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ECONOMICS 303Y1

The Economic History of Modern Europe to 1914

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Lecture Topic No. 2

[the first lecture given in the first day of classes]

ECONOMICS 303Y1: COURSE INTRODUCTION:

I. GREAT BRITAIN AS THE HOMELAND OF THE MODERN INDUSTRIAL REVOLUTION, 1750 - 1815

A. Introduction: General Features, Character, and Significance of the Modern Industrial Revolution in the Eighteenth Century

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ECONOMICS 303Y1: COURSE INTRODUCTION:

I. GREAT BRITAIN AS THE HOMELAND OF THE MODERN INDUSTRIAL REVOLUTION, 1750 - 1815

A. Introduction: General Features, Character, and Significance of the Modern Industrial Revolution in the Later Eighteenth- and Early Nineteenth-Century

1. Industrialization in the Economic History of Modern Europe: [1]

a) **Urban Industrialization:**

- provides the central theme or focus for this course on the economic history of modern Europe up to World War I (1914),
- even though we will be considering all aspects of economic change in all sectors.

i) **in fact, before examining industrial change itself,**

(1) we will first investigate changes in the market economy, in terms:

- population: for both demand and supply factors in the market
- and then: both domestic and foreign trade;

(2) and then we will consider the agrarian sector,

(3) to be followed by banking, finance, and capital formation;

ii) **Then,** we may better see now all these interacting economic changes influenced industrial growth and the so-called Industrial Revolution (from ca. 1760 to ca. 1830).

iii) **At the same time,** or after, we will also consider the related political and social changes, both as influences on the processes of economic growth, and as consequences of that economic growth and industrialization.

iv) **The Kuznets U-Curve:** provides the most interesting avenue of investigation of this problem

(1) Simon Kuznets (1901-1985): A Russian-born American economist who won the Nobel Prize in Economics in 1971 ('for his empirically founded interpretation of economic growth...')

(2) The U-Curve: was one of his most intriguing theorems:

- That the processes of modern economic growth, and industrialization especially, inevitably began by a shift of incomes and resources from the lower to upper economic strata: especially to

[1] For proper historical perspective, please read my online web document: *Why Should We Study European Economic History?*, at this URL: http://www.economics.utoronto.ca/munro5/Themes.htm. This document is presented as an Appendix to this lecture.

entrepreneurs in the mercantile, financial, and industrial sectors whose use such resources to create new wealth ➜ contribute to economic growth

- That resulted in a more highly skewed distribution of wealth and income, thereby reducing the real incomes and living standards of the lower income strata of society
- But finally the processes of continued economic growth percolate through society, elevating the real incomes of even the lowest and poorest strata of society

(3) Hence: the U-Curve: a proposition that has generated much debate (though not so much in recent years)

(4) **'The Standard of Living' Debate during the Industrial Revolution era:** is the most relevant issue for this course:

- providing the introductory A-List topic for the Second Term, debating the question: was the Industrial Revolution initially financed at the expense of Great Britain's working classes (from the 1770s to the 1820s).
- for this topic and debate, one may produce considerable evidence in support of the Kuznets hypothesis, provided that we carry the analysis into the later 19th century.

(5) **Curiously, however, we will not (yet) encounter this debate when examining the 19th-century industrialization of France, Germany, and Russia (1815-1914).**

b) **Thus: the so-called British Industrial Revolution**: of the later 18th century, provides our real starting point, or the first concrete manifestation of that process of modern urban industrialization:

i) **one that spread to the European continent,** North America, and the rest of the world in the course of the 19th century.

ii) **Because Britain was the homeland of the modern Industrial Revolution,** the model progenitor of these processes, Britain will receive a disproportionate share of attention in this course, certainly dominating the first term.

iii) **We will to find answers to the following five questions about the Industrial Revolution:**

(1) **Why was Great Britain the homeland of the modern industrial revolution:** why did it not occur first in, say, the Netherlands or France, who were equally wealthy in the 18th century?

(2) **Why did it begin, in Britain, from the 1760s?**: why was the period from c. 1760 to c. 1820 the crucial initial phase of the Industrial Revolution?

(3) **Why did it begin in three specific industries:** ?

- steam engineering: coal-fired steam power
- metallurgy: iron manufacturing (with coal)
- and textiles using steam power: in cotton textiles especially

(4) **Why and How did technological innovations play such a crucial role in this Revolution?**

(5) **How and why was the Industrial Revolution accompanied by an equally significant demographic revolution?** For, during this period, British population doubled from 1760 to 1810, and then tripled to 1910.

2. **The Industrial Revolution: Is the Term Revolution Justifiable?**

a) **Is the expression 'industrial revolution' overworked and rather meaningless?**

i) **Surely it was not a sudden and cataclysmic event:** in the way that the American, French, Russian, and Chinese revolutions -- or other political revolutions -- have been.

ii) **Furthermore, when the economic history literature talks about the following:**

(1) a Commercial Revolution, Financial Revolution, Scientific Revolution, Agricultural Revolution, etc., taking place in the century before the Industrial Revolution, and taking the better part of century,

(2) and a Demographic Revolution occurring in the first sixty years of the Industrial Revolution era, (3) then you may justly think that this term revolution has become unduly inflated.

b) **Thus one of the leading scholars in our professions,** and the author of a major textbook in world economic history, the late Rondo Cameron may elicit a sympathetic response, when he scornfully rejected this term in *A Concise Economic History of the World* (1989): stating on p. 163, with the heading 'The Industrial Revolution, A Misnomer':

> Probably no term from the economic historian's lexicon has been more widely accepted by the public than 'industrial revolution.' This is unfortunate, because the term itself has no scientific standing and conveys a grossly misleading impression of the nature of economic changes.... Serious scholars [have] recognized the inadequacies of the term and protested its use, but without avail.

c) **Certainly there are several valid objections to using the term 'industrial revolution'**:

i) **There was no revolution in the common sense of the word connoting rapid change**:

(1) i.e., as just stressed, there was no sudden, rapid transformation of the British economy and society, from some economy supposedly experiencing low level stagnation; no revolution transforming that into full-fledged modern urban industrialization in a generation (as almost suggested in the still famous book, *Stages of Economic Growth*, by W.W. Rostow).

(2) Indeed, it would be highly erroneous to compare England in the early 18th century, on the eve of the Industrial Revolution,

- with some contemporary Third World country about to undergo more extensive industrialization,
- because 18th-century England had already achieved quite highly developed, well integrated agrarian, commercial, financial, and industrial sectors.

(3) In a now long-ago former version of this course, which I began at the dawn of the modern era (ca. 1450), the major theme was to demonstrate that the processes of European economic development were **more evolutionary than revolutionary**:

- to show in particular that 18th-century England had already achieved a fairly high and sophisticated level of development over the previous two centuries,
- through a wide variety of structural changes in all the major economic sectors -- the agrarian, commercial, financial, and even industrial.

ii) **Nor was Britain Unique: as to be seen in the peculiar case of the Netherlands:**

(1) In several respects through much of this century, Great Britain had a less sophisticated market economy than its chief rival and neighbour across the English Channel, the Netherlands,

(2) the Netherlands or the Dutch Republic was arguably the most highly advanced and economically developed nation in the western (European) world:

(3) Nevertheless, in that former course, and also in my other European economic history course, on late-medieval and early-modern Europe – Eco 301Y – I had and still try to show why the Netherlands did not industrialize until well after Britain: [2]

(4) and, furthermore, that the Netherlands high level of economic advancement was not necessarily conducive to modern industrialization.

(5) I have contended that the Netherlands, after so successfully dominating European commerce and the shipping trades for almost three centuries, from the mid-15th to the mid 18th-centuries:

- had instead turned more and more to related financial activities: to banking, insurance, and finance
- when its shipping services (carrying trades) and then its commercial supremacy began to wane, as other countries developed their own shipping trades.

(6) Furthermore, the commercial-financial structure of the Dutch economy, based on free trade, did not really favour the type of industrial growth, state-protected growth, that Britain underwent after 1750.[3]

iii) **Also, there was no 'revolution' in the sense that England became fully industrialized within a short period of time after the 1760s**:

(1) Although historians usually assign a terminal date of about 1830 to the Industrial Revolution, industrialization had really only begun by that date, and only in a few industries: chiefly cottons textiles, iron (metallurgy), and pottery-making (i.e., plates, dishes, cups, etc.).

- Even in the cotton industry, a major phase in its own Industrial Revolution, namely the mechanization of weaving, came after the 1820s.
- Similarly, the spread of steam-powered factories, came only after the later 1830s;
- the mechanization of the worsted and woollen textile industries, came even later, from only the 1850s.

(2) Furthermore, Britain's industrial growth was not only highly uneven but was generally quite slow, much slower than traditionally portrayed, as several recent articles (by Harley, Crafts, Lindert, and Williamson,

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[2] This course is not being taught this year, 2010-11; and ECO 303Y alternates with ECO 303Y, in being given every other year. Last year's lectures for this course remain, however, online. I hope to give the course again next year, in 2011-2012 (God and the department both willing).

[3] See the online lecture no. 1, for this ECO 303Y course, on the Dutch economy: but one not given orally this year.

Antràs and Voth) have shown.[4]

(3) Not until after the 1850s or 1860s, did Great Britain achieve a much broader base of industrialization that would justify the description of an 'industrial state',

- i.e., not really until almost a century after the Industrial Revolution so-called had begun;
- and reasonably complete industrialization was not achieved until the 1890s (indeed, during an era that many have called 'the Second Industrial Revolution' in mechanical power).

iv) **Thus, not only as Rondo Cameron has insisted, but as the eminent historian Herbert Heaton remarked almost sixty-five years ago (in 1948)**: 'a revolution which continued for 150 years, and had been in preparation for at least another 150 years may well seem to need a new label'.[5]

v) **Nevertheless, the term Industrial Revolution is now so deeply imbedded in the literature** that it would be foolish to invent a new label for it.[6]

vi) **Indeed Rondo Cameron himself was forced to temper his remarks,** in his revised 1993 edition of that textbook, he omitted the provocative sentence that I just quoted, and instead he now said the following about the Industrial Revolution, in much more modest and sensible terms:

> For more than a century it has been used to denote that period in British history that

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[4] See for example the many recent publications of Gregory Clark (just the same, a truly outstanding scholar): most recently - Gregory Clark, *A Farewell to Alms: A Brief Economic History of the World* (Princeton and Oxford: Princeton University Press, 2007), which has had very mixed reviews. For a recent colloquium on this book, see *European Review of Economic History: Symposium of Gregory Clark's A Farewell to Alms*, 12:2 (August 2008). See other publications, especially: Jeffrey Williamson, 'Why Was British Growth So Slow during the Industrial Revolution', *Journal of Economic History*, 44:3 (Sept. 1984), 687-712; N.F.R. Crafts and C.K Harley, 'Output Growth and the British Industrial Revolution: a Restatement of the Crafts-Harley View', *Economic History Review*, 2nd ser., 45:4 (Nov. 1992), 703-30; Carol E. Heim and Philip Mirowski, 'Interest Rates and Crowding-Out during Britain's Industrial Revolution, *Journal of Economic History*, 47:1 (March 1987), 117-39; Joel Mokyr, 'Has the Industrial Revolution Been Crowded Out? Some Reflections on Crafts and Williamson', *Explorations in Economic History*, 24:3 (July 1987), 293-319; Robert Black and Claire Gilmore, 'Crowding Out during Britain's Industrial Revolution', *Journal of Economic History*, 50:1 (March 1990), 109-31; Carol Heim and Philip Mirowski, 'Crowding Out: A Response to Black and Gilmore', *Journal of Economic History*, 51:3 (Sept. 1991), 701-06; Gregory Clark, 'Debts, Deficits, and Crowding Out: England, 1727 - 1840', *European Review of Economic History*, 5:3 (December 2001), 403-36. For a recent exposition of this theme, see Pol Antràs and Hans-Joachim Voth, 'Factor Prices and Productivity Growth During the British Industrial Revolution', *Explorations in Economic History*, 40:1 (January 2003), 52-77.

[5] Herbert Heaton, *Economic History of Europe* (New York: 1948).

[6] For the most recent books on the Industrial Revolution see the following: all recommended
(a) Robert C. Allen, *The British Industrial Revolution in Global Perspective*, New Approaches to Economic and Social History (Cambridge and New York: Cambridge University Press, 2009).
(b) Joel Mokyr, *The Enlightened Economy: An Economic History of Britain, 1700 - 1850*, The New Economic History of Britain, ed. David Cannadine (New Haven and London: Yale University Press, 2009).
(c) Stephen Broadberry and Kevin H. O'Rourke, eds., *The Cambridge Economic History of Modern Europe*, 2 vols. (Cambridge and New York: Cambridge University Press, 2010): Vol. I: *1700 - 1870*; Vol. II: *1870 to the Present*. Recommended as a supplementary textbook for this course.

> witnessed the application of James Watt's steam engine, and the 'triumph' of the factory system of production. By analogy, the term has also been applied to the onset of industrialization in other countries, although without general agreement on dates.

c) **For a far more favourable view of the term Industrial Revolution, we can turn to Eric Hobsbawm, the famous British economic historian, and staunch Marxist,** who provided this rather modest view**:** 'The Industrial Revolution marks the most fundamental transformation in human life in the history of the world recorded in written documents.' [7]

d) **Perhaps that view is just as exaggerated and as extreme as Cameron's original pronouncements;** but in case you think that I am setting up Hobsbawm to ridicule him as a Marxist, let me now give you some reasons why I am quite sympathetic to his verdict, even though I am in not in fact sympathetic to Marxism or Marxist economics.

i) **If we take the true perspective of a long historical view of European society,** and see that the so-called Industrial Revolution era was, relatively speaking, a very short era, then we can better see that the Industrial Revolution certainly did mark a revolutionary break.

ii) **In my view,** it did produce a fundamental dichotomy or dividing point in human history in three important respects: as explained in the following section of the lecture.

3. <u>The Historical Importance of the Modern Industrial and Demographic Revolutions</u>

a) **First, the 'Industrial Revolution' era in Great Britain:** does provide a watershed in mankind's relationship between population and resources:

i) **it marks the first time in recorded history that the processes of economic growth were not halted,** or even slowed down by population growth, by the seemingly inexorable law of diminishing returns [See the Diminishing Returns graph and the Lindert population-real wage graph, attached].

ii) **Population and the Malthusian Problem:** Indeed, in this very era of the Industrial Revolution, at the beginning of the 19th century, one of the most famous of the Classical Economists, Thomas Malthus (1766-1834), argued that:[8]

(1) if population was allowed to grow unchecked, it would inevitably outstrip the capacity of the economy to provide the necessary amount of foodstuffs, clothing, and shelter.

(2) Or, more commonly that, left unchecked, population will tend to grow geometrically or exponentially, while at best the food supply can grow only arithmetically.

(3) We will come back to this thesis when examining the British population and demographic changes.

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[7] Eric Hobsbawm, *Industry and Empire: Economic History of Great Britain from 1750 to the Present Day* (London, 1968).

[8] Robert Malthus, *Essay on the Principle of Population* (London, 1798).

(4) Indeed, I will then note that Malthus himself did not really believe that population – or West European population – would continue to grow unchecked in this fashion.

iii) **Nevertheless in previous centuries European population growth on several occasions had indisputably meant some diminishing returns:** with only a very few regional exceptions.

iv) **If England had enjoyed the most advanced economy by the 18th century,** even there diminishing returns can be detected -- though never so severe as to produce genuine subsistence crises.

v) **The Role of Technology:** If technological innovation was the heart of the modern Industrial Revolution – and it most certainly was, then this term is certainly justified: in the specific ways that technological changes (including changes in the organization of agriculture and industry) finally succeeded in breaking those barriers of diminishing returns.

vi) **That can be clearly seen in the Lindert graph:** on the screen, ultimately demonstrating the validity of the Kuznets U-Curve.

(1) Note, in particular, that during the first phase of industrialization, up to the end of the Napoleonic Wars in 1815 (or the aftermath, to c.1820), the real incomes of artisans and labourers, evidently did decline, to some considerable extent.

(2) **The reasons for that are a major debate topic:** thus, was such a decline due to one, some, or all of the following factors:

- a Malthusian growth in population,
- to industrialization itself (according to both Marx and Kuznets),
- or to the costs of the French Revolutionary and Napoleonic Wars (1793 - 1815): i.e., the British government could not finance both 'guns and butter' (to use a standard phrase)?
- in particular, to rampant war-induced inflation from the 1790s, during which nominal wages fell far behind soaring prices.

(3) But thereafter, from the 1820s or the 1830s, real incomes, real income per capita, rose again, while population also continued to grow.

vii) **Thus the chief material fruits of the 'industrial revolution' and modern industrialization:**

(1) By the term 'industrial revolution', usually assigned to the period c.1760 - c.1830, we mean:

- those process of technological and organizational changes in industry, with spill over effects into agriculture, finance, and commerce (foreign trade)
- that brought about modern industrialization in the sense of self-sustained continuous growth, in both the aggregate economy and in per capita incomes, but only from the 1820s:

(2) **Consider just these data:**[9]

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[9] For the demographic data, see Table 2 in the Appendix; for the real wage data, see E.H. Phelps Brown and Sheila Hopkins, 'Seven Centuries of the Prices of Consumables Compared with Builders' Wage Rates,' *Economica*, 23 (November 1956), reprinted in their volume: *A Perspective of Wages and Prices*

- from the census data of 1821 to 1911, the population of England and Wales more than tripled: from 11.381 million to 36.136 million.
- as a measure of per capita income, the real-wage index for building craftsmen (masons) rose, and continuously rose, without any significant breaks, and indeed doubled (slightly more than doubled): from 67.23 in 1821 to 135.53 in 1911 (base 1451-75 = 100).
- that combination of demographic growth and real-income growth – and of such magnitude – is simply unprecedented in human history.

(3) Thus, production finally came to be radically transformed in the 19th century, first in Britain, then elsewhere, to permit sustained and generally continuous growth of both total output and per capita output, (4) while also encouraging an even more rapid rate of population growth, not just in Great Britain but throughout western Europe and North America, as they absorbed the processes of modern industrialization.

viii) **The equally crucial role of foreign trade:**

(1) Thus, even if agriculture had not been so radically transformed, the Industrial Revolution, which also involved a prior Commercial Revolution, nevertheless did produce a means of fully and efficiently feeding a still rapidly growing population:

(2) through foreign trade, i.e., by exchanging both industrial goods and services (shipping, banking, etc.) for much cheaper foreign foodstuffs, at least from the 1860s.

(3) Indeed, there is absolutely no way that Britain could have sustained a tripling of its population – from about 12 to 36 million, from the end of the Napoleonic Wars (1815) to World War I (1914-1918) – without the agency of foreign trade: i.e, with exporting goods and services in order to import foodstuffs and industrial raw materials.

(4) In other words, despite remarkable increases in agricultural productivity, it would still have been utterly impossible for any growth in British agricultural output to feed such a rapidly growing population.

ix) **Thus the ongoing Industrial Revolution ultimately did produce a revolutionary rate and form of economic growth,** with real output per capita doubling every 50 years or so in the British economy.

b) **Secondly, the role of the manufacturing sector justifies the term Industrial Revolution:**

i) **in marking the first time in the history of European societies** that the manufacturing industrial sector became the decisively leading sector of the economy:

ii) **in propelling the whole economy forward,** in inducing changes in the other sectors.

c) **The resulting social transformations, however, provide the greatest justification for the term,** a

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(London, 1981), containing additional statistical appendices not provided in the original publication, or in earlier reprints. I have recalculated and adjusted a number of their figures. The real wage expresses the quantity of goods and services (a 'basket of consumables') that a master building craftsmen can purchase with his actual money wage (nominal wage). The real wage index is the nominal wage index divided by the consumer price index; and in this series the base period is 1451-75 = 100. Formula: RWI = NWI/CPI.

revolutionary transformation across Europe, changing basically rural agrarian societies into essentially urban industrial societies within a century.

i) **From that process of urban industrialization developed a much more prominent social class, the industrial proletariat**: not a new class but a far larger proportion of society, whose households were entirely dependent upon wage incomes for their livelihood.

ii) **The Marxist terminology, for once, is most apt**: a class or workers or labourers who were divorced from the means of production, who no longer worked in their own homes with their own tools.

iii) **They were also or became more and more divorced from traditional forms of income in a rural society,** totally cut off from the land, from the production of their own foodstuffs and textiles.

iv) **Thus, those transformations involved not just the rapid expansion of an urban proletariat,** but also of an agricultural proletariat (wage-earning farm hands), as will be seen in the agrarian changes accompanying the Industrial Revolution and continuing into the 19th century.

4. The Importance of Great Britain in Modern Economic History

a) **Great Britain will dominate this course for the simple reason that Britain was the original homeland and the world's pioneer of modern urban industrialization**:

i) **it was historically unique:** in the sense that Britain achieved that revolution without any outside assistance or models to draw upon .

ii) **and yet it was still strongly influenced by economic developments elsewhere,** especially in the Netherlands -- whose failure to achieve an industrial revolution I have already briefly noted (with greater elaboration in the printed/published version of the lecture notes).[10]

b) **As the pioneer, Britain in some senses served as the model for industrialization elsewhere**: especially in terms of technological transfers (in metallurgy, textiles, steam power).

c) **Nevertheless, the British Industrial Revolution also remained unique**:

i) **in the important sense that the British model was never completely reproduced elsewhere.**

ii) **As we shall see in the ensuing case studies**: of national economic development on the continent, for France, Germany, and Russia, with both similarities to and marked differences from the British.

d) **That Britain was the pioneer made her industrialization processes all the more arduous and costly than elsewhere;**

i) **but, by being the pioneer,** by being the first to industrialize, Britain certainly did gain some decisive economic advantages:

ii) **a crucial head start:** that took various continental countries from a century (i.e., to ca. 1880) to almost a century and a half to overcome (i.e., up to World War I).

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[10] See n. 3 above.

5. **What is the Industrial Revolution? For most economic historians, it means:**

a) **interrelated technological innovations in three key industries**:

i) **the twin spearheads of textiles and metallurgy,** i.e., cotton textiles and iron manufacturing,

ii) **along with the third that made the first two possible**, namely the steam-engineering industries.

iii) **Together these innovations achieved mass production:** with centralized mechanical power based on coal-fired steam engines.

b) **These twin industrial spearheads neatly encompass a consumers' goods industry and a producers' or capital goods industry**:

c) **ultimately, for the cotton and iron industries, those technological and organizational changes meant urban industrialization and urban concentration about coal-fields**:

i) **for cottons,** those changes meant the metamorphosis from rural peasant handicraft production in a putting-out system to the factory system of production with steam power integrating some or all stages of production, though not universally so, as we shall see later.

ii) **for iron,** the integration of all stages of production using coal throughout, for both fuel and power, in vastly larger scale units.

d) **Coal, in sum, was the essential building-block of the modern Industrial Revolution**: of urban industrialization during the later 18th and 19th centuries

i) **initially, during the Industrial Revolution era itself,** coal was so vital as the essential industrial fuel, and equally as the essential source of power, steam-power.

ii) **But subsequently also, during the so-called Second Industrial Revolution in Mechanical Power,** as the fundamental basis for electrical power (based on coal-fired steam turbines), and then as the major ingredient of a revolutionary new chemicals industry.

iii) **For all these reasons, it is very true to say, as one historical geographer has noted,** that an industrial map of 19th-century Europe was fundamentally a map of her coal fields – from Wales to Ukraine and the Donbas of southern Russia.

iv) **Thus coal provides one major physical reason for British primacy in modern industrialization,** to explain why Britain was the homeland of the modern Industrial Revolution,:

(1) i.e., her historical primacy in the industrial use of coal, a two centuries' head start in utilizing a coal-technology; and that in turn was based upon:

(2) her natural resources, in having Europe's most abundant, most geographically concentrated, easily accessible, and cheapest supplies of coal (so that no other European country would outproduce Britain in coal before 1914).

v) **The coal problem in historical perspective:** fundamental cause of Global Warming

6. **What Were the Causes of the British Industrial Revolution?**

Three major questions: to repeat three of the five questions posed earlier

(1) Why did this revolution occur first in Great Britain?

(2) why in and from the later 18th century? and

(3) why in the specific industries of cottons, iron, and steam engineering?

a) **There are no simple answers to those questions**:

i) which is why I so often pose this as a question on the final examination.

ii) Obviously a major part of that question lies in examining the comparative economic histories of England, the Netherlands, and France, from the 16th to 18th centuries.

b) **in terms of the basic material conditions necessary for economic growth,** there is really nothing obvious and concrete in English economic history during the first half of the 18th century that would allow one to predict, from the artificial starting point of 1750 or so, that an Industrial Revolution would begin (as defined above) in the next generation.

c**) Nor can we construct any simplistic economic or econometric model with, say, a half-dozen strategic variables that would fully explain that ensuing Industrial Revolution.**

i) **We might require more than a dozen variables,** social and political as well as purely economic,

ii) **and even then whatever econometric model is constructed** might well fail to explain the interrelationships and dynamic catalysts leading to economic growth.

d) **We might best explain the ensuing Industrial Revolution in Britain:**

i) **by examining the economic changes themselves (as previously defined);**

ii) but we must also, and must first examine the specific social and economic setting in which these developments in iron, cotton, and steam occurred.

e) **Political and Judicial Institutions:**

i) **Certainly one would have to begin by citing the tremendous importance of Great Britain's political and judicial institutions in Great Britain:**

(1) those that provided important and necessary guarantees for personal liberty -- to a high degree;

(2) and even more for economic liberty, and above all guarantees of necessary property rights, including the protection and enforcement of contracts.

ii) **The Glorious Revolution of 1688 in Great Britain:** [11]

(1) was the watershed event, in English political, social and economic history:

- in the overthrow of the closet-Catholic monarch, James II of England (r1685 - 1688)
- and his replacement by the Dutch Protestant prince William of Orange, married to James's daughter (who thus jointly ruled as William III and Mary II: William, from 1689 to 1702).

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[11] See Douglass North and Barry Weingast, 'Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century Britain', *Journal of Economic History*, 49: 4 (Dec. 1989), 803–32.

(2) The Glorious Revolution established once and forever the supremacy of Parliament over the monarchy, as the supreme legislative power in the nation:

- which had been the key issue in the earlier English Civil War of the 1640s (which led to the execution of Charles I – father of James II – in 1649),
- but those issues – the Divine Right of kings vs. the Supremacy of Parliament – were not fully resolved until this Glorious Revolution of 1688.

(3) It also established a much expanded degree of toleration,

- especially for those Protestant sects oppose to the officially established Church of England (who were thus called Dissenters), but also for Roman Catholics: an issue to be examined in greater depth next day.
- greater religious toleration, with the supremacy of Parliament based on free elections, also meant much greater political tolerance and freedom.

(4) Far better protection of property rights by an independent judiciary.

(5) The creation of the Modern Financial Revolution: in the establishment of a permanently funded national debt:[12]

- which vastly cheapened the financial cost of government (allowing it finance warfare without engulfing the nation in enormous burdens of debt)
- established a highly negotiable asset in the form of government annuities,
- and in fact laid the foundations for an effective securities market (to be seen under banking and finance).

iii) **For modern economists, those conditions of relatively free markets and property rights:**

(1) **most especially the protection of private property rights** (with the right to sell, trade, bequeath, etc, and obtain collateral for loans) and the judicial protection of contracts provide their greatest economic benefits by:

(2) **lowering transaction costs:** all those costs involved in exchanging goods between producers and consumers via markets (including therefore a wide variety of transport and marketing costs, but also market information, search, and protection costs).

iv) **As Douglass North,** a winner of the Nobel Prize (1993), has shown, economic growth in early modern and modern Europe has depended really more on a reduction in transaction costs than in production costs,

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[12] See John Munro, 'The Medieval Origins of the Modern Financial Revolution: Usury, *Rentes*, and Negotiability', *The International History Review*, 25:3 (September 2003), 505-62. Note that most of my publications since 2000 are available on line as PDF files. Go to this URL (given on my Home Page): http://www.economics.utoronto.ca/index.php/index/research/publications?personId=51

at least before the era of the modern Industrial Revolution. [13]

v) **This, however,** is not the place to go further into the evolution of parliamentary, legal, and judicial institutions in Great Britain that provided those cost-reducing benefits.

vi) **Once again I will also note that again Britain was not unique even if it was more blessed in enjoying those rights and benefits than most other European countries**

vii) **To be sure, those rights were just as much protected,** again, in the Netherlands, Scandinavia, and some German states.

f) **But a stronger case can be made for the uniqueness of British social structure, including religious and cultural components,** that were more conducive to modern industrialization:

i) **If the true essence of the Industrial Revolution was the rapid rate of technological and entrepreneurial innovation,** let us begin with those social conditions that did, directly or indirectly, promote such productive forms of innovation.

ii) **Our focus is on science and education,** those aspects of modern science and education that fostered technological innovation, capital investments, economic growth

iii) **In essence we are going to focus on the most important capital investment of all:** the investment in human capital.

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[13] Douglass North and Robert Fogel both won the Nobel Prize in Economics in 1993: the first and still the only economic historians to win this prize. See in particular: Douglass North, *Structure and Change in Economic History* (New York, 1981), chapters 1-5; Douglass North, 'Government and the Cost of Exchange in History', *Journal of Economic Histor*y, 44 (1984), 255-64; Douglass North, 'Transaction Costs in History', *Journal of European Economic Histor*y, 14 (1985), 557-76. Douglass North and Barry Weingast, 'Constitutions and Commitment: The Evolution of Institutional Public Choice in Seventeenth-Century England', *The Journal of Economic History*, 49:4 (December 1989), 803-32.

Table 1: Estimated Populations of England and Wales in Millions, and Crude Birth and Death Rates per 1000: according to Wrigley-Schofield (1541 - 1871)

	THE POPULATION OF ENGLAND (with WALES)					
Quinquennial Demographic Data from Generalised Inverse Projection, 1541 - 1871						
Year	England: Population in millions	with Wales Population in millions	England: Life Expectancy at Birth	Intrinsic Growth Rate	Crude Birth Rate/1000 England only	Crude Death Rate/1000 England only
1541	2.830	3.031	33.94	0.92	37.17	30.34
1546	2.908	3.115	38.82	1.42	37.88	25.98
1551	3.065	3.282	39.59	1.31	35.62	24.82
1556	3.213	3.440	22.38	-1.17	30.24	40.16
1561	3.036	3.251	36.66	0.97	37.06	26.70
1566	3.174	3.398	39.67	0.91	34.16	24.21
1571	3.310	3.545	41.06	0.77	32.37	22.73
1576	3.448	3.692	41.56	1.02	34.20	22.43
1581	3.631	3.889	42.70	1.27	34.12	21.56
1586	3.841	4.113	37.05	0.75	32.09	25.70
1591	3.938	4.217	38.05	0.81	32.12	24.75
1596	4.057	4.344	37.82	0.63	31.50	24.95
1601	4.162	4.457	38.53	0.75	33.24	24.77
1606	4.310	4.616	39.59	0.76	33.05	24.07
1611	4.476	4.793	36.79	0.41	31.60	26.14
1616	4.568	4.892	40.31	0.81	32.30	23.37
1621	4.745	5.081	33.39	0.11	30.91	28.85
1626	4.762	5.099	39.69	0.74	31.81	23.68
1631	4.926	5.275	39.72	0.71	31.66	23.80
1636	5.090	5.450	34.03	0.18	31.47	28.59
1641	5.130	5.494	36.32	0.43	31.97	26.79
1646	5.231	5.602	39.74	0.29	27.79	23.63
1651	5.308	5.684	39.14	0.31	28.55	24.22
1656	5.391	5.773	33.04	-0.60	25.74	28.68
1661	5.280	5.654	33.27	-0.38	28.22	28.92
1666	5.229	5.600	32.48	-0.47	28.53	30.03
1671	5.159	5.524	37.41	-0.04	28.40	26.25
1676	5.185	5.552	32.40	-0.39	28.91	30.75
1681	5.109	5.471	31.27	-0.26	30.32	32.14
1686	5.036	5.393	35.93	0.47	31.87	28.56
1691	5.094	5.455	36.35	0.42	30.05	28.06
1696	5.118	5.481	38.06	0.71	31.25	26.67

	THE POPULATION OF ENGLAND (with WALES)					
Quinquennial Demographic Data from Generalised Inverse Projection, 1541 - 1871						
Year	**England: Population in millions**	**with Wales Population in millions**	**England: Life Expectancy at Birth**	**Intrinsic Growth Rate**	**Crude Birth Rate/1000 England only**	**Crude Death Rate/1000 England only**
1701	5.211	5.580	38.47	0.83	32.06	26.39
1706	5.334	5.712	38.50	0.45	28.48	25.67
1711	5.382	5.764	36.89	0.34	29.47	26.77
1716	5.428	5.813	35.75	0.38	31.65	27.91
1721	5.503	5.893	35.49	0.39	32.80	28.21
1726	5.602	5.999	25.34	-0.95	31.16	36.99
1731	5.414	5.798	36.34	0.58	35.13	27.46
1736	5.599	5.996	35.26	0.46	33.79	28.47
1741	5.723	6.129	34.27	0.24	31.71	28.78
1746	5.782	6.191	36.47	0.62	32.68	27.02
1751	5.922	6.342	39.77	0.99	32.97	24.61
1756	6.149	6.584	38.12	0.75	31.87	25.82
1761	6.310	6.757	35.37	0.61	33.48	28.29
1766	6.449	6.906	36.19	0.68	33.88	27.69
1771	6.623	7.093	39.09	1.01	34.90	25.47
1776	6.913	7.403	37.74	0.99	35.76	26.57
1781	7.206	7.717	35.81	0.76	34.86	27.81
1786	7.434	7.960	38.97	1.25	36.89	25.23
1791	7.846	8.402	37.92	1.22	37.17	26.07
1796	8.256	8.841	38.93	1.15	35.51	24.82
1801	8.671	9.286	40.02	1.43	37.60	24.08
1806	9.232	9.887	40.58	1.52	37.90	23.68
1811	9.864	10.563	41.25	1.69	39.18	23.25
1816	10.628	11.381	40.84	1.70	39.48	23.54
1821	11.457	12.269	40.47	1.75	40.22	23.73
1826	12.374	13.250	41.43	1.56	37.30	22.40
1831	13.254	14.193	40.89	1.36	36.03	22.43
1836	14.100	15.099	40.56	1.19	35.27	22.47
1841	14.937	15.995	41.71	1.23	35.61	21.61
1846	15.910	17.037	38.99	0.92	35.06	23.71
1851	16.732	17.918	40.46	1.11	35.98	22.65
1856	17.781	19.040	41.53	1.22	35.89	21.92
1861	18.976	20.320	40.62	1.24	36.30	22.71
1866	20.222	21.655	41.47	1.31	35.95	22.06

	THE POPULATION OF ENGLAND (with WALES)					
Quinquennial Demographic Data from Generalised Inverse Projection, 1541 - 1871						
Year	**England: Population in millions**	**with Wales Population in millions**	**England: Life Expectancy at Birth**	**Intrinsic Growth Rate**	**Crude Birth Rate/1000 England only**	**Crude Death Rate/1000 England only**
1871	21.501	23.024			35.00	22.60
1881		26.046			33.90	18.90
1891		29.086			31.40	20.20
1901		32.612			28.50	16.90
1911		36.136			24.30	14.60

Source: E. A. Wrigley, R.S. Davies, J.E. Oeppen, and R. S. Schofield, *English Population History from Family Reconstitution*, Cambridge Studies in Population, Economy and Society in Past Time no. 32 (Cambridge and New York: Cambridge University Press, 1997), pp. 613-17. See also: E.A. Wrigley and R.S. Schofield, *The Population History of England, 1541 - 1871: A Reconstruction* (Cambridge, 1980), pp. 528 - 29, for the years 1541 - 1871. The figures they present are for England alone, less the now Welsh country of Monmouthshire. To present the figures in the usual form, for England and Wales together, I have divided their annual data by 0.93383 (as indicated on p. 557, note to Table A5.3).

MAJOR THEMES IN EUROPEAN ECONOMIC HISTORY: in ECO 301Y and ECO 303Y

Why Should We Study European Economic History?

Why Not? is one obvious response, but not an adequate response. Hence, the following essay.

- The famous English poet Alexander Pope (1688-1744) once stated that 'The proper study of Mankind is Man'. If so, then certainly the historical evolution of our society and economy -- its economic, social, and political institutions -- is certainly a most vital part of the study of Mankind and Man. If, to cite another famous (and biblical) quotation, 'man lives not by bread alone', it has always been impossible for man to live at all, without bread, i.e., without food and drink. How we have collectively sought to survive by meeting our basic needs in terms of food, clothing, and shelter, with very scarce means and resources to do so, is certainly a question and issue of vital interest to any inquiring mind. In particular, how do we explain the truly enormous gulf in our living standards -- in first meeting these basic and necessary requirements -- between today and the past, or indeed the not so distant past, i.e., before the modern Industrial Revolution achieved its full fruition (by the 1870s)?

- But why European economic history? Is this not another example of crass Euro-centrism? The simplest answer that comes to mind is that fact that we, living in Canada (or North America), are the product of economic, social, political, and cultural institutions that are fundamentally European in origins -- as are, of course, the official languages that we speak here: English and French, in Canada.

- But there is another issue of even greater importance, and one that affects the whole world: the story and the historical consequences of the 'Birth of Europe' in the 10th century CE [Common Era]. How do we explain why, in the 10th century, one particular European region -- the north-west -- ultimately developed to dominate the entire world: in economic, military, and political respects, certainly by the 19th and 20th centuries (up to World War II).

- This question is all the more important, and certainly fascinating again to any inquiring mind, when we realize that this region was so fundamentally primitive, 'backward', 'uncivilized' and under-developed in all respects, in the 10th century: especially backward in comparison to the then highly developed and highly civilized regions of the world. In the 10th century, the most advanced societies, economically, socially, and militarily, were to be found in the entire Islamic world, stretching from Spain and Morocco across North Africa into western and southern Asia; in the Greek-based Byzantine Empire in the eastern Mediterranean and parts of western Asia (those not yet conquered by Muslims); in India; and in China (undoubtedly the oldest continuous such civilization). Others could be mentioned, but these are clearly the leaders of the advanced, developed, and civilized world of the tenth century CE.

- The major story (and history means 'stories') is the following: How did 'Europeans', especially those in its western zones, then led by the Italian city states, subsequently exploit their beneficial economic relationships with the Islamic and Byzantine worlds (and through them, with India and China) in order to achieve such impressive economic development, fundamentally based on commercial-financial urban economies? The development of the west European agricultural sectors was also vitally important: in providing towns with foodstuffs, raw materials, and markets. But that agrarian growth was clearly urban-driven. Certainly for the first time in at least western history, towns became the overwhelmingly predominant propelling force for economic development and growth, in the medieval European economy -- and that phenomenon of course was carried on into modern times. That story is covered, though only partly covered, in my ECO 301Y course (not given in 2008 - 2009), where I note that the fundamental transition that allowed western Europeans to gain economic ascendancy and power occurred in the 13th century.

- What is especially fascinating to observe and explain is how north-western Europe -- to repeat, so backward and underdeveloped in relation to the Italian and other Mediterranean states, let alone to the other African and Asian empires just noted -- subsequently developed to overtake the Italians and other Mediterranean economic powers to become the dominant, pre-eminent region of the European economy: i.e., either creating or benefitting from a major shift in the economic and demographic centre of gravity from the Mediterranean (where it had been for several millennia) to the Low Countries and England, in particular.

- Equally fascinating to observe is how a society in this region of NW Europe, one that had once been fundamentally (if never entirely) communal, under prevailing feudal regimes in much of this area, or tribal societies in most cases, most based on the exercise of exploitative military power, evolved to achieve individual rights and liberties, including most especially individual property rights, thereby impairing or eliminating communal institutions.

- And then the major question, the major issue: why did those who gained such individual liberties, property rights, economic powers, and unprecedented economic prosperity then use those powers to exploit and subjugate -- or seek strenuously to do so -- much of the rest of the world, thereby removing or denying such liberties to others?

- At this point, I must stress that I am not (and never have been) a Marxist; and that this is not a Marxist interpretation of history.

- But this issue does deal with one of the truly most fundamental features of not just European but world economic history, from the 15th century: European Imperialism (and its consequences, in racism, in particular). That story commences in my ECO 301Y course: with the Portuguese, who, in the early 15th century, commenced the European processes of overseas explorations, conquest, and imperialism: first in West Africa, then Asia, and the Americas. The Portuguese were quickly followed by the Spanish (with the union of Aragon and Castile, in 1479), the English, the Dutch, the French, in particular, during the 16th, 17th, and 18th centuries. The subject of the ensuing, post Industrial Revolution, 19th-century eras of 'The Imperialism of Free Trade', and then the era of 'New Imperialism', or era of 'Capitalist Imperialism', from ca. 1870 to 1914 (i.e., to World War I, when this course ends) will be a major feature of ECO 303Y.

- As this brief historical outline indicates, European Imperialism established its fundamental foundations long before the Industrial Revolution; but the consequences of that Revolution for Great Britain and then many continental powers was such an enormous growth in their economic and military powers to ensure virtually unchecked European Imperialism and European-North American hegemony until World War II (which lies beyond my courses: see ECO 342Y). Let us remember that North American economic history is also fundamentally part of European economic history.

- At the same time, the modern Industrial Revolution, commencing in Britain in the 1770s, ultimately transformed not just Great Britain itself, not just the rest of Europe, not just the Americas, but indeed the whole world: i.e., in terms of the economic, social, and cultural consequences of modern urban industrialization. So again an initially European story comes to have a truly global significance.

- Explaining how all this happened, without engaging in some form of European 'triumphalism' and Euro-Centrism, with strongly implicit racist overtones, is a major task of my two courses: and I seek solutions in non-biological terms, but rather in economic and socio-political terms (including natural resource endowments, geographical, and environmental factors).

- I draw in particular on two themes advanced by Jared Diamond (*Guns, Germs, and Steel*) and David

Landes (*Wealth and Poverty of Nations*): [14]

(1) western Europe's unique endowment with a wide range and plentiful supply of economically necessary livestock resources; and

(2) the evolution of modern national and fully competitive, militarily powerful centralized states, arising out of the seemingly hopeless fragmentation of medieval feudal Europe.

- On the central issue of European Imperialism, I am not denying, of course, the historically obvious: that all societies in world history that have gained both economic and military power have sought to use those powers to conquer and subjugate their neighbors. One need think only of the medieval Mongols, for example; or the late-medieval, early-modern Ottoman Turks. Not to mention the ancient Greek warrior king, Alexander the Great [356 - 323 BCE]! Such a lust for conquest must be in the DNA of the human species, which I must stress is one single unique animal species, originating in East Africa: so that there are no races.

- Are these not interesting and truly vital questions, for the whole world? And for non-Marxists (like myself) as well as, obviously, for Marxists. Nobody, therefore, can avoid studying European economic history - not if they wish to be properly educated.

[14] Jared Diamond, *Guns, Germs, and Steel: The Fates of Human Societies* (New York: W.W. Norton, 1999); David S. Landes, *The Wealth of Poverty of Nations: Why Some Are So Rich and Some So Poor* (New York and London: W.W. Norton, 1998); David Landes, *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present* (London and Toronto: Cambridge University Press, 1969; 2nd revised edn, Cambridge University Press, 2003).

MAJOR THEMES IN EUROPEAN ECONOMIC HISTORY:

In terms of this sketch of European economic history, the following issues are the major ones on which I focus, in both of my economic history courses, for a better understanding of the fundamental issues involved in the historical development of our modern economy and society.

- The struggle for property rights: to acquire and defend property rights. (and to 'capture economic rents') in land, labour, capital, and enterprise (intellectual property rights).

- The erosion of institutional impediments to a market economy and to European economic development: (inter alia) Feudalism, Manorialism, Serfdom, the Church, Urban Guilds.

- The development of monetized market economies in Europe, West and East: with the requisite commercial and financial institutions.

- The role of other institutions and transaction costs: governmental/state and legal institutions

- The macro-economics and the micro-economics of demographic, monetary, and price changes: causes and consequences

- The role of innovation: technological and organizational changes in the agricultural, commercial, financial, and industrial sectors -- particularly as responses to changes in relative prices and real incomes, but also in response to supply impediments, or bottle-necks in supplies of various inputs.

- The shift of Europe's centre of economic and demographic gravity from the Mediterranean basin to North-West Europe

- The origins, nature, and evolution of Western European Overseas Expansion and Imperialism: from the 15th-century.

- The origins and evolution of modern European urban industrialization (i.e. the so-called 'Industrial Revolution')

- The social consequences of economic and particularly of industrial changes

- The roles of economic philosophies and economic theories in European economic development

See: Joseph A. Schumpeter, *History of Economic Analysis*, edited from manuscript by Elizabeth Boody Schumpeter (Oxford and New York: Oxford University Press, 1954), pp. 12-13: on the importance of economic history.

(1) .... the subject matter of economics is essentially a unique process in historic time. Nobody can hope to understand the economic phenomena of any epoch, including the present, who has not an adequate command of historical facts and an adequate amount of historical sense or of what may be described as historical experience.

(2) .... the historical report cannot be purely economic but must inevitably reflect also 'institutional' facts that are not purely economic: therefore it affords the best method for understanding how economic and non-economic facts are related to one another and how the various social sciences would be related to one another.