CONFERENCE REPORTS

Report on the 1989 ESRC Quantitative Economic History Conference

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The 1989 ESRC Quantitative Economic Conference, held at the University of Hull, England on 15-16 September 1989, was not restricted to UK participants. The economic historians attending came from North America, France, Denmark and Eire as well as from the UK. The proceedings gave the lie to the recent THES article claiming that economic historians no longer concern themselves with big issues. Most of the nine papers that were discussed during rather more than 24 hours dealt with very big issues indeed.

The proceedings began with a provocative piece by Joel Mokyr (Northwestern), in which, following Alfred Marshall and others, he advocated the use of biological rather than physical analogies in economic discourse. In particular, he argued against a gradualist view of the process of invention and innovation, claiming that the record is more consistent with a punctuationist view in which there are occasional technological breakthroughs, not necessarily demand led. These he labelled 'macroinventions' to distinguish them from 'microinventions' which take the form of improvements of the original grand idea. In the discussione of Mokyr paper, Roderick Floud (City of London Polytechnic) pointed out that Mokyr's paper argued by analogy rather than by simile or metaphor. Analogy involves arguing from a parallel case and to be successful requires both a proof of the parallelism and a demonstration that the parallel is useful. Floud objected to Mokyr's attempted analogy on both counts. The evolution of life forms and the evolution of technology, he argued, took place on widely differing time spans, thus casting doubt on the parallel. More tellingly, he argued that the parallel was not useful because it was not clear what the dominant theory of evolutionary biology is. The schools of gradualism, saltationism and punctuationism currently coexist. He saw no good reason to reject the traditional view that the increase in the rate of technological change during the XVIIIth century was a response to demand shifts.

Tony Corley (Reading) and John Treble (Hull) supported Floud's view, pointing out that there seemed to be no clear analogue in the process of inven-

tion to the random mutations that are the prime mover in theories of evolutionary biology. When there was no demand for technological change, no technological change seems to take place (e.g. the flush toilet); when there is a demand such change can take place rapidly (e.g. the atom bomb). Katherine Watson (Oxford) added that it was not clear that it was possible to distinguish demand-led invention from supply-led invention.

David Richardson's (Hull) paper presented new evidence on the effects of the slave trade on demographic trends in Africa. His argument relied on a new price series for slaves computed from values of British goods that were traded for slaves and well accepted figures on the volume of the slave traffic. His new series shows the terms of trade declining, and he argued that one possible interpretation of this finding was that the procurement cost of slaves was rising as a consequence perhaps of migration within Africa, away from coastal areas, or of absolute population decline. An alternative explanation may be that the slave trade generated new technologies of resistance, in the form perhaps of tribute systems. His new price series was not therefore conclusive evidence in favour of any one of these hypotheses, but rather supported them as a group. Further evidence would be necessary before more precise distinctions could be made. He argued that a useful analogy in modelling the effects of the slave trade was with a fishery which had been overfished.

John Laham (Swansea) hailed the new price series as 'the biggest contribution to African economic history in the last 25 years', and proceeded to raise several objections to Richardson's interpretation of his new evidence. First he asked if it may not be possible to bolster our belief in the new series by a comparison with the pattern of prices of competing forms of labour in the Americas. He then argued that if an international price of labour was driving the system then the evidence was consistent with the existence of a backward bending supply curve of slaves generated by an internal African demand for African slaves. In support of this view he pointed out that many of the traded goods were capital goods indicating perhaps the need to make investments in order to equip a larger African slave labour force. Richardson responded with the observation that this model already featured a demand curve that shifted outwards over time, and that it was not clear that such a thing as a world price for slaves existed. For instance slave prices in French colonies were usually higher than in British colonies.

Bob Millward (Manchester) pointed out that an upward sloping supply curve does not necessarily arise from depopulation, an inelastic factor of production was sufficient to produce this effect. James Foreman-Peck (Hull) pointed out that while it may not be possible to identify absolute shifts in demand and supply, the evidence was consistent with demand effects being dominant. Joel Mokyr argued that the analogy used by Richardson with models of

fisheries was probably inappropriate since human populations would rapidly develop resistance technologies whereas fish could not. He pointed out that Richardson would have to defend his thesis against Miller's demonstration that birth and death rates could have been such as to sustain the slave trade without depopulation. Furthermore, per capita income need not have fallen with depopulation, firstly because there would have been more natural resources per capita, and secondly because of the existence of slave-owning Africans. Richardson expressed the view that the birth rates postulated by Miller were too high to be convincing. The chief target of traders were people of prime age who had the highest marginal products and also the highest fertility. The discussion closed with Tony Wrigley (Oxford) observing that the likely demographic effects of the slave trade were extremely complex. Since males were captured more frequently than females, the demographic impact may not be large in a society permitting polygamy. Slaving increased migration within Africa which would have contributed to the spread of disease. He added that even if one could demonstrate depopulation, this was not necessarily a consequence of slave trading.

Cormac O Grada's (University College, Dublin) paper was inspired, he claimed, by 'the most remaindered book in Britain': Frank Fetter's "The Irish Pound" which discusses among other things the 1804 House of Commons Report on the Irish Paper Pound. This was an investigation of the depreciation of the Irish pound relative to the British pound between 1797 and 1801, which argued that demand for money was stable in both countries, and that purchasing power parity held, thus the Bank of Ireland was held responsible for an over issue of notes during the period. O Grada's paper uses cointegration and VAR techniques to investigate these claims. His analysis does not support the House of Commons view. Although money supply series in both countries are integrated of order one, there is no evidence of cointegration and thus no support for the purchasing power parity assumption. The VAR analysis also rejected this assumption. O Grada went on the consider the arguments in the 1804 Report relating to the Balance of Trade, using data drawn from the work of Solar and Davis. These show that the balance was in deficit before the appreciation, casting doubt on the Report's view that the balance of payments deficit was responsible for the appreciation. The Report also laid the blame at the door of private banking concerns. O Grada, however, sees the behaviour of these banks as a symptom, rather than a cause. They could not have caused a sustained inflation because their issues were all backed by Bank of Ireland notes.

In the discussion of O Grada's paper, the main concerns expressed were to do with method. Alec Ford (Warwick) suggested that a more explicit economic analysis might be helpful and referred to his own work on the Argentine peso. A careful analysis of possible real shocks would probably be fruitful, since he

doubted if the asset approach to the balance of payments invoked by O Grada was applicable to the institutional framework of Ireland 200 years ago. He suggested the consideration and testing of two possible scenarios: one in which the Bank of Ireland initiated the overissue; the other in which it was the consequence of a real shock to the balance of payments being accommodated by the Bank. He acknowledged that this programme was lilely to encounter acute problems because of the lack of adequate statistical source material.

There followed a discussion of the statistical techniques used in which Nick Crafts (Warwick), James Foreman-Peck, Kent Matthews (Liverpool) and Joel Mokyr questioned the necessity for the heavyweight statistical techniques employed. It was felt that more attention should have been paid in the paper to the reasons for selecting these techniques and the interpretation of the results. O Grada responded with the defence that cointegration was now the standard technique for testing purchasing power parity and such a test was one of the main points of his paper. The discussion concluded with a brief exchange on the costs and benefits of this particular monetary episode.

The final paper on Friday afternoon was by Meghnad Desai (LSE). Due to a last minute hitch, Desai was unable to present his own paper. Bob Millward, who had prepared some careful discussant's notes therefore delivered both an exposition and a critique of Desai's work. The paper argues that the XIVth century English famine was not a simple Malthusian crisis, but was rather mediated by relative price effects in an economy with multiple sectors. Desai's paper is thus an application of Sen's theory of entitlements to medieval England, rather than to mid XXth century Bengal. His theory revolves around the thesis that the wool sector was monetarised, international and a large part of the English economy, accounting for perhaps as much as half of agricultural income. The famine, Desai argues, can be viewed as a consequence of epidemics of animal diseases especially sheep murrain, combined with a sequence of poor harvests. The murrain delivered a quantity shock in the wool sector, while the poor harvests in 1315-1317 delivered a relative price shock. The effects of the famine were therefore a consequence of high grain prices and low incomes in the wool sector. Millward accepted that Desai had successfully cast doubt on the Malthusian hypothesis, but found the exposition of Desai's multisectoral model rather short on detail.

Tony Wriglely observed that Desai's figures did not seem to add up convincingly. The acreage required to support the amount of wool, grain, oxen, horses and other crops was under current best estimates of yields in excess of the total land area of England and Wales. He thought that Desai's claims concerning the size of the wool sector were probably wrong. He also pointed out the need for more research on the period immediately after the Black Death, and in particular whether marriage patterns altered to generate a low pressure population bal-

ance. Joel Mokyr also criticised Desai's work on the grounds that it was attacking a caricature of the Malthusian view. The literature included Malthusian models in which animal and cereal sectors were symbiotic. Treating them as two independent sectors was probably not adequate.

Saturday morning's sessions began with two papers speculating on the usefulness of novel data sets to study regional variations in economic activity. The first of these, by Paul Johnson (LSE) referred to XIXth Century Britain. The data are drawn from Parliamentary Papers and refer to the system of small debt recovery through the County Courts that was initiated in 1847. His paper considered data up to the outbreak of war in 1914. A quarter of the cases were for debts of less than 10/- and three quarters for debts of more than 40/-, most debtors were adult male workers, most creditors small shopkeepers. The paper displayed the relationship between the time series of numbers of cases and the unemployment rate. The cyclical pattern in the two series was similar except during the 80's where the unemployment series is probably defective. Consequently, it seemed promising to pursue regional disaggregation. Comparison of data across regions ran into the problem of disaggregate data for population. Johnson had used extrapolations from 1901 census data, but in later work was intending to incorporate better data on County Court areas which were available for 1866 on.

David Greasley (Edinburgh) opened the discussion, welcomed the new data and pointed out the serious and well-known weaknesses in the unemployment series. He then pointed out that although the cyclical variation in the two series was similar, the trends looked rather different, with unemployment being roughly stationary and the County Courts plaints data appearing to have a deterministic trend. Johnson had detrended the series in order to make his comparison, but the use of a linear trend gave rather suspicious results, with the period to 1880 appearing to be one with plaints generally below trend, and the period after 1880 having plaints generally above trend. This suggested that the trend may be nonlinear reflecting a learning process as creditors learn about the availability and effectiveness of the new County Court system. The regional disaggregations showed similar detrending problems. Johnson replied that the linear trend reflected the assumption used in the extrapolation of the census data that population growth was the same on average as the growth rate of plaints. The problem would probably be ameliorated when the improved population data were introduced into the study.

Tony Corley wondered if there may not be a time lag in the court procedure that would cause problems in relating the plaints to their underlying economic causes, also there may be a long lag between debts being incurred and legal action being initiated by creditors. James Foreman-Peck wondered if the introduction of the Bankruptcy Act in 1883 caused a break in the plaints series in the

1880's. Johnson doubted this, arguing that bankruptcy dealt with larger sums of money and was itself an expensive procedure unlikely to be marshalled for recovery of debts as small as the ones he was considering. Joel Mokyr agreed that the arguments in favour of the data providing a good proxy for the cycle were good ones, but that the implementation of the research programme implied by the paper was likely to be difficult. He pointed out that data of this sort were potentially a better indicator of economic distress, because it is richer at the individual level than the binary unemployment variable. To pursue this line of research one needed at least a model of the dynamics of liquidity constraints and a consideration of alternative forms of credit. Pawnbrokers were one well-known source of credit. Were the debtors in this data 'desperadoes who had pawned everything'? Johnson responded by saying that few creditors took up the right to seize debtors' property, preferring imprisonment without recovery of the debt.

Tony Wrigley said that he found the per caput differences in number of plaints across areas unconvincingly large. There might be a problem with not accounting properly for regional differences in the occupational mix which could perhaps be solved by reference to the court reports.

Steve Broadberry (Warwick) asked if these individuals were mostly without assets and income, Johnson said that the number of people like this was small. Often the consequence of threatened court action was the accelerated mobilization of the debtor's resources. Finally, Alec Ford suggested that the detrending problem may arise from the occurrence of a long swing, and Solomos Solomon (Cambridge) wondered if there may not be some cyclicality in the behaviour of the courts themselves.

Jean-Claude Chevailler's (Universite de Franche-Comte, Besancon) paper concerned time series of creations and failures of companies in the regions of XIXth century France. He related these series to indices of investment and prices, finding a positive relationship between the rate of investment and both series. He also had problems with fitting trends and used high order polynomials in order to detrend his series. Price is positively correlated with creations and negatively with failures. His paper used an index of company demography based on the ratio between the number of creations and the number of failures. This ratio matches well the movement of Crouzet's index of industrial production for France, and can be computed for 21 regions, which cluster into four groups, displaying different behaviour over the period 1840-1910. The main claim was that the creation/failure ratio could be used as an indicator of regional economic development.

James Foreman-Peck led the discussion by pointing out that the behaviour of the series presented would undoubtedly depend on the changing legal environment over the period, but found the potential for comparison between British and French economic development interesting. Observing that there were

generally fewer British creations, he suggested this may be because of the wider variety of corporate forms available in France. He pointed out that one consequence of this was the readier availability of information in the French economy. He the turned to the question of why the failures series might be positively related to investment, suggesting that an increase in creations would increase the proportion of firms destined to be short-lived in the stock of firms. This would lead to a rise in failure rate. In order to investigate these possibilities further it would be necessary to have a theory of firm failure and creation. Foreman-Peck mentioned several, and also a moral hazard argument to the effect that firms already on the brink of failure were perhaps simply being registered in order to take advantage of the bankruptcy law.

Paul Johnson questioned the economic significance of some of the clusters generated in the cluster analysis. For instance Ile de France and Brittany were clearly very different local economies. Chevailler pointed out that this is probably a statistical quirk generated by the small number of data points in Brittany. Joel Mokyr suggested that improvements in the fitting of the trends could be achieved by the use of dummies for known disruptive events like the war of 1870-71. Such dummies would probably obviate the cumbersome polynomial forms used.

Douglas Irwin from the Federal Reserve in Washington next gave a paper on Britain's terms of trade during the XIXth century. He discussed three topics: (1) The possibility of immiserizing growth at the start of the century, which his evidence rejects. Here he provides new estimates of the price elasticities of British imports and exports and of the marginal propensity to import,thus filling a gap in the previous literature; (2) The use of indicators of economic growth as measures of economic welfare. Here Irwin argues that this is incorrect unless account is taken of changes in the terms of trade, and he presents appropriately corrected series; (3) He attempts to analyse terms of trade between 1880 and 1914, during which period there was a large increase in British investments abroad. Here he finds little evidence to support the view that this weakened the net barter terms of trade.

Commenting on Irwin's paper, Steve Broadberry stressed the importance of distinguishing clearly between short-run and long-run effects. The balance of trade identity does not hold in the short run, so that the econometric techniques employed need to be appropriate. For instance, cointegration techniques have been developed precisely to handle problems of this sort. Broadberry also questioned the periodization from peak to trough of cycles used by Irwin on similar grounds, that this suggested a short-term analysis, where a long-run periodisation taking in whole cycles may have been more appropriate. The regressions in Table 2, also reported estimates of a static relationship, but a dynamic model

would have better captured the phenomena being investigated. Causality tests of the VAR type may be more appropriate here.

Alec Ford then drew attention to his own work on the transfer problem in the 1958 Economic History Review and Joel Mokyr asked how the welfare corrections in the second part of the paper would be affected if further disaggregation to separate out a non-tradeable sector was used. Irwin replied that this would make no difference since the corrections applied only to the export and import terms of the account and not domestic consumption, investment or government spending. Larry Neal (Illinois) wondered if the use of freight rates for the export of steam coal was appropriate, since import freight rates were more appropriate. He referred to the work of Knick Harley on this topic. Nick Crafts (Warwick) congratulated Irwin on illuminating several issues in the literature. It was clear that Irwin was right about the immiseration issue. In his own work Crafts had not explicitly estimated the elasticities. It was also clear that Crafts' 1976 paper was wrong, and that Williamson's supposition that Britain could be treated as a small country is no longer tenable in the light of Irwin's estimates of the trade elasticities. Finally, Bill Kennedy (LSE) asked Irwin to consider the counterfactual case of lower foreign lening by Britain in the last part of his period. Irwin prudently countered with the observation that such calculations were difficult to perform partly because of the reduction in the volatility of terms of trade during the century as Britain's export portfolio became increasingly diversified.

The remainding two papers given at the conference also treated aspects of Britain's foreign trade. Michael Kitson and Solomos Solomou (Cambridge) dealing with the interwar period and Larry Neal with the Napoleonic War period. Kitson and Solomou's paper was an attempt to reassess the impact of the tariff on manufactures imposed durint 1931-32 on the rate of growth during the 1930's. The established view of the matter was that the tariff had a negative or negligible effect, their own view was that this conclusion had been based on an incomplete treatment of the evidence. In their paper they studied three aspects of the issue: changing competitiveness, trade flows and the geographical distribution of trade. Dealing with the first of these, they computed measures of import and export competitiveness that are consistent with the view that the tariff had a substantial effect on both aspects of competitiveness. Their trade flow equations show that imports were depressed by the tariff. The elasticity is of the order of -4. Thirdly they argue that the tariff would have affected different trading groups differently, and they divide Britain's trading partners into 5 groups: British countries, the Gold bloc, core competitors, non-British trade agreement countries and the rest of the world. The impact of the tariff was estimated separately for each group. Their conclusion is that manufactures were one of the major sources of the 1930's recovery, and that the growth in manufactures was

positively aided by the tariff. The tariff was not, however, the only cause, and their interpretation of the 1930's should not be interpreted as implying support for the efficacy of tariffs in general.

In his comments on the paper, Kent Matthews claimed that the main claim of the paper was that the demand curve for import slopes downward. This was not a proposition with which he found it difficult to agree, but there was a hidden agenda in that they went on to claim that the tariff had contributed positively to the 1930's recovery. He found the econometric approach interesting in that it showed a large effect of the tariff vis-à-vis that of competitiveness. The long-run patterns of both these variables was however similar (both looked like dummies changing value in 1931-32), and the (short-run) competitiveness effect could probably only be separated adequately from the (long run) tariff effect with a data set sufficiently large to enable permanent and transitory effects to be distinguished. He suggested that one tactic might be to extend the data series back into the 1920's. He was not convinced that the tariff had anything more than a temporary effect, because of the evidence of real wage rigidity in Britain at the time. Both Steve Broadberry and James Foreman-Peck pointed out that another way of squeezing some more degrees of freedom would be to disaggregate by industry. Broadberry stressed further that Kitson and Solomou's procedure assumed that pricing behaviour was similar for all industries, and this was not really very plausible. Douglas Irwin then asked if some of the price movements may not have been due to increasingly olygopolistic pricing rather than to pure inflation. Solomou thought this unlikely and Kitson pointed out that pricing behaviour differed widely across industries. Finally, Alec Ford asked if the disaggregation of the trading partners employed by Kitson and Solomou was entirely appropriate. One may also want to take account of the existence of the sterling bloc.

The final paper of the conference was the organisers' successful bid to minimise the end of conference attrition rate. Larry Neal gave a paper based on two chapters of his forthcoming book in which he examines capital flows during the Napoleonic Wars and their effect on British economic growth. Immediately prior to the war the decline of the franc led to speculation on the recovery of the franc and a capital outflow from Britain. When war was declared. Britain financed its army of continental mercenaries using Bills of Exchange. When the mercenaries failed to halt the advancing French, these bills had to be honoured by an outflow of specie. The invading French carried with them assignats, and hence German traders would have attempted to protect their assets by removing them elsewhere. The natural home for this flight of capital would be London. Neal argues that the 1797 suspension of the pound's convertibility was in anticipation of the cancellation of the assignats in France. The floating exchange rate then served to lock capital into London. After the war the flow of capital

was reversed. In the real sector of the economy, Neal considered the effectiveness of the continental blockade, which dried up the demand for bills of exchange on the continent. In addition, the crisis in the cotton industry in 1810 and the necessity of equipping the fleet and the Peninsular army led to a switch from cotton to the production of defence goods. Neal therefore argues that the structural transformation of the British economy during these years was due to a shift in demand and necessarily resulted in slow growth of the derived parts of the economy. Furthermore he refuted Williamson's crowding-out hypothesis arguing that the British capital market was never closed, in fact crowding-in was going on. In his response to the paper, Bill Kennedy placed the paper as part of a new fashion in studies of the Industrial revolution, where the question being asked is why did the Industrial revolution happen so slowly? Kennedy thought that this rather detracted from the important question of why it happened at all, nonetheless, in his opinion the work of Mokyr, Williamson, and Neal had correctly identified the Napoleonic Wars as a crucial influence on the course of the Industrial Revolution. Neal's paper was different from the work of Mokyr and Williamson in that it stressed the opportunities that the war gave to increase the pace of the revolution rather than treating it as a retarding influence. Neal identified two important factors: the benefit of the flight of capital to London during the early stages of the war and the enhanced ability of Britain to borrow from the continent. However, he maintained Neal had failed to quantify the extent of British borrowings, and went on to suggest that a study of exchange rate movements in 1811-15 would be crucial in determining these magnitudes. A problem with this would be the changes in expectations due to the changing fortunes of the war. Kennedy also wondered how Rhineland wealth holders were able to transfer real assets. Neal gave the apparently obvious answer that they shipped them and claimed that the record of shipping movements supported this. He also pointed out that the study of exchange rates suggested by Kennedy would be complicated by the existence of large bullion flows as well as the use of bills of exchange. Joel Mokyr pointed out that in a 1976 paper, he and Gene Savin had attempted to estimate the real cost of the war, not only in terms of output changes, but also in terms of the diversion of trade from Britain. The war had indeed slowed down the pace of development in Britain, but had slowed down the rest of Europe even more. James Foreman-Peck asked what the net foreign asset position was at the end of the Wars. Neal replied that in 1813 it was obviously negative, but what happened during the 100 days and afterwards was difficult to say. Neal closed the session and the conference by apologising for the absence of cointegration tests in his paper. The attrition at the end of Neal's session was one out of thirty. The organisers take this to be one hallmark of an enjoyable event. The 1990 conference will be held at Warwick, assuming that the ESRC is willing to finance it.