. In 1672 carts carried only 10-12 cwt. of coal the twenty miles from Staffordshire to Northwich. In 1761 the carts bringing coal sixteen miles from Haydock to Arley carried

²⁶ John Collins, *Salt and Fishery* (London, 1682).

²⁷ Foster, *Capital*, 2004, pp 186 – 98 & 224 – 7.

²⁸ Michael Power, *Creating a Port: Liverpool 1695-1715* (Historic Society of Lancashire and Cheshire, vol 149, 2000), pp 51-71.

²⁹ J.P. Withersby, *Linen men*, M.A. Thesis 9011, Sidney Jones Library, Univ of Liverpool, 1998.

³⁰ Foster, *Cotton manufacture*.

³¹ T.N.A. E 190 Port Books.

³² Foster, *Cotton manufacture*.

³³ Foster, *Cheshire Cheese*, pp 12-16, & 25-6.

one ton each. These gains were presumably due to innovations in the design and manufacture of the cart, the harness and the road.³⁴

The brass industry became more competitive when Thomas Patten built a copper-smelting works in Warrington in 1719, which provided a local supply of metal for the casting and rolling industry.³⁵ The watch, clock and tool-making industries were carried on by hundreds, perhaps thousands, of craftsmen-entrepreneurs usually living on their own properties within 20 miles of Prescott, South Lancashire. Most concentrated on producing only one or two components or tools or assemblies and developed highly specialized equipment and skills.³⁶ About 500 different tools are illustrated in John Wyke's catalogues of the 1750s.³⁷

The cotton manufacturing industry was buffeted by extraordinary events. From about 1670 the market was flooded with great quantities of cheap coloured cotton fabrics from India. These caused so much disruption to textile markets that large duties were imposed and finally in 1721 the wearing of any dyed or printed cotton except traditional fustians was prohibited. But in 1736 manufacturers secured a new Act permitting them to make dyed and printed cloths with a linen warp and cotton weft. This set the industry off on a remarkably innovative phase. By the 1750s it had the best skills in Europe and John Holker was selling these skills to the French.³⁸ Customers loved the new dyed and printed cloths and the market for cotton expanded two and a half times in twenty-five years. By the late 1760s there was a really serious shortage of spinners.³⁹ Three craftsmen – Hargreaves, Crompton and Highs - made prototype machines and the long-established Lancashire engineering industry developed them into spinning machinery. (Highs designed the model which Arkwright patented, as described at the trial of his patents in 1785).⁴⁰ Their efforts were so successful that by 1797 900 mills were at work and a new world of manufacturing machinery had been created.⁴¹

Why did these developments, or their equivalents, not happen elsewhere?

Metalwork: Many places had coal and the Black Country also had its own iron ore and numbers of similar metal-workers. However a watch, clock and tool industry did not develop there. Since so little fuel was required for these industries they might have expected to settle on the coast somewhere much nearer to the principal market in London. Perhaps the north-western location was due to the large number of owner-occupied properties in the Prescott area. Young men were apprenticed to clock and tool makers, afterwards building workshops next to their houses and setting up their own businesses making one or two types of tool, component, or assembly. Large numbers of small properties where this could have been done were rare in the south.⁴²

³⁴ Cheshire RO, DCH/J/112, Leftwich Eyes accounts 1672; Estate invoices Oct 1761, at Arley Hall.

³⁵ Foster, *Capital*, pp 211 – 12.

³⁶ Thomas S. Ashton, *An eighteenth century industrialist: Peter Stubs of Warrington, 1756-1806* (Manchester, Manchester U. Press, 1939), pp 1-8; Foster, *Capital* pp 304-5.

³⁷ John Wyke, *Catalogue (1758-1782)*, printed for Winterthur Museum by University Press of Virginia, Charlottesville, 1978.

³⁸ Florence M. Montgomery, *Textiles in America*, (New York, W.N. Norton, 1984) p 395 & Colour Plates D22-D33 of 36 samples.

³⁹ Foster, *Cotton Manufacture*.

⁴⁰ Robert S. Fitton, *The Arkwrights: Spinners of Fortune* (Manchester, Manchester U. Press, 1989) pp 14 – 17, & 128-9.

⁴¹ TNA, 30/8/187, H. Watts to William Pitt.

⁴² Charles F. Foster, *Four Cheshire Townships* (Northwich, Arley Hall Press, 1992), pp 11-13 & 55 – 78; G.O. Lawton, ed., *Northwich Hundred Poll Tax 1660 and Hearth Tax, 1664*, Record Society of Lancashire and Cheshire, vol cxix, 1979; Lancs R. O., *Blackburn Hundred Poll Tax 1660 & Hearth Tax 1664*, typed copies.

Cheese: Cheshire did not have a monopoly of making cheese, which was also made on many farms in Gloucestershire, Somerset and Wiltshire. In the eighteenth century cheese was shipped to London down the Thames from a warehouse at Buscot near Lechlade. Yet even in 1729 this area supplied less than one quarter of London's cheese.⁴³ Cheddar, whose brand came to dominate the London market in the nineteenth century, is only eleven or twelve miles from the sea at Weston-super-Mare. Nevertheless, Cheddar did not oust Cheshire from the London market until north-western farmers switched to feeding the huge industrial populations emerging in the north.

Salt: Ancient brine springs, very similar to those in Cheshire, were also worked at Droitwich, Worcestershire. This was only about five miles from the river Severn and had a canal been built in the 1690s the Severn route could have provided both coal and access to the sea. This would have made Droitwich salt much cheaper than that of Northwich. Apparently Droitwich men were unable to navigate the maze of legal rights. They managed to increase their share of the national market from five per cent in 1694 to 20 per cent in 1730, after which their share declined. They did not build a canal until the 1770s and by then it was too late.⁴⁴ In the north-west, businessmen and the old gentry worked together successfully to promote industry and the local gentry MPs helped get Canal Acts through Parliament.⁴⁵

Cotton: Once raw cotton started arriving in bulk in London direct from the Levant around 1600 cotton cloth could have been manufactured in many places. Worcestershire, Somerset and Dorset all had suitable linen industries and Pontefract in Yorkshire was the centre of a large linen area only 20 miles from navigable water on the River Ouse. Yet cotton was carted 200 miles overland from London to Manchester. Why? One plausible reason for the extraordinary vigour of the north-west seems to lie in the peculiar character of its society. As we have seen, from 1550 this was a society with a large number of small farming families each with a little capital; it continued to be structured like this, with many thousands of small cheese-producing farms. The industries that grew up were likewise numerous and small-scale. Much of the metal-working was done in independent businesses and so was cotton production: Manchester had over 500 textile businesses by 1773.⁴⁶

The wide distribution of wealth fostered a spirit of equality and religious participation unfriendly to the hierarchical framework of the Anglican Church. The church was weaker in the north because of the very large parishes and their low populations, and (depending on the precise district) their low cereal productivity. Before and during the Civil War there were many Puritan ministers in the business districts who became Dissenters in 1662. Their congregations stayed loyal to them and after 1689 many chapels were built, for which the congregation itself appointed the minister. The Quakers and the Unitarians were prominent among the leaders of the business community. This even influenced local Anglicans, who in Warrington also built their own chapel and appointed the minister.

The law in Cheshire and Lancashire was administered from the Palatinate courts in Chester and offered little scope to London lawyers. Government of the counties was in the hands of old gentry JPs, who normally lived in the area and rarely went to London. There

⁴³ Foster, *Cheese*, pp 22 & 24.

⁴⁴ BL Add Mss 36914.

⁴⁵ Foster, *Capital*, pp 194, 198 & 320.

⁴⁶ Alfred P. Wadsworth & Julia de L. Mann, *The Cotton Trade and Industrial Lancashire* (Manchester, Manchester U. Press, 1931), pp 254-260.

were few openings in the Church and the Law and also few in Government. The local gentry had poor connections with the court, the Ministry and the armed services. This meant that many of the job opportunities for educated people which existed in the London area were not available in the north-west. Business became the principal occupation. Dissenting congregations, composed of business people, celebrated the value of lives well spent in commerce and stressed the importance of moral behaviour – honesty, integrity, equal treatment for all, men and women - in principle giving everyone an opportunity to do well in life.

During the seventeenth and eighteenth centuries these values permeated the whole society, irrespective of religious affiliation. Families stayed in the same businesses, sons and grandsons succeeding to investments made decades earlier. People cared about their businesses and, if they had no sons, found a nephew or cousin or even trained up a young stranger to take it on. An example was the Crosfield family who were brought from Kendal to Warrington in 1777 and stayed to run the businesses there until the 1920s. Joseph Crosfield & Sons Ltd, now part of Unilever, is still the biggest firm in the town. When families in the north-west became very rich they did not buy estates in the country and pose as old gentry; they built themselves big houses in the towns close to their factories, like the Pattens in Warrington and several families in Manchester.⁴⁷ Some Quakers were even less self-indulgent; there was only a modest Crosfield house in a nearby village. These attitudes and practices created a business culture in north-western England and the northern colonies of America which was one of the keys to the vigour of these areas before 1780.

Why not a southern location?

Subsequently the industrial revolution was so successful that many families in the north-west became extremely rich – far surpassing the wealth of most others in business before 1780. With their wealth they started to mingle more with rich people in the south and increasingly adopted their lifestyle: they became gentry. This starts to suggest one reason why industry was so much less successful in the south, a region that not only failed to capitalise on the growth of a national market for manufactures but actually de-industrialised during the eighteenth and nineteenth centuries. Plant in the south was tiny (though all industrial works were small before the age of powered factories) but they were widespread and included the full range of existing industries. They slowly but surely died back, perhaps taking 20 per cent to 30 per cent of small southern towns with them; there was a shake-out of smaller centres.⁴⁸ By the late eighteenth century larger centres seem to have housed the more competitive businesses. Northern towns did not experience the same disability.

No single explanation for all this will do, definitely not the subsequent rise of coal-fired steam engines. Many suggestions that have been put forward reflect only secondary responses to the gradual loss of competitiveness.⁴⁹ The underlying causes were two-fold: the culture of the gentry that pervaded the south and the shift in comparative advantage which made the region more purely agricultural.

A significant element was indeed the strong influence of the gentry in the wide hinterland of London. Money earned, or at any rate acquired, in the metropolis was spent on buying and remodelling landed estates in the Home Counties. Bristol money, including profits from the slave trade, performed a similar function inland of that city. London was,

⁴⁷ Foster, *Capital*, pp 262-3, Plates 34, 39, 43b, detailed maps of Warrington & notes.

⁴⁸ Peter Borsay (ed.), *The Eighteenth-Century Town* (London: Longman, 1990), pp.5-6.

⁴⁹ Jones, *Locating*, chs. 4 and 5.

however, the fount of most gain because to commercial wealth it added the proceeds of government office, the law and innumerable court sinecures. This is not to say that every fortune was ruralised but the tendency was marked. Country houses were built and rebuilt; they were equipped with fashionable furniture, besides antiquities and art work often brought back from the Grand Tour. Between 1760 and 1820 the number of parks in the Home Counties doubled.⁵⁰ Even the Puritan elite had hastened to build themselves grand parkland houses, while in the eighteenth century part of Berkshire was dubbed ‘the Berkshire Hindoostan’ because of the number of nabobs who repatriated their loot to build country houses there. The attractions of owning an estate were high; it was the thing to do, offering useful contacts, access to financially advantageous marriage partners, political opportunities, and country amenities, among them participation in the rage for the blood sports of hunting, shooting and angling.

In practice anyone with sufficient capital could enter landed society, providing they were willing to ape prevalent manners and consumption habits. They could bring up their sons as country gentlemen and hope to see their daughters marry old money. The point was that they or their offspring were losing the impetus for making money in any active sense and were becoming rentiers, that is to say joining Veblen’s leisure class. A proportion of them did take an interest in the management of their estates, especially when agriculture became fashionable under George III, but day-to-day farming remained the province of bailiffs and tenants. The direct commercial risks were passed down to the tenant farmers. Otherwise investment in land went into building vast stables and kennels, laying out parks and ornamenting estates with lakes and copses. The last point indicates where the thrust was: creating a gracious landscape which was simultaneously the setting for blood sports. This meant planting woods and hedges to facilitate hunting and shooting. It involved conflict with the aim of maximising agricultural output: tenants were often required to adopt rotations consistent with the demands of game-keeping rather than husbandry. This did not matter acutely to the landowner, since farming was not the sole purpose of possessing an estate.

Landed estates were thus the joint products of stylised rural consumption and agricultural endeavour. On the estates and in the parks capital was used less productively than it might have been in industry. This is indicated by the appellation of Gentlemen Clothiers for the woollen manufacturers who bought rural property near their mills in Gloucestershire and is consistent with the impression that estates produced an annual return of only about two per cent. Admittedly the tendency for successful industrialists to buy estates was not confined to the south but it was most conspicuous within reach of London.

Eventually, in Victorian times, many a successful entrepreneur from the industrial north sought to distance himself and his family, physically and socially, from the place of his profitable striving. London lawyers, courtiers, office-holders and merchants had long done the same, as had some of the most prosperous among the first generation of factory owners: very early in the nineteenth century the Arkwrights, cotton spinners, bought five estates widely dispersed across England. As merchants and industrialists removed themselves from town to countryside they made way for new men to push upwards and secure commercial and industrial fortunes for themselves. County society, full of landed families both old and parvenu, was willing to embrace the owners of new money but was decidedly hostile to industry on the doorstep.

The attractions of county society were overwhelming. There was of course a London season but during the remainder of the year rural residence was not scorned. Estates provided

⁵⁰ H. C. Prince, *Parks in England* (Shalfleet, Isle of Wight: Pinhorns, 1967), pp.7 & 9.

plenty of displacement activities for the rich: they sat on the bench, dined and danced together in their houses or the assembly rooms of county towns, and engaged in rural sports. Few can be accused of complete idleness; what they can be accused of is expending their talents on trivial activities and making them seem the ultimate purposes in life. They formed a leisure class that retained only peripheral connections with anything productive, other than farming, and was devoted to its own reproduction: read the southern author, Jane Austen. Fashion and snobbery drew the ambitious to embrace a way of life consistent with aristocratic rurality.

If the businessman himself was not very interested, his wife and children were likely to press for gentility rather than endeavour. Country towns depended heavily on the patronage of the landed class and serviced their wants as well as the needs of agriculture. Feasts, dining on a fallow buck provided by a local magnate, helped to bind town to country. The plain dress of the Quakers symbolised the greatest resistance to the frivolities of consumption. Often Quakers offered the only resistance. In their early days it is said their demeanour was less like that of their neighbours than the behaviour of some foreigners. Yet although the Quakers were disproportionately involved in business they were a minority sect and even some of them succumbed to fashions in dress and land-ownership by the mid-nineteenth century.

Despite the element of consumption on landed estates, the south was nevertheless a productive and developing agricultural region. Relative to the north, the lower topography, lower rainfall, higher temperatures and fertile soils made the area more conducive to arable farming. Valuable farmland was attractive to landowners and would-be landowners, and could be organised in large estates on which the acreage of farms and fields slowly increased. It was equally important that the south was well placed to supply the market for foodstuffs in the capital. Grain was also supplied to the sizeable rural populations which engaged in manufactures in various parts of the countryside, especially domestic spinning and weaving, but it was the London market that came to dominate. Much investment in canalised rivers, canals, better roads and turnpikes was directed at supplying it.

Accordingly, where capital was productively invested in the south, it went first into agriculture, to be recouped from farm rents. In addition the region allocated capital and talent to the agricultural processing trades, milling, malting and brewing, which were means of reducing the weight and bulk of crops before conveying them to market (cattle and sheep were moved on the hoof). The services of solicitors and bankers facilitated these profitable tasks. The results may be seen in the fine Georgian houses of the market towns that ring London, such as Newbury, Abingdon and Henley. In contrast little fresh capital entered southern manufacturing. Industrial plant hung on there only until some accident befell it, after which it was seldom replaced.

Technology and specialisation

The achievements of the specialized communities of little manufacturers in the north-west were seldom noticed by the rich opinion-formers of London. A large number of watches and clocks from the seventeenth and eighteenth centuries survive and the many improvements in design have been closely studied and admired. Some of these are mentioned in surviving documents (for example at the Royal Society) so that innovators like Tompion and Graham have become famous.⁵¹ The names on the dials of clocks and watches are often those of fashionable 'makers' in London or the country towns. In many cases probably the only

⁵¹ David S. Landes, *Revolution in time* (Cambridge, Mass., Belknap Press, 1983) pp 114 – 157.

contribution of these ‘makers’, apart from effecting repairs, was to put together the major parts – the movement, the dial, and the case – and test the whole before selling it.⁵²

There are virtually no archives to identify the Lancashire workers who improved the manufacturing techniques. The prices and the surviving instruments are the sole evidence of an extraordinary leap in manufacturing productivity. Adam Smith noted that a watch costing £20 in the mid-seventeenth century was 95 per cent cheaper by 1776 (i.e. cost only £1 in 1776) and was better made too.⁵³ There is only one patent and this does not seem to have affected horology.⁵⁴

Yet in almost every discussion of early spinning machinery inventors and their patents are given the prime position and their contribution has been thought to deserve renown. In reality the technical problems of devising cotton-spinning machinery were modest and much less difficult than many horological conundrums. The main obstacles to the development of spinning machines were social. In 1750 there were probably about 20,000 full-time spinners in Lancashire and many part-timers as well. It was widely recognised that it would not be acceptable to put large numbers of these people out of work. In the 1730s, when the manufacture of cotton started to increase, Paul and Wyatt made machines but they never dared take them to Lancashire.⁵⁵ Without the help of experienced cotton spinners they were unable to get them to work successfully.⁵⁶ James Taylor, a clock-maker of Ashton-under-Lyne, Lancashire, got a patent in 1754 (No 693) but decided not to make machines. Thomas Highs of Leigh, Lancashire, experimented in 1763-1765 but also decided not to proceed.⁵⁷ Some of Hargreaves’ machines were destroyed.⁵⁸ He and Arkwright went to Nottingham, where no cotton spinning was done, in order to get their patents and to set up factories in 1769-1770.⁵⁹

Strutt and Need bought half Arkwright’s patent and spent £13,000 perfecting the machinery and installing it in a water-mill at Cromford, Derbyshire, that produced a yarn ideal for hosiery and for replacing the linen warp in cotton cloth. The new cloth which was made with it was much better for printing, which helped to accelerate the demand for printed cottons. Hargreaves was unable to enforce his patent because he had previously sold machines.

Two factors were important in the rapid adoption of mechanization. First, the many small manufacturers were able to persuade their workers to use the new machinery. One reason for this was that the demand for cotton cloth expanded so rapidly that no spinners seem to have become unemployed. Another was that their pay was much increased. In 1780 a House of Commons Committee was told that ‘one person (on a jenny) can manufacture as much cotton yarn as nine persons can do by hand’ ... ‘and can now get 2s to 2s 6d (24 – 30 pence) a day.’ They also learnt that ‘sixteen years earlier (i.e. in 1764) a woman could earn from ten to fifteen pence per day by the single spindle’.⁶⁰ The common wages of women in

⁵² R. Campbell, *The London Tradesman* (London, T. Gardner, 1747) pp 250 - 252. See also reprint, Newton Abbot, David & Charles, 1969.

⁵³ Smith, *Wealth of Nations*, p.243.

⁵⁴ No 344 of 1695.

⁵⁵ Patents Nos 562, June 1738, 636, Aug 1748, 724, June 1758.

⁵⁶ Wadsworth & Mann, *Cotton*, pp 419 – 448; Richard L. Hills, *Power in the Industrial Revolution* (Manchester, Manchester U. Press, 1970), pp 32 – 52.

⁵⁷ Fitton, *Arkwrights*, p 14.

⁵⁸ Chris Aspin, *New Evidence*, *Textile History*, vol 1/1, 1970, pp 120-1.

⁵⁹ Arkwright Patent 931 July 1769; Hargreaves Patent 962 June 1770.

⁶⁰ *Journal House of Commons*, vol 37, pp 195-6.

the area between 1760 and 1780 were only 6d – 9d a day. The significance of this can be seen by comparing it with the troubles in getting wool spinners to use the new machinery in the West of England.⁶¹ Secondly, the manufacturers and other ‘ingenious mechanics’ were able to make many improvements to jennies. By 1775 better machines were being illustrated in America. By 1788 there were 20,070 jennies in use.⁶² Crompton worked on one and it was his new ideas that proved particularly fertile. The consequences of mechanisation in the cotton industry were therefore stunning but it is appropriate to look for their deep sources in the watch and clock and tool making trades.

The general principle that had guided the watch and clock industry was that the more people there were who had a chance to improve the techniques of manufacturing the better and the quicker good answers to problems would be found. This principle also applied to cotton spinning. The north-west had plenty of craftsmen with a little capital so their society proved particularly suitable for this type of experimentation. But also, by the 1770s, the society contained some larger capitalists, like Strutt and Need, who were willing to risk their money on the bigger projects, such as water-powered machinery, canals and steam engines, which became part of the dense structure of north-western manufacturing.

Technological change also occurred in the south, which was not quite an industrial desert, but the density of the business culture in the north had the advantage. In London there was a great deal of small-scale workshop industry making consumer goods, but the tendency to move up the value chain in the capital and abandon manufactures of lesser value to the provinces may have meant that the economies of scale in mass production were lost.

Conclusions

Innumerable explanations of industrialisation have been advanced. So many variables were changing over the same period that almost none has escaped being treated as the key to change. Background conditions included the optimism associated with the Enlightenment; the acceptance of market ideology; and the shift of intra-elite competition from political and religious spheres towards economics and commerce, meaning from the zero-sum to the non-zero sum. These abstractions describe the context and are advances on the single-factor approaches commonly put forward but they are still incomplete. Neither new habits of thought nor laws and institutions fully account for the expansion of the economy. They are particularly weak when it comes to explaining the shifting distributions of economic activity.

Legal scholars do not find the law, and even less the way the law was administered, an adequate explanation of growth. There are too many ambiguities. In some respects the judges appeared market-friendly, for instance in dismantling elements of guild power, but in others they declined to lift traditional restrictions, for instance those on the marketing of grain. They had social order in mind. Property rights often remained vaguely described and ill-defined. This was Max Weber’s ‘England Problem’; he was perplexed that growth initially occurred in a country where rights were so uncertain they might have been expected to deter any prudent investor.⁶³ Nevertheless, while the legal system lacked clarity, it was adaptable. The solutions were often achieved by negotiation, not necessarily involving written contracts,

⁶¹ Julia de L. Mann, *The Cloth Industry in the West of England from 1640 – 1880* (Oxford, Clarendon Press, 1971) pp 123 – 135.

⁶² Chris Aspin & Stanley D. Chapman, *James Hargreaves and the Spinning Jenny* (Helmshore, Helmshore Local History Society, 1964), pp 48-9 (but incorrectly quotes the *Journal of the House of Commons* mentioned above) & P1 opposite p 45.

⁶³ Michael G. Heller, *Capitalism, Institutions, and Economic Development* (London: Routledge, 2009), pp.19, 103.

and thus owed more to practice than theory. The power of a creative, broad-based commercial economy was sufficient to bypass particular difficulties with property rights or their enforcement. Rich northerners absorbed the culture of the gentry when they came south but they brought their high ethical standards – honesty in government as in business, an abhorrence of corruption and a belief in promotion on merit in government service. Their standards avoided the corruption that heavily burdened many affairs until the second quarter of the nineteenth century. Despite all impediments, therefore, both private and public investment was expanded. Southerners meanwhile specialized not only in the agricultural sector but also in naval and military affairs and overseas trade. The defeat of Napoleon's attempt to create a European empire and the development of British India were both southern achievements.

Growth was regionally expressed yet few textbook explanations emphasise regional change. The offerings purport to be national in scope whereas in reality industrialisation should be understood as a regional, even local, phenomenon. The emergence and self-propelled intensification of the business culture in the north-west is a realistic explanation, contrasting as it did with the allocation of talent away from manufacturing in the south. This bifurcation took place within an increasingly integrated national market.

The chain of events and processes leading to industrialisation included the manner in which small farmers in the north-west were able to acquire some capital during the 'rent revolution' of the sixteenth century. It involved their puritanism, non-conformity, thrift and enterprise, and the way they compensated for deficiencies in their resource endowment by importing the raw materials which their district lacked. At times they were aided by exogenous events or politically successful lobbying: the opening for their cheese when the herds of the Suffolk dairymen were hit by disease, the protection of the sail-cloth industry that grew up around Warrington, changes in the salt tax favouring their rock salt, and so forth. The business culture of the north-west also gained inadvertently from the industrial decay of southern England. This decline reflected the alternative attraction of growing cereals for the London food market. It also reflected the greater seductiveness of becoming gentry, which the non-conformist businessmen of the north-west long managed to resist. Their sense of purpose and interconnected manufactures gave rise to the innovations on which industrialisation rested.

