

Why Did The Industrial Revolution Take Place In Europe And Not Asia?

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As the world's trade and industry started to change, arguably, into a more global economy in the late twentieth century, it could also be argued that historians altered their opinions on the past, seeming to move away from a 'Eurocentric' view of history and encompassing a more global history suggesting a global economy as early as the twelfth century with its centre placed firmly in Peking. The question of why the Industrial Revolution occurred in eighteenth-century Western Europe and not anywhere else for example the Yangzi Delta became global topics for historical debate. Opinion is diverse; however, one can roughly divide it into three groups; Eurocentric determinists, Global economists and a group of revisionist historians who dismiss the validity of any comparison due to the extreme differences between Europe and other areas of the world. Such diversity in opinion is cause for a closer look into the areas of contention; geography and ecology, demography, technology, European economic advantage, colonialism and a global economy, governmental policy and the role of exploitation, and general cultural differences.

Firstly, the role of geography has been used by historians to answer why Europe came before Asia. It is argued that Britain had a climatic advantage over China due to its mild weather and constant rainfall. Moderate weather conditions protected Europe against disease and drought, capital damaging disasters. Furthermore, the favourable agricultural conditions and fertile soil allowed Europe, especially Western Europe, to keep enough land spare to use to graze animals, something never really achieved in China. However, this fairly Eurocentric view does not account for the favourable conditions in many places in China such as the Guangdong region as highlighted by Pomeranz.

Historians agree that Europe had more livestock than Asia from the medieval period onwards. However, this fact has created a split opinion; Pomeranz argues that China did not have the same need for livestock that Europe did. Animals in Europe were used not only for food, but for industrial purposes [pulling ploughs, turning millstones] and transport. It is argued that these advantages set the bearings for Europe to develop. However, the Chinese cultivated rice in paddy fields instead of wheat, so there was no great need for ploughing or turning millstones. China utilised its waterways for transport links, and purchased warhorses from Central Asia and proceeded to breed them throughout the seventeenth century. Furthermore, although meat provides an unrivalled source of protein, the Chinese gained enough protein from rice and beans, in addition, the Chinese, along with the Japanese and South-East Asia, had a safe water supply and cotton was widely available. These advantages in standard of life are clear evidence that the geographical argument for why Europe 'succeeded' and not Asia are invalid, especially in light of the fact that in Europe between 1400 and 1800 meat consumption actually fell 80 per cent in some areas.

Secondly, Europe's, and in particular Britain's, ecological advantages are argued to have caused and inspired its industrialisation. Britain's mines were close in proximity to its markets. Although China did have large coal reserves, they were situated in the North. Following the general migration southward and re-location of the cultural centre to ward against attack from invaders, the coal industry that had once been booming became 'a backwater', in terms of commerce and new ideas. The climates of the two areas also have a role to play in the development of technology. Britain had a major problem with flooding, and a solution was found in the form of a steam powered pump. With adaptation, this would form the basis for the steam power used in industry. China had the opposite problem – the problem of spontaneous combustion – a solution was found in adequate ventilation, but this did not possess the same potential for development. Many theses place the ecological factor of coal as the vanguard of their studies, the discovery by the British of steam power created from coal arguably led to the Industrial revolution through transport and powerful machinery. Even though conditions in Song China were similar, the cheap coal available in Britain and the problems they had to overcome gave the British a unique and cheap motive to innovate.

Thirdly, demographical arguments play a major role in the argument about why China did not industrialise in the eighteenth century. China is seen by Eurocentric historians to have been much more densely populated than Europe. Due to the abundance of labour, China is argued to have had lower real wages than Europe and therefore did not have the same need to develop 'labour saving' devices. Additionally, rice, China's main crop,

soaked up land and labour, the more land and labour fed to it the more output it produced. The Malthusian argument never proved correct where rice was concerned. Europe however, had a higher percentage of arable land and a much sparser population. Furthermore, the natural disasters that occurred in Europe [wars, epidemics, famines] tended to hit labour rather than crops; it is argued that this created higher wages and a greater need for mechanisation. However, in terms of population growth the two seem quite similar. Although China did have earlier marriage rates, most women were married before the age of 21 and a belief system in Confucianism that, in theory, promoted large families; birth control methods such as infanticide and the spacing out of births did stem the tide of massive population growth to a certain extent. Comparatively speaking, the Chinese generally started families later and finished earlier than their European counterparts. Also, the only birth control widely used in Europe was marriage. Although the Chinese population was slightly larger and more considerable per square foot of arable land, the rise in 'proto-industrialisation' in China effectively swallowed this difference, therefore relatively equalising the population growths of Europe and China. Pomeranz argues along the same lines, when he points out that life expectancy in Asia was equal if not better than that of Europe up to 1750. He argues that 'proto-industrialisation' in rural China, kept real wages at a constant rate throughout this period. However, it has been argued that due to the total difference between the economic, cultural, geographical and demographic structures the two areas are so different they are 'almost different "Darwinian species"' and therefore any attempt to compare the two is pointless.

Perdue names the demographical argument as one of the 'shortcuts' of explaining the difference between east and west. He argues that there was a relative correspondence between the two populations, they rose and fell together and never really exceeded the five per cent gap in their percentage of world population. Perdue also suggests that if scarce population was the sole catalyst for innovation, Siberia would be the most technologically advanced area on the planet, which it is of course not.

Technological advancement is another major factor in the quest to decipher how Europe came to industrialise before Asia. Industrialisation was dependant on the development of technology and indeed the Europeans did make many technological breakthroughs. Europe's discovery of how to capture heat and use it effectively was a major breakthrough towards industrialisation. However, Eurocentric historians, of which Landes is the main spokesman, argue that the idea of progress was 'weak or absent' from Chinese culture. Instead of developing previous generations' technology, 'standing on the shoulders of giants', each generation seemed to start from scratch. This is Landes' explanation for the apparent Chinese successes in other periods of history. Chinese technology had given the world the compass and gunpowder [to name a few] and had 'developed a huge iron and coal complex' during the Song dynasty; however the Chinese, in what seems to be an ideal basis to industrialise, never did. The absence of 'scientific societies' and the spread of ideas is thought to have had an adverse effect, although print in China was widespread many years before Europe, ideas were never spread like the enlightenment in the late eighteenth century. Furthermore, in Europe scientific study was government backed and the catalysts of consistent warfare and inter-nation competition helped its cause.

The world system theory pioneered by Frank, suggests that technological advancement was a 'world economic process' and that Asia just took a back seat during this period. This global economy is indicated by the 'Green Revolution' – the introduction of new crops all over the world. Potato and maize were introduced to China whereas spices, cotton and silk were traded in the opposite direction along the infamous Silk Route across Asia. Additionally, the affect of silver on the Ming shows the global nature of trade in the sixteenth century, 80 per cent of silver mined in Mexico and Peru found its way into China. Even if this figure is overestimated it indicates that China was not completely isolated from foreign trade like Eurocentric scholars argue.

Development in the area of precise measurement was an area of unique European specialty, and they kept a monopoly in the science of time measurements and magnification for over 300 years. These inventions allowed the precision that empirical method relied upon.

Chinese technology did not stagnate during the Ming-Qing dynasties, but it did not 'revolutionise the Chinese economy' like it revolutionised the European market. This is where the true question lies.

Eurocentric scholars argue that Europe was 'uniquely wealthy' preceding industrialisation. Arguing that Europe had more capital, private ownership, basic property rights, a surplus producing agricultural system, the beginnings of specialisation, professional trade and law and order. However, these claims on closer inspection are not entirely unique to Europe. Private ownership and basic property rights had existed in China since sixth

century BC. China owned a highly productive agriculture based on rice which yielded a surplus, and allowed the Chinese to trade extensively domestically and internationally. Frank's global economy also suggests that China was at the forefront of a global economy and that Europe had to use its colonial outlet's riches [i.e. the American gold and silver] to break into an economy, run by the East for more than three centuries. Europe's exploitation of its colonial outlets is a major reason for its success according to Pomeranz. Europe's 'global conjunctions' allowed Europe to save its own 'land-intensive' resources. Furthermore, in combination with events elsewhere, such as the introduction of silver as fiscal payment in China, the Americas supplied capital for the Europeans to exploit in order to infiltrate the Chinese market, which supports Frank's global economy theory.

The change of emperor in China in the mid 1430s brought about the end of the seven epic voyages of Zheng He. His maritime voyages reached as far as east Africa and predated Vasco de Gama by half a century in his navigation of the Indian Ocean. However, rivalries at court prevented any more voyages possible and by 1550 it had become a capital offence to sail a ship of more than two masts at all. China's naval policy indicates three aspects of Chinese society, firstly that it had the technological knowledge before Europe to build grand ships and navigate a notoriously difficult area of ocean. Secondly, that Chinese culture was not inward looking as is presumed by Eurocentric scholars, and finally, the role of the Chinese state. A wave of modern historical thought holds the Chinese state responsible for its retardation. The cessation of naval voyages is an example of this hindering state intervention. However, Chinese money and resources were needed for much more pressing matters at that time. Mongol attacks along the northern border were becoming more frequent and needed attention and funding.

'Oriental despotism' a phrase coined by Wittfogel, presents a view of the Ming state as a rent-seeking government, it also suggest that this prevented capitalist fervour in China. The state is also accused of only taking an interest in homicide and tax evasion in court. However, new evidence suggests that the lower realms of Chinese society had security of tenure and some legal access and that the population increase in tenancy areas would not have been possible had the state been repressive enough to warrant the title of "rent-seeking". Furthermore, Europe was not as free as Eurocentric historians might like to point out. Europe was a land of landed elites, religious restrictions, warfare and expulsion of entrepreneurial peoples such as the Jews and pogroms. Therefore, no decisive conclusion can be made to distinguish between the economic security and freedom of the Chinese or the European communities.

In conclusion, historical opinion tackles this question from many different points of view, more recently what have seemed to be solid descriptions of how Europe came to Industrialise before China have been proved to be 'misplaced concreteness' and 'shortcuts' by Eurocentric historians. The issue has become even more clouded as many of these factors have started to be seen to occur in similar ways in both regions. Only slight differences stand out in the cloud and these are not stand-alone factors, without the combination it is likely the Industrial Revolution might not have happened at all. Europe's coal resource and its proximity to its economic base is an important factor. Also, the European discovery of steam power made possible by the expendable amount of almost worthless coal at the disposal of the inventors. Colonial expansion into the America's also awarded Europe with extra land and capital to fund industrialisation. However, these factors have to have been in conjunction with Chinese trade, especially in silver. The invention of precision instruments also was indispensable to the European advancement. The world probably did have a global economy, at least, a set of interactions between east and west from as early as the early middle ages. Therefore, the revisionist argument is discredited, as has been shown, east and west were similar in many aspects and a comparison between them is possible especially in light of how close China might have come to industrialisation.

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