Overview

(3) Britain's productivity performance better in services than industry before 1914 in levels terms i.e. whereas in manufacturing the USA had a 2:1 productivity lead, in services Britain had a small productivity lead. But this lead was declining, so vital sector to examine if want to understand Britain's relative economic decline.

(4) Between 1870 and 1914, productivity growth more rapid in services in the USA and Germany than in Britain. Britain's early productivity lead eroded, while in some cases, Britain even falling behind substantially. To some extent, process of catching-up inevitable as release of labour from agriculture in USA and Germany led to: -Urban agglomeration

-Increased specialisation in services

(5) In some sectors: system of low-volume, high-margin business organised on a network basis under threat from system of high-volume, low-margin business organised on hierarchical basis. Networks particularly strong in Britain during C19 & hierarchical form of organisation developed most strongly in USA.

(6) Key factors <u>underlying growth of high volume</u>, <u>hierarchical forms of organisation in service sector</u> were: -Developments in communications technology which reduced problems of asymmetric information and allowing closer contact between principal and agent in merchant/financial operations E.g. telegraph and telephone -Growing volume of economic activity, which permitted greater specialisation in services, hence allowing task simplification and easier monitoring of employee performance

(7) Extent to which low-volume, high-margin business based on networks remained viable varied between sectors. Britain's performance tended to be better in sectors where conditions continued to favour networks rather than hierarchies. Growth of high-volume business began on railways, spreading rapidly to other parts of transport and communications sector

(8) To the extent that human capital was specific to a particular organisational form, Britain 'locked-in' to network form of organisation

This was strongest at a time when technological change favoured hierarchical forms of organisation. Geographical specificity of empire based networks another form of lock-in. Tech change favoured US this period - GB doing as well as it can but with diminishing returns?

(9)	
Shipping	

(10) Merchant shipping a major GB success story from 1850s to 1914. Whereas USA provided serious challenge to GB shipping at time of wooden sailing ships, GB rose to commanding dominance with iron steamship. With decline of US fleet during Civil War, most serious challenge to GB dominance before WWI came from Germany, yet Germany's share of world merchant fleet remained well below 10% versus Britain's share of nearly 1/3. As soon as ships become important, Britain asserts it dominance.

(11) Shipping output grew at annual rate of 3.7% compared with 2.5% in total transport and communications, and 1.7% in total GDP.

Labour force in shipping grew at only 0.8 % p.a. \rightarrow <u>Therefore, productivity grew rapidly at 2.9 % p.a.</u> TFP growth less rapid at 1.9 % p.a. since K growing rapidly, but this still impressive. Ships are becoming bigger, faster, more efficient (some of which is capital - lots of it is TFP growth, so Brit doing well here.

(12) Britain's rise to dominance in shipping coincided with switch from sail to steam, yet sail still used by British shippers on some routes well into C20. Pessimists often try to interpret retention of old technology as evidence of 'entrepreneurial' failure', but British merchant marine v. successful. British sailing still using wooden ships well into C20 even though they've been using steam for 50 years. Proponents of Ent Fail argue this is Brit Conservatism, but Brit does will with having steam and sail shipping.

(13) Harley (1971) shows that British ship owners rationally switched from sail to steam at different moments on different routes because of differences in relative cost conditions. In 1872, advantage still lay with sail on long voyages, but over time, technical progress in steamships meant substantial savings in input requirements. Main technical advance in steam technology was reduction in coal use, important because steamships had to carry own coal, which reduced capacity for carrying freight. (Like Sandberg): even surprisingly late in the game there are advantages to having sailing ships as long voyagers. Steam ships req a lot of coal which takes a lot of tonnage, so less space.

(14) Harley (1971): By the early 1860s, steamships established on short British trade routes with Continental Europe & also beginning to appear on voyages up to 3,000 miles, especially in the Med where variable wind conditions made use of sailing ships less attractive.

Steamships established on 3,000 mile Atlantic voyages to northern USA by early 1870s and on 5,000 mile voyages to New Orleans for cotton by mid-1870s. On the longest routes to Australia and US west coast, sail remained dominant into C20. But again, this advantage to sailing ships fell over time. Med: short routes, high value, lots of coaling stations around- positive to steam ships in Europe (Hannah). So not Ent Fail: using old tech where most profitable and new tech where most profitable. Don't see steam ships on long routes - reason.

(15) Boyce (1995): Success of British shipping based on networks. Large scale shipping lines that emerged by early C20 retained some features of network form of organisation since information asymmetries and associated contractibility_ problems could not be eliminated completely. Requires flexibility: Brit has networks & therefore info. Nevertheless, large shipping lines better seen as a competing institutional form with more affinity to US hierarchical corporation than to entrepreneurial tramping network (I.e. high-volume, low-margin business). Pre-WW1 Brit was hub of connections and shipping needs these connections - not a product that can be produced as well without them. US superior in large scale, transatlantic shipping. *More a case of the changing environment becoming more orientated to play to US competitive advantages.

(16) Factors underlying emergence of large scale lines organised on hierarchical basis: As scale of demand increased, provision of regular service became more viable. / Regularity permitted establishment of permanent bureaucracy performing repeated tasks that could be routinely monitored. / Growing use of steam power made adherence to strict timetable increasingly viable. / Improvements in communications technology (telegraph, then telephone) made possible continuous links with overseas offices, reducing need for initiative on part of employees and allowing continual monitoring. Regularity = predictability. <u>Sailing everyday gives incentives for hierarchical management product structure.</u>

(17) **Boyce**: emergence of large scale enterprise in shipping required organisational flexibility and mobilisation of finance on new scale - a challenge to which GB shippers able to rise. Nevertheless, to extent that Britain's competitive advantage based on exploitation of system of entrepreneurial networks, emergence of large scale hierarchical form of organisation was an adverse development from Britain's perspective.

(18) Viewed in this light, the subsequent decline of British shipping more understandable and less of a mysterious missed opportunity than suggested by writers such as Sturmey. Greater development of large scale hierarchical form of organisation in liner sector than in tramping sector also consistent with more serious threat to Britain's position pre 1914. In tramping, Britain retained competitive advantage based on extensive system of networks.

(19)

Railroads

(20) Modern railway age, with iron rails and steam locomotives, began in Britain during 1820s. GB railway network relatively mature by 1870, with tight grid of branch lines built around earlier trunk routes, hence, GB rail network largely complete by 1870 & increasing by only 50% over next 40 years compared with increase of 189% in Germany and 374% in USA. In 1870s US rail network just getting started - GB meanwhile has built all important big railways domestically.

(21) Railway operating statistics can be used to obtain index of output - conventional to use ton-miles as measures of output in freight

& to use passenger miles as a measure of output in passenger sectors, then combine them together using passenger and freight revenues as weights. Two sides of rail industry = freight (handling coal + MGs + grain) + passengers. Different weightings change over time: in GB passenger weight increased whilst freight decreased - opposite in US.

(22) With output growing at 2.9 % per annum & labour growing at 3.4 % per annum, productivity actually declined over period 1871-1911.

Dismal productivity growth performance on railways and substantially slower than in economy as a whole. Rail sector fell bend in international and absolute terms. Questionable decision to build smaller railways that can only ale passengers and less freight.

(23) Sluggish productivity performance on Britain's railways contrasts with rapid productivity advance on US railroads. Fishlow's figures show productivity growth of 2% p.a. and by 1910 a substantial US productivity lead over Britain had emerged (mostly in freight).

(24) **Paish** (1902) attributed this poor GB performance Ent Fail, failing to notice ways of doing this better. Other potential explanations suggested in literature include:

-Nature of demand together with competitive and regulatory structure (*Broadberry-esque claim*) -Disadvantage of early start in Britain (cf. Kaldor) GB has first mover disadvantage in rail, it is overbuilt & others learns what happens.

(25) Veblen (1915) described the 'silly little bobtailed' wagons for moving coal on British railways. This example used by Frankel (1955) in his formalisation of the problem of technical interrelatedness and investment in a mature economy, showing you don't necessary want the best technology available to you.

van Vleck (1997) disputes this, arguing that wagons were small because this provided flexibility and substituted for more expensive means of delivering coal by road. Even if this point conceded, general argument remains valid for other types of rolling stock and locomotives. It's flexible and delivers coal. Productivity stats assume whole of sector is doing badly.

*Sandberg reading

(26) **Chandler** type effects:

-For Chandler, the pioneering of effective large scale managerial hierarchies on US railroads provided template and human capital for rise of US managerial capitalism.

-We could argue that one of most significant effects of fragmented structure of British railways was a lack of development of an effective managerial hierarchy - lack of hierarchical management and lack of vertically integrated firm.

(27) To what extent, then, were there potential gains from amalgamation on GB railways before 1914? Dodgson (1993) provides some evidence on this by estimating cost function from data on 60 railway companies for 1912...

Dodgson concludes there were no significant cost reduction benefits to be achieved by amalgamation per se vs Chandler: if put firms together than gains to be had? Firm size was not what lead to poor performance.

(28) Were railroads managed as well as possible, then? Crafts, Leunig and Mulatu argue not: Low TFP growth in the sector (UK 1.05%, US 2.1%, between 1890-1910) & there was highly variable performance across companies. **Dodgson** (2011) is even more pessimistic, showing UK growth is barely half the above estimate, using different weightings.

Everyone sees railroads as having under performed - lack of productivity indicative of lack of competition perhaps? Difficult to get competition in railroads: big EoS in rail and high sunk costs - natural monopoly.

(29) Crafts, Leunig and Mulatu suggest that the basic problem for railroads was a lack of competition: Large barriers to entry, no possibility of foreign competition, widespread collusion and mergers allowed poor management to persist & weak government regulation largely ineffective.

No "forced exit" for weak firms; "Entrepreneurial failure" is once again tied to non-competition (as in chemicals). If firms do badly then lose money slowly in a trickle, they die slowly and don't get competed out of the industry in a year - the cartel protects weak entrepreneurship.

(30)

Domestic Banking - commercial

(31) <u>Domestic Banking</u>. Key trend in domestic banking 1870-1914 = growth in scale of enterprise. In 1825 all commercial banks in England and Wales were private, by 1900 private banks outnumbered by joint stock banks. After mergers of 1917/18, domestic banking dominated by 'Big Five' London clearing banks: Barclays, Lloyds, National Provincial, Midland, and Westminster. Branch banking consisted of lots of retail banks within a structure. Pre-1900 = small, private, family owned. Post 1900 = joint stock banks: shareholders capital at risk. Post 1917: consolidation into 'Big 5'. Aggregation increased HH index.

(32) Factors underlying this growth of concentration include:

-Legal changes which permitted joint stock banking and limited liability: BoE held monopoly of joint stock banking in England and Wales until 1826. Previous paranoia from South Sea bubble.

-Economic and technological factors which encouraged amalgamations among banks: such as, greater access to capital that allowed joint stock banks to increase turnover and achieve economies of scale, particularly through development of branch banking. e.g. telegraphs, networks... improve, which are critical for banks as they settle accounts.

(33) Legal changes: Not until after company legislation of 1858 and 1862, which extended limited liability to banking, did joint stock banks clearly dominate banking in England and Wales. Shareholders whose banks are insolvent are only on the hook for what they've put in - bankruptcy not possible at shareholder level.

Economic and technological factors: Changes in communications technology also had important effects in banking **Nishimura** (1971) puts introduction of telegraph at centre of his study of changes in banking system in second half of C19 - telegraph accelerates pace of credit.

(34) Growth in scale of British banking system accompanied by an increase in stability. *Higher scale, higher stability.* To some extent, greater stability was a result of greater scale, since large banks had greater potential than small banks for pooling risks.

Small banks will go under because they can't draw resources from elsewhere: larger banks and insurance companies more stable as they are capital heavy & can pool resources externally.

Collins (1988) argues that growing professionalisation of banking also played a role: E.g. the establishment of professional bodies

(Institute of Bankers in Scotland (1875) & English Institute of Bankers (1879)). Banker's organisations are certified bodies which increase trust element (core of credit) through training and certification.

(35) Emergence of stable oligopoly of 'Big Five' in banking raised possibility of collusion and avoidance of interest rate competition.

Griffiths (1973) traces origin of restrictive practices in City back to growing co-operation among English banks from 1860s.

Griffiths suggests that Treasury and BoE acquiesced in these collusive agreements because they found it easier to implement interest rate policy when dealing with small number of cartelised banks. Moving into interwar period: possibility of collusion - cartel. Difficult to enforce regulation if there are few players. Treasury and BoE may have had other objectives: market transactions are much easier if you know key players - existence of collusion may be price to pay.

(36) Did banks fail British industry?

Contrast often drawn here with German system of universal banking, seen as highly supportive of German industry. When considering issue of bank finance for industry, important to maintain distinction between 2 issues: -Contrast between universal banking and specialised credit and investment banking

-Support given to industry by specialised investment banks and by universal banks

Germans have universal banks: 'Deutsche and Commerze' infamous for having tight ties with particular firms.

(37) Many writers have argued that universal banking system systematically more supportive of industry than specialised system, however, evidence in favour of this is weak: Often based on crude observation of faster industrial growth in Germany than in GB, for which there could be many explanations. On general issue of universal versus specialised banking we need to compare economies of scope from combining credit and investment banking in large German universal banks with economies of scale attained by large British credit banks: Commercial or clearing banks. Banking system often cited as a reason for Brit Failure, but Germans could be catching up for different reason: Gerschenkronian catch-up. EoScale v EoScope (offering many services to customers) - British firms (e.g, merchant banks) will be bigger than equivalent German one - UK capital market at centre of world, stock markets are much more developed. US didn't benefit from EoScale had limited banking options.

(38) As with other services, finance provided on much greater scale in Britain than in Germany pre 1914, permitting greater specialisation and sophistication. Therefore perverse to criticise English banks for failing to develop along German lines as if German system were final stage on development path (**Collins**, 1998). Once accepted that English commercial banks part of more specialised system, their behaviour more understandable (i.e. cannot criticise them for failing to make long term investments in British industry, since not their function). A lot of industrial firms issue stock rather than debt: function of London's credit system.

(39) But we can assess how supportive they were of industry by examining short term lending behaviour: Little evidence here to suggest English banks less supportive than continental counterparts. Capie and Collins (1996) examine sample of 3,466 industrial accounts from 268 branches of 20 banks 1866-1914 & find only 453 cases of banks refusing applications for loans, generally for good reasons. Were banks and industry very hostile? Not really - little evidence that British banks aren't doing their jobs: Brit banks are doing a perfectly good job of supporting industry.

(40) From the same sample, **Baker & Collins** (1999) find that of 319 cases of industrial firms in distress 1875-1914, banks generally supportive, continuing to lend and for longer periods than normal, without altering terms in their favour.

(41) Overseas investment preferences:

Often argued that British investment banks favoured overseas assets at expense of domestic industry: Evidence to support argument does not stand up to close scrutiny - any lack of external finance for industry can be attributed more plausibly to lack of demand than to lack of supply. **Watson** (1995): when firms actively sought external finance, as in brewing and iron and steel industries, they had little difficulty obtaining it. Doesn't seem to be a bias against British industry: no divergence in looking at rates of return. Banks simply found best return for given risk levels (Return at Risk)

(42) Implication: when investment banks made overseas issues, this was not the result of systematic bias against domestic industry. If such a market imperfection had existed, we would expect it to show up in rates of return, but **Edelstein** (1971) shows that no such bias existed. Rates of return on domestic and overseas assets of same risk (measured by variance of returns) not significantly different

(43) However, risk profile is important: Perceived versus actual: typical investment project was familiar / British investment appetite: familiar social overhead capital projects (E.g. railways in the USA). So, although actual risk of overseas investment higher, not necessarily perceived as such: Possible reason for preference for overseas investment.

(44)

International Banking

(45) Crucial aspect of British banking in decades pre 1914 was its international dimension: Britain was firmly at centre of world trade and payments. These were City of London's 'Golden Years' (Kynaston, 1995). Key institutions here were merchant banks, which specialised in accepting overseas bills of exchange and issuing foreign loans. Discount houses also heavily involved in this international business, as inland bill of exchange replaced largely by overseas bills: Another aspect of City's international dimension was overseas banks: headquartered in London but acted as clearing banks overseas, particularly in Empire. Britain centre of world's finance - commitment of sterling to gold peg was attractive. Became clearing house of the world: British banks centre of merchant bills/ commercial paper, which circulated with London at heart.

(46) Many of these institutions individually small, but together City of London benefited from Marshallian external

economies of scale as large volume of business allowed high degree of specialisation, allowing Britain to maintain dominant position in world finance.

Given information asymmetries, this was a business where information networks were particularly important: Chandlerian hierarchical management structures not appropriate for international finance pre 1914. Square Mile was an expertise hub that benefited from external EoS - London nexus of knowledge: information is aggregated in London. Not much advantage to having large Chandlerian factories/ firms - Brit comparative advantage suited to small, specialised firm.

(47) Jones (1993) emphasises advantages of network form of organisation for overseas banks & sees avoidance of large and complicated managerial hierarchies as an important factor in success of British overseas banks. British overseas banks able to build up strong network based system that capitalised on Britain's dominant role in world

trade. Brit Empire (navy, colony etc.) gave Brit info advantage globally.

Availability of City expertise in related areas (specialised knowledge), with well established domestic banking system, provided ideal source of management recruits. International banking is Britain's No. 1 Service.

(48) Strong and growing link with Empire, particularly White Dominions: Share of White Dominions rose from 57% in 1860 to 71% in 1913, while share of Continental Europe fell from 3% to 2%.

As well as acting as clearing banks overseas, British overseas banks often acted as government bankers and as currency agents, issuing paper currency. Also helped arrange loan issues for governments on London K market, although merchant banks played larger role in this business. Canada 70% as wealthy as US, Australia roughly equal to Brit. Trade intermediation such as currency conversions are done in Brit: other countries dependent on London for financing. Rothschild.

(49) City networks

Cassis (1994) collects information on bankers and bank directors from 10 private banks, 20 merchant banks, 7 discount houses, 13 joint stock banks, 14 overseas (colonial) banks and BoE. Find strong intergenerational family ties with 56% of sample being sons of bankers and further 17% sons of merchants, ship owners or company directors. Network is a social network in London as well as an international network. Parent's occupation determines your own: Family business and wealth - Rothschilds owned by Rothschilds (family firm running bricks of capital).

(50) Intergenerational family tie strongest among private bankers and merchant bankers with 87% of sample sons of bankers, effectively running family firm.

Relationship much weaker among joint stock banks, and weakest among colonial banks, which offer clearest example of networks extending beyond family: N.B. 14% of sample had fathers who were aristocrats or landowners \rightarrow high degree of integration between banking and aristocratic circles (Cain & Hopkins). Gentlemanly Capitalism: tight connection between landed gentry and private banks.

(51) Education

Dominance of public schools and Oxbridge in education of banking community, with strongest link again among private bankers & weakest link among directors of colonial banks.

(52) Directorships

Were banking elite able to dominate industry through network of interlocking directorships? More than half the sample had no more than 2 other directorships & only 5% sat on 8 or more boards (at any one time). Excluding managers, private bankers more likely than others to sit on no other boards. Private bankers no more likely than anyone else to sit on boards of directorships.

(53) Marriage

Back to issue of kinship ties via marriage: Not many bankers married daughters of bankers, despite large proportion being sons of bankers - Most popular choice of bride for a banker was daughter of an aristocrat. Confirms links between aristocratic and banking circles. Don't see marriage within banking system - links with aristocracy more of a priority: socially elite group.

(54) Networks

Picture that emerges is one which often appears in literature on entrepreneurial failure: Family firms / Public school and Oxbridge education / Marriage into aristocracy. Confirmation of accusation of entrepreneurial failure: however, no failure to explain.

But here, dealing with a thriving part of the economy... Conclusion: network form of organisation continued to be well suited to international finance in the pre 1914 period. Brit successful in Int. Banking, shipping, high spec. textile manufacturing: network advantage and Marshallian Eos present.

(55)

Conclusions

(56) Britain in overall productivity leadership position in late C19 not because of high productivity in industry but because of high productivity in services (and small agricultural sector). However, Britain losing productivity leadership in services as USA and Germany urbanised. Services productivity advantage is absolute but getting eroded. Some difficulty with industrialised services (mass-scale) but Brit excels in anything with specialised services.

(57) GB also facing problem of adjustment to 'industrialisation' of services. Growth of big business in US services: High volume, low margins, hierarchical management mirrored rise of mass production in US industry; but Britain continued to do well in services where network form of organisation remarked dominant. (58) Variety of experiences: -Railways: origin of big business in services. Binair Campered by early development and technological lock-in, leading to large US product of lead.

to large US producted lead

-Shipping: Britain still dominant in shipping pre 1914, especially on empire routes: Indication of potential future problems with the emergence of large scale lines organised on hierarchical basis. Continued British dominance in tramping sector on basis of networks.

Rational use of sail/steam (as depicted by **Harley**).

(59) Variety of experiences:

-Domestic banking: rise of joint stock banking, growing concentration, emergence of collusion- but banks did not fail British industry

-International banking: Britain still dominant with City of London-a Marshallian district, specialised system, strong networks, especially within Empire. Banks were specialised, diversified and did will in supporting Brit Industry.

(Intro of Topic 4) We finished with the pre-1914 world of favourable conditions for Britain:

-European peace

-Accessible markets -Stable exchange rates