Aspects of Capital Formation: Some Insights From North Somerset, 1750–1830

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The object of this paper is to point out some of the shortcomings in recent studies of capital formation and to indicate from work in a particular region how these weaknesses may be overcome.[1] These aims are based on the premise that the study of capital formation has both a measurable aspect, concerning the increase of capital stock over time, and a narrative dimension, concerning the explanation of the process by which capital formation has taken place.[2] Most previous studies have concentrated on the first element to the neglect of the second, and this narrowing of the subject has resulted in a loss to our understanding in both respects – to the quantitative aspect because this would benefit from a greater infusion of empirical evidence than it has so far been given, and to the study of the process of capital formation because this has hitherto received little attention. This over-emphasis on measurement is particularly regrettable for the crucial years of the British industrial revolution, as the documentary evidence for this period is too insubstantial to bear interpretation by a quantitative approach alone. It has recently been observed that in going back beyond the mid-nineteenth century, data limitations weaken the value of quantitative national accounting approaches relative to other methods.[3]

The paper begins with a review of general issues in order to indicate the inadequacies of the conventional approach to this subject, and from a survey of north Somerset 1750 to 1830 an interpretation of the *process* of capital formation will then be suggested. The emphasis is on the general framework and hence there are no tables of figures.

I

The process of capital formation is of acknowledged significance, for as a recent analysis has pointed out, it is as important to ask how capital investment was motivated and financed as to know how much of the growth of output was attributable to such investment.[4] Yet there have been no comprehensive answers to the first question. Well-funded investigations of Merseyside, and of the national economy through a project based at the University of Sheffield, have both produced only preliminary results.[5] Smaller studies such as that by D.T. Jenkins on the West Riding, Ian Donnachie on Scottish brewing, and J.R. Ward on canal finance, have identified sources of capital but say little on the processes of its formation.[6] Business historians seem primarily concerned with profits rather than with the composition of total capital employed.[7] C.W. Chalklin and R.S. Neale have described the context of capital formation in building, but are limited to that industry and by their urban settings.[8] Other studies on a regional basis are similarly restrictive, especially in concentrating on a post-1830 or even later period, because of data limitations.[9] This suggests that although such deficiencies may be masked by statistical techniques, the availability of data determines the areas, periods, and sectors chosen in this field of research just as much as for the more traditional 'source-oriented' historians. A.G. Kenwood's study of north-eastern England exemplifies this point.[10] C.H. Feinstein, although outstanding in his contribution to national aggregative analyses of capital stock, nevertheless excludes the savings and finance aspects and thereby ignores the *processes* of capital formation.[11]

There is no lack of challenge in seeking to find out how capital was formed, and the matter is of importance to economic theory as well as to empirical economic history since it involves analyses of the flow of savings, the role of financial intermediaries, and the act of investment in the creation of capital assets. Conceptual problems arise less from the difficulty of importing ideas from the study of economics into the different discipline of history, than from the disparity between concept and evidence to be found in both fields. In economics this is indicated by the theoretical problems inherent in the measurement of capital, as well as in the more practical difficulties involved in the construction of estimates in developing countries. One eminent economist has remarked that 'it is of no use framing definitions more precise than the subject-matter to which they apply'[12] and a doyen in this field has stated that 'No *standard* definition of capital formation exists at pesent; and I doubt whether one is desirable now' for in the pursuit of 'different analytical purposes and problems' different definitions may be appropriate.[13] This flexibility of approach is desirable in the historical context too, if the possibilities of developing our knowledge of the processes of capital formation are not to be constrained.

A definition of capital formation as:

> Additions made during a particular period of time to the stock of goods which are for use in future production. These are both fixed assets, such as buildings, items of plant and so on, and work in progress, stocks of raw materials and finished goods.[14]

has been generally accepted by economic historians, rather than debated.[15] However, if 'additions' can be taken to cover both measurement of capital incrementation *and* the processes by which it was made, then it is perhaps a useful definition and preferable to one substituting a more ambiguous term such as 'investment'.[16]

The pre-occupation of some economic historians with the application of the economists' skills of measurement at the macro-economic level, devising approximations and aggregates to overcome deficiencies of data, may account for the neglect of the process of capital formation. Kuznets defends the concentration on the national economy on the grounds that the sovereign state formulates policies,[17] but historians are not for the most part concerned with producing analyses for policy making, and there are cases where the region is a much more appropriate and 'real' unit for the investigation of economic change. It may 'reveal critical relationships far more clearly than national studies'.[18]

The dangers of 'an excessively aggregative approach' have also been stressed, for:

> With structural, sectoral and regional change being so pronounced during the early stages of industrialization . . . national aggregates and averages can be more than usually misleading.[19]

Not only may the national aggregates be misleading, but to employ capital formation as simply an aggregative concept is unacceptable. Despite widespread practice, aggregation is no necessary part of any recognized definition of capital formation: rather it is a chosen method, which has led to the neglect of alternative approaches.

Research into the process of capital formation requires a continuity of evidence which is often lacking. Stanley Chapman's study of cotton spinning in the east Midlands found sufficient documentation for an analysis of the financial structure of one firm, and even then for only thirteen continuous years.[20] These difficulties are widely acknowledged,[21] and caution has been urged in the presentation of findings which are based to some degree on 'conjecture and speculation''.[22] Yet some historians have converted speculative conclusions into dogmatic assertions, as an example of which Feinstein has cited R.M. Hartwell's restatement of the findings of Deane and Cole on the movement of the investment ratio in the eighteenth century.[23] Even more serious is the insufficient distinction between historical and statistically derived 'facts' to be found for example in work on the ratio of investment to national income in the nineteenth century American economy. 'Dramatic increase' is claimed, but data pre-1840 is notoriously deficient on both increases in capital stock and the size of the national product.[24] Such studies demonstrate the need for more factual information, not only because the available data have been overstretched in the pursuit of national aggregates and the testing of hypotheses, but also to ensure that the concept of capital formation should not be confined within a narrow and restrictive interpretation which fails to take into account the historical dimensions of the subject.

II

The northern third of the old county of Somerset stretches from the southern edge of the Mendip hills northwards to the River Avon, and lies between the mouths of the Rivers Avon and Axe on the west coast and the towns of Bath and Frome on the east. Although the application of the term 'region' to this physical entity is fraught with difficulties it is not proposed to argue the case on this occasion, other than to say that the designation is not an arbitrary one for the area has both historic credibility and economic cohesion. It was defined by John Billingsley in the 1790s in his review of the county for the Board of Agriculture,[25] and although it had links with both the rest of Somerset and the port of Bristol (accorded county status in 1373), it remained separate from each.

Somerset had long been regarded by contemporaries as a rich and populous county.[26] Its wealth rested on agriculture and woollen textiles, to which must be added for the northern third, paper making, lead, calamine, stone and coal mining, and the flow of visitors to Bath. At the beginning of the eighteenth century it was one of only six English counties with an estimated population of more than 200,000. By 1831 this had risen to more than 400,000 and the county then ranked eighth.[27] More significant than these overall figures however was the density of population, and in this Somerset ranked second relative to other counties in 1700 and fourth in 1750, although by 1801 it was ninth.[28] This loss of rank accords with estimations of migration and natural increase, which show that despite Somerset's doubling of population during this period there was a continuing loss by migration, particularly during the three decades after 1751.[29] The Census returns by parish show that 45 per cent of the county's population lived in the northern third in 1801, and 47 per cent in 1831.[30]

Apart from the Mendips there was in the early eighteenth century a good scattering of villages in north Somerset, especially around Bath, described by Camden as 'a flourishing place, both for the woollen manufacture, and a great resort of strangers',[31] and south of Bristol where the settlement had begun to assume a suburban aspect. Shepton Mallet, Frome, and the ecclesiastical centre of Wells were already established woollen textile towns. The development of coal mining centres such as Radstock and Midsomer Norton and leisure resorts such as Weston-super-Mare and Clevedon lay in the future. The growth of the former came in the second half of the eighteenth century, and of the latter in the early decades of the nineteenth century.[32]

The stability of this long established settlement was unaffected for good or ill by the strong influence of any great noble families. Like the rest of the county the northern third was governed by a broadly based gentry whose manor houses were well distributed in the region, though not in the more inhospitable parts. Several of these families, like the Eltons of Clevedon Court, had their origins as Bristol merchants and maintained links with the city and its port. More rarely others, such as the Stracheys of Sutton Court, established a political and commercial base in London. Most of the gentry however, like the Moggs (later Rees Moggs) of Farrington Gurney, were content to function within the region, furthering both private and public interest through their activities as, for example, turnpike trustees, enclosure, and sewerage commissioners. The impact of the idea of progress and the spirit of improvement in such a society is difficult to determine, except in so far as such notions were institutionalized in bodies like the Bath and West Agricultural Society, founded in 1777 and widely supported as its membership lists and journals show.[33] The Society provided a forum for the gentry, clergy, and men of science and medicine, as well as activists such as John Billingsley who rose from humble dissenting origins to become a clothier, landowner, improving farmer, enclosure and sewerage commissioner, turnpike trustee, and canal and coal proprietor, as well as writing the report to the Board of Agriculture already mentioned.

Important though it was, this growth of amateur, gentlemanly concern would have been ineffective without a parallel development of professional expertise. Surveyors and engineers were of growing importance towards the end of the eighteenth century, but even more important and from an earlier date were the attorneys, for their role in the process of capital formation was crucial. Perhaps due largely to its earlier wealth, and to the tradition of settled, orderly development, there was in the county by the second half of the eighteenth century a body of lawyers sufficiently numerous to meet the increasing demand for their legal services, and with enough professional awareness to form two of the earliest provincial law societies.[34]

Any claims as to the appropriateness and value of an historical approach to the study of capital formation in a region such as this must now be tempered by an acknowledgement of the difficulties involved, and here three constraints must be mentioned. The first relates to timing, for it is only from the mid-eighteenth century that there begins that accumulation and continuity of primary evidence which has been judged essential for a sustained analysis of capital formation. But although the period of detailed research has been influenced by this practical requirement, the signs of an earlier economic activity may nevertheless be found amongst the later material. For example, although the annual balance sheets of the Woolley gunpowder mills are available for analysis only from the later 1740s, partnership agreements show that the works were founded in the 1720s.[35] Similar indications for other manufacturing and mining concerns suggest the importance of the 1720s and 1730s in this region, especially as these years saw also the founding of the Bristol Turnpike Trust (1727), and the construction of a tramway (1731) for the transport of Bath stone to the newly navigable River Avon (1727).[36] Indeed, although there is insufficient evidence to study these decades in detail, the founding of these ventures in a relatively stable society with a functioning legal system and security of property, and a considerable degree of craftsmanship and specialization, suggests that by the early decades of the eighteenth century this region had reached a stage of readiness for more rapid economic development. This responsive environment may then have encouraged further change by providing both an expectation of growth and a context within which it could take place, for there was in north Somerset none of that ample endowment with natural resources which stimulated the development of some other regions.

The second constraint relates to the range of evidence available, for this is inevitably limited by special circumstances. Thus primary sources may have survived because they were of an institutional nature (the papers of turnpike trusts, improvement commissioners), because they constituted a legal claim or title to land (enclosure awards), because they authorised the collection of a rate (drainage commissions), or because they had been filed with family or estate papers (mining and manufacturing concerns). Not only does this mean that the detailed and continuous evidence being sought has rarely survived for significant areas such as residential building, routine agricultural investment, and many manufacturing concerns, but also that even amongst the most fruitful sources such material is unlikely to be comprehensively available. For example, although the papers of the Bath Turnpike Trust have been well-preserved since the renewal Act of 1757, almost nothing survives for the neighbouring Bristol Trust before the official returns of the 1820s and 1830s. To some extent these difficulties can be eased by reference to secondary sources, but there remains a great problem of assimilation, of judging the weight of generalization which can be borne by the possibly untypical evidence. However these problems may be no greater than those of the aggregation of data on a statistical basis, and there are even certain advantages, for the precision of the particular is not lost within the aggregative whole, and the extent of the generalization is likely to remain clear.

Thirdly, much of the material which does survive is often not in a form capable of yielding easily the kind of information being sought. This problem may be illustrated by reference to the financing of enclosures, and of the turnpike trusts. Evidence on the former seemed to be entirely lacking for this region, for in only one case was an enclosure award accompanied by commissioners' accounts, and very little extra-award material survives. But a close study of the awards has shown that in almost all cases the enclosure was financed by the sale of land, the recorded details of which include the capital sum thus raised. It may seem a sleight of hand to transmute this land transaction into a capital investment, but when allowance has been made for administrative costs the expenditure of the sum remaining served to extend the capacity of the commons and waste lands in terms of space and time. In the one case for which a full and orthodox financial account is available, the capital sum raised by land sale tallies exactly with that spent on the enclosure.[37]

The documents put to fresh use for the turnpike roads are the mortgage deeds of the Bath Trust. These have survived because when paid up they were stored by the clerks to the Trust, in bundles according to their final ownership. These collections can be unravelled, for each individual deed carries details of the initial transaction on its face, with all subsequent changes of hand in what may be regarded as a secondary market, recorded as endorsements. Again there is the problem of administrative costs, as well as the matter of repairs as opposed to new works, but because the mortgage deeds show when capital sums were actually raised and not merely when they were authorised, this material provides evidence of investment in the roads which is more satisfactory than that derived from Acts of Parliament. The understanding of investment decisions is enhanced by evidence from the minute books.[38]

These examples have a two-fold interest, for not only do they show how unpromising material may yield significant information, they also suggest that regional evidence may open to question some accepted generalizations on a subject. Thus the evidence from north Somerset challenges the view of some modern agricultural historians that enclosures were rarely financed by land sale. It also raises the possibility that waste land enclosure costs were high because large capital sums could be raised more easily by land auction than by the imposition of a rate, and not simply because of topographical problems as is generally thought.[39]. In the case of the turnpike roads, the foundation of Feinstein's aggregates is acknowledged to be the work of J.E. Ginarlis, whose estimates are based on a backward extrapolation from the 1820s with guidance from a number of trusts for which details of expenditure are available. The crucial assumption behind this procedure is 'that trust mileages had remained constant over the period 1750–1822 and that expenditure patterns similar in the 1820s did not change from 1750'.[40] But this ignores the significance of the renewal Acts. The Wells Turnpike Trust is included in the sample through which Ginarlis justifies this assumption yet its mileage rose from 26.25 to 37.0 miles in those years. This was not unusual, for that of the Bath Trust more than doubled in the same period, from 20.15 to 48.47 miles.[41] The fact that no turnpike network in this region emerged fully-fledged in the year of its inception has important implications for the continuing construction of new and amended roads.

The value of this factual, historical evidence is more than that of a corrective to generalizations and aggregations at the national level however, for despite the constraints of the primary material there are several ways in which it can make a positive contribution to the understanding of the process of capital formation. First, the relationship between the sources of capital, the mechanisms by which funds were channelled into capital projects, and the particular form and structure of the assets thus created may be identified. Second, any archival material capable of providing a continuity of evidence on the financing of individual undertakings in the major sectors of the regional economy may be retrieved and reconstituted, and then analysed in order to measure such features as the increase in physical stock, the costs involved in the creation of fixed assets and their distribution, the relationship between fixed and circulating capital, and the returns to productive investment. Such an approach, it may be noted, overcomes the narrow concern of aggregative studies with fixed capital alone. Third, the relationship between capital investment and the overall pattern of economic change may be explored as a matter of importance for the region itself, and as a basis for comparative analysis, though this exercise is handicapped by the lack of similar studies for other regions in these years.

III

Several generalizations in support of these three contentions may be drawn from a study of this subject in north Somerset, though the detailed evidence on which they are based lies beyond the scope or intention of this article. On the first matter, although the 'plentifulness' of capital and the range of investment opportunities were both important, the existence of specific outlets for capital from particular sources was of greater practical significance. These linkages were largely shaped by the legal provisions authorizing different undertakings. Some were quite specific so that, as already noted, parliamentary enclosure was financed by the compulsory sale of land. Others allowed for the channelling of small savings into particular outlets, through for example the risk-free and marketable institutional mortgages offered by the turnpike trustees and improvement commissioners. The importance of this linkage may be seen from the fact that although those who managed these public bodies (eg the gentry, coalmasters) gave readily of their time they rarely made a financial investment, perhaps because unlike the small urban savers (eg upholsterers, lodging house keepers) they had better alternative uses for their funds.[42] The linkages offered by the agreements under which mining and manufacturing partnerships operated were flexible, but no less important. The interlocking partnerships of the coal proprietors for example allowed the costs of new ventures to be offset by the profits of established pits, and it may have been the failure of the free lead and calamine miners to develop such supportive networks which left them unable to come to terms with their capital requirements, especially in the matter of drainage.[43] The woollen industry in contrast was dominated by independent, often large-scale clothiers, able to meet their capital needs from within the industry chiefly because of its long-standing importance in the countryside, especially in the eastern part of the region where it flourished as part of the larger West of England cloth industry, and its well-established trading patterns.[44]

The importance of creating appropriate legal entities for the handling of funds and the formation of assets must also be noted. The sewerage commissioners for example were repeatedly reassured by counsel that their powers extended to the undertaking of comprehensive new drainage schemes, but they declined to put this opinion to the test because they feared that the creation of new works towards which proprietors had no traditional obligations might jeopardise their personal finances. An Act of Parliament authorising a separate body of commissioners to finance and execute the new work had therefore to be obtained in each case.[45] The commissioners of sewers evidently felt themselves less well-protected than others such as turnpike trustees and enclosure commissoners, who were similarly involved in public capital investment but without the fear of private assets being placed at risk. Of course the view as to what constituted an appropriate legal entity might change over time. Thus the pre-Bubble Act unincorporated joint stock Bristol Brass Company with its several branches in north Somerset was thought to have become so unwieldy by the 1780s that it was re-formed as a partnership. This move was made possible by the fact that the funds previously recruited from a large body of shareholders had become available from other sources, namely the Harford merchant family of Bristol, and the Bristol Fire Office.[46]

Further, because the pattern of linkages here described constituted an imperfect capital market, this would seem to be unfruitful ground in which to look for movements between for example agricultural profits and transport investment. It can be shown that individuals took advantage of opportunities which would bring them practical benefits as well as financial returns, as when some coal masters invested in the coal canal.[47] But although evidence is limited it appears that changes in financial returns alone were not always enough to attract funds from other uses. Thus, although the continuing investment in coal mining, canals, and enclosures in the 1790s suggests there was then no overall shortage of capital, yet savings were not forthcoming for the Bath Turnpike Trust in the years after 1793 until 1801, despite the raising of the rate offered from 4.0 per cent to 4.5 per cent in 1793 and to 5.0 per cent in 1797.[48] The situation with regard to several manufacturing concerns in the region was more open, chiefly because of the interest of the Bristol merchant community in this outlet for surplus funds, and the network of personal and institutional contacts through which long-term capital investments could be made. Short-term finance was also important as it allowed for considerable mobility of funds. Of the sum of nearly £80,000 borrowed in the course of the 1760s by a copper company working on five sites in north Somerset for example, one-third of the loans came from banks and were held for an average of 4½ months, and two-thirds came from other Bristol sources (mainly merchants, tradesmen, and women) and were held for an average of 4 years.[49]

Reference must also be made to the activities of attorneys in the process of capital formation. Their importance rested in general upon the devising of an appropriate legal framework within which bodies could operate, and in particular upon the development of financial instruments through which savings could be channelled. The raising of funds on the security of land was a long-established method of easing financial constraints, but even when this was extended to land containing paper mills or coal mines, it is likely that these transactions continued to take place within a personal market in which attorneys matched the needs of their different clients.[50] But from at least the mid-eighteenth century the importance of attorneys in north Somerset extended beyond this role, for they actively promoted the growth of an impersonal capital market. This was achieved through what will here be described as the institutional mortgage, by which as a result of advertisements on turnpike gates and later in newspapers, funds were recruited from unknown clients for investment in public utilities. There were two important consequences of this development : it facilitated the building up of the infrastructure of the region, most notably the road system, and it promoted the growth of a local securities market for these financial instruments were in small easily sold units. The volume of such transactions (in 1764 mortgage deeds of the Bath Trust to the value of £5,850 were re-sold, representing nearly 50 per cent of the total mortgage debt of £12,000), and the number of deeds held for only short periods, suggest that this financial market may have performed a quasi-banking function.[51]

On the second question, some tentative generalizations may be made despite the difficulty of achieving a breadth and continuity of evidence on the increase of capital stock in the region. For example, investment in the turnpike roads was most active in the three decades after 1750 and again in the 1820s and 1830s. With some exceptions due to the circumstances of individual trusts it remained low in the intervening years, although from the 1790s the rate of investment in agriculture (through enclosures, drainage, and farm making) and in canals was increasing. A continuing low rate of increase of capital stock in mining and manufacture indicates the small annual increments through which such activity could be maintained. The relationship between fixed and circulating capital can be satisfactorily studied for the manufacturing concerns only, but here some interesting evidence emerges. The organization of the woollen cloth industry on a putting-out basis, especially before the introduction of spinning mills from the 1790s, suggests that circulating capital was likely to have an importance relative to fixed capital which would distinguish this form of manufacture from others in the region. But such a generalization is difficult to sustain because these proportions varied so greatly in the more integrated undertakings. Thus at the brass and copper works raw material stocks were generally high, so that at the former in the years 1779–84, fixed capital represented only 12 per cent of the combined assets. Yet at the gunpowder works, which had to carry large stocks because of the importance of its foreign suppliers and customers, this proportion was more nearly 40 per cent. Perhaps the fixed capital embodied in water-powered mills was of greater significance relative to circulating capital than has generally been thought, and if this was the case for the powder mills it was probably even more true for the grain and paper mills of the region with their more local trading networks.

An investigation of the profitability of the capital employed prompts the question of whether there was some optimal point in the relationship between fixed capital and stocks which was most likely to promote an efficient use of the physical assets. Evidence is limited, and enterprises are in any case likely to have had different 'ideal' positions because of variations in the cost and supply of raw materials and in conditions of sale. Nevertheless it is possible to suggest tentatively that when fixed capital was 20 per cent to 25 per cent of the total inventory assets (as at the re-formed Bristol Brass Company, after the new partners had taken immediate steps to slim down stocks in the late 1780s), then this was a proportion likely to promote efficiency as judged by the profitability of the capital employed.

Third, there is the matter of the relationship between capital formation and economic change. The pattern which emerges from the evidence on north Somerset is that of two levels of economic activity in these years : first, the general internal developments which may be termed land- or resource-based, and second, the externally financed manufacturing enclaves which may be termed capital- or trade-based. The former include the enclosure, drainage, coal mining, river, canal, and road transport undertakings, all related to local needs and mostly financed from within the region. On the whole these were large in structure, but the capital input was either built up slowly (mining and farm making), compiled from small separate contributions (turnpike mortgages, canal shares, drainage rates), or even realised by the sale of assets (enclosures). Although one of these spheres of investment (agriculture) was perhaps as profitable as those at the second level, and another (the coal canal) was certainly so, returns were generally lower because of the need to offset gains by losses (mining), and through the limits on the institutional rate (turnpike trusts and improvement commission). There is no evidence that banks played a role of any importance in these undertakings until the early decades of the nineteenth century. Loans enabling enclosure schemes to get underway came from local gentry, and turnpike finances were handled by trustees (eg a wine merchant). There was a network of local suppliers (eg of candles and gunpowder for the coalmines), but there is no evidence that credit was an important factor in their operation, and indeed surviving accounts show the regular settlements of debts. This may have been because the undertakings in this first group were labour rather than capital intensive, and although the end product was a significant item of fixed capital (a mine or a new road) there was a long period of construction during which wages and other small payments had to be made.

The manufacturing ventures at the second level of economic activity (gunpowder, copper, brass, and glass making) were not themselves necessarily large in scale, but they were part of an extensive network of foreign and coast-wise trade, credit facilities, merchant capital and banking support, centring on the port of Bristol. To the merchants of that city, north Somerset offered scope for investment and expansion on accessible, water-powered rural sites. There were of course other, longer-established manufacturing concerns in the region (woollen textiles, paper making, brewing, distilling, and iron founding), but apart from the first these are to be classified with resource-based developments, using local capital and supplying largely local customers, rather than as part of Bristol's shipping and credit network. It is unfortunate that there is little surviving evidence about them to suggest exceptions to this generalization, but perhaps the very fact that the records of local paper makers or iron masters were less likely to survive than those kept 'ship-shape and Bristol fashion' by entrepreneurs engaged in a wide range of ventures, may serve as a further indication of the distinction here being drawn. In the case of the woollen industry classification is more difficult, but to regard it as capital- or trade- rather than resource-based would seem appropriate. This is because although in the period under consideration English wool was still widely used, and the home market was gaining an increasing precedence, yet foreign (chiefly Spanish) wool continued to be of great importance in a system of manufacture which was enmeshed within a network of international trade, and which was controlled by capitalist clothiers through their financing of both the domestic and factory stages of production. Indeed the fact that in the mid-fourteenth century this industry began to move from its manufacturing and trading base in the port of Bristol, into the countryside in search of water power and a freedom from restrictions, makes it a forerunner of the pattern here being described for later years.

Two areas have received less attention than they deserve in this analysis : general investment in agriculture, and residential building. In both cases primary evidence is hard to come by. However, nothing in the secondary literature on farming conflicts with the observations already made about the financing of land-based developments from within the region, whilst Somerset's earlier high ranking in terms of population numbers and density, and the later absence of great industrial concentrations, combine to suggest that the growing population may have been housed within the existing stock or in small locally financed housing developments (eg housing for miners). Because larger-scale projects were also developed on local initiative (eg at Weston-super-Mare by the Smyth-Piggots and Clevedon by the Eltons), then residential building may in general be accommodated within the proposed analysis. There remains the problem of Bath, where the importance of aristocratic entrepreneurs like the Duke of Chandos and the Earl of Bath, and of the great web of credit involving builders, attorneys, and bankers, has now been revealed by Chalklin and Neale. The wealth of detail in the latter's recent book makes it difficult to retain a sense of perspective about the city, but it is necessary to do so because when viewed in its regional setting Georgian Bath seems to have been as detached from the life of north Somerset in the eighteenth century as is the esoteric Bath Festival from the generality of local life to-day. It provided a market for local produce (food, coal, stone) but undertook little reciprocal investment in the region. Yet despite this detachment, from the point of view of this investigation its buildings may be seen as land-based, but financed from the metropolis as well as from within the city itself.

In seeking reasons for the presence of trade-based manufacturing enclaves in north Somerset it may not be necessary to look beyond the difficulties of industrial expansion in Bristol and the opportunities provided by rural locations and a growing population. But it is of interest to consider other factors which may have influenced both the nature of this investment and its timing. The lack of interest by clothiers in ventures distinct from the textile trade[52] may be explained by the long stagnation of the woollen industry from the 1720s to the 1760s,[53] but the development of the Bristol interest in these years is less easily accounted for unless an explanation is sought in peculiar factors outside the traditional pattern of commerce. Perhaps the most important of these was Bristol's involvement in the slave trade, in which it was the leading English port from the 1720s to the early 1740s. It is not intended to embark upon the vexed question of slave trade profits, other than to note that their scaling down by Roger Anstey was based on evidence from the second part of the eighteenth century and not from the period of Bristol's dominance.[54] To concentrate on these profits alone would be in any case to proceed on too narrow a front, for as well as providing Bristol merchants with surplus funds, the Africa trade also stimulated economic development by the market it offered for manufactured goods. Accounts, inventories, and correspondence all provide evidence of production for this special market, for example in the distinction made between Guinea powder for the Africa trade and Merchant powder for other customers, as well as in the manufacture of such barter goods as 'monelas' of copper and 'Guinea rods' of brass.[55] It may be argued that under this stimulus there developed an interlocking network of interests involving the port of Bristol, the Africa trade, the trans-Atlantic plantations, and the manufacturing ventures of the region, in a relationship which was largely dependent upon that city for the provision of capital and credit, transport, raw materials and markets.[56]

IV

In conclusion, what was the influence of the two levels of capital formation on the course of economic change in the region? It is only possible to suggest an explanation, but it may be that the effect of the trade-based undertakings was first to help stimulate but then to retard the course of development. As has been noted, many of the essential pre-conditions for growth were present in north Somerset in the first half of the eighteenth century – a settled social and economic framework in a traditionally wealthy and populous county, a growing domestic market, access to a major port offering trading and credit facilities, an active body of lawyers, and a large number of gentlemen willing to combine public duty with private interest. In this situation the enterprises financed by merchant capital are likely to have been for much of the eighteenth century an additional factor for change, perhaps stimulating the development of an infrastructure, especially a road network, greater than was otherwise warranted. The quickening of economic activity was however chiefly in traditional areas such as agriculture, mining and transport, and with the failure of the trade-based industries to develop backward and forward linkages, the decline of the land-based industries such as paper making, and the lack of great natural resources, north Somerset never achieved the self-sustaining growth of another region of Bristol activity, south Wales. This last reference suggests that it was not the Bristol link as such which came to inhibit development but rather the fact that the manufacturing ventures remained a part of the merchanting network instead of becoming agents of industrialization.

The contribution of the woollen industry is here of particular interest, since in the terms of the current debate on proto-industrialization, the taking up of slack rural labour by putting-out clothiers producing for external markets in a region of increasingly commercialized agriculture, could have helped foster the transition from a traditional rural culture to a factory-based industrial society.[57] Indeed, this change came close to realization, for despite the often violently expressed opposition of workers to the introduction of machinery from the 1770s on, there was a growing concentration of production in water- and later steam-powered factories on the eastern edge of the region, especially from the 1790s in Frome, Shepton Mallet, and Twerton now a suburb of Bath. But although some individual concerns continued to flourish, the industry in general declined in the nineteenth century in the face of foreign and regional competition. The reasons for this are difficult to determine but they may be summarised as a deficiency of entrepeneurship, whether this was manifested as a failure to persist with the introduction of machinery before the 1790s, as an inability to secure the improved forms of transport which could have brought coal from the nearby coalfield, or through inadequate marketing in the face of determined salesmanship by the men of the West Riding of Yorkshire.[58] However this decline should be seen not only in contrast to the success of outside competitors, but also in relation to the general fortunes of the region. In that context the woollen industry may be seen as part of the pattern whereby the manufacturing enclaves re-inforced rather than challenged the traditional society which therefore failed to undergo the structural changes necessary for sustained economic growth. The result was that most of the manufacturing undertakings petered out in the course of the nineteenth century and the region reverted to its land- or resource-based economy, largely agriculture, coal mining, and quarrying.

As an example of capital formation in a regional economy therefore, north Somerset cannot be counted a success story. Nevertheless a study of the growth experience of the region is important, because it is part of the kaleidoscope of change making up the shifting pattern of the national economy, and because it touches upon several themes of current interest in economic history. These include proto-industrialization and economic retardation, both of which are illuminated by the experience of north Somerset. Even more important than these justifications however, it is the thesis of this article that the subject of capital formation can only be fully understood within the context of the historical dimension as revealed by empirical studies. The significance of this method goes deeper than the provision of illustrative details, for through the exercise of an historical approach (in particular, the reconstitution of data on investment in capital stock, and the identification of the procedures by which this took place), the basis of some of the accepted generalizations on capital formation may be questioned, and the process itself may be analysed and explained. Moreover, as the statistical evidence for the British industrial revolution is too insubstantial to be interpreted by the quantitative method alone, it is impossible to explore the subject of capital formation in this period in a meaningful manner except by a greater reliance on detailed historical research of the sort described in this paper. It is accepted that there are disadvantages to this method, such as the difficulty of investigating the investment ratio on a regional basis, but against this must be set the many advantages stemming from a broad concern with the whole matrix of capital formation rather than with a restrictive concentration on the measurement of its sometimes conjectural parts.[59] Not least, this integrated approach to the subject should lead to an improvement in the conceptual understanding of and the theoretical approach to the whole matter of capital formation.

Notes

[1] Versions of this paper were presented to seminars at the Institute of Historical Research in the University of London and the Institute of Economic History in the University of Gothenberg, and I should like to thank members for their comments. I am grateful for the help received from Mr D.M.M. Shorrocks of the Somerset Record Office (S.R.O.), Miss M.E. Williams of the Bristol Archive Office (B.A.O.), Mr R. Bryant formerly of the Bath Guildhall Archives (B.G.A.), Mr J.H. Lamble of the Bath University Library, and Mrs M. Joyce of the Bath Reference Library, and their colleagues. I wish also to acknowledge the helpful guidance of the Editor.

[2] The case for narrative history has been forcibly re-stated by B.E. Supple, 'Economic History in the 1980s: Old Problems and New Directions', *Journal of Inter-disciplinary History*, XII (1981), pp. 204–5.

[3] R.C.O. Matthews, C.H. Feinstein & J.C. Odling-Smee, *British Economic Growth 1856–1973* (Oxford, 1982), p. 5.

[4] Robert M. Solow & Peter Temin, 'Introduction: The Inputs for Growth', in Peter Mathias & M.M. Postan, eds. *Cambridge Economic History of Europe*, VII, pt.1 (Cambridge, 1978), p. 27 (hereafter C.E.H.E.).

[5] J.R. Harris, P.L. Cottrell & B.L. Anderson, *The Supply of Capital and the Economic Development of Merseyside 1690–1880* (HR 754), Social Science Research Council (hereafter S.S.R.C.), *Newsletter*, 33 (1977); J.P.P. Higgins & Sidney Pollard, eds. *Aspects of Capital Investment in Great Britain 1750–1850: A Preliminary Survey* (1971).

[6] D.T. Jenkins, *The West Riding Wool Textile Industry, 1770–1835: A Study of Fixed Capital Formation* (Edington, 1975); Ian Donnachie, 'Sources of Capital and Capitalization in the Scottish Brewing Industry, c. 1750–1830', *Economic History Review*, 2nd ser. XXX (1977), pp. 269–83; J.R. Ward, *The Finance of Canal Building in Eighteenth-Century England* (Oxford, 1974); see also Lorna Weatherill, 'Capital and Credit in the Pottery Industry Before 1770', *Business History*, XXIV (1982), pp. 243–58.

[7] See for example the statistical appendix in B.W.E. Alford, *W.D. & H.O. Wills & the Development of the U.K. Tobacco Industry 1786–1965* (1973), pp. 464–71.

[8] C.W. Chalklin, *The Provincial Towns of Georgian England: A Study of the Building Process 1740–1820* (1974); R.S. Neale, *Bath 1680–1850, A Social History: Or a Valley of Pleasure yet a Sink of Iniquity* (1981).

[9] For example, A.G. Kenwood, 'Fixed Capital Formation on Merseyside, 1800–1913', *Econ. Hist. Rev.*, 2nd ser. XXXI (1978), pp. 214–37, which is misleadingly entitled for this study is limited largely to construction activity in the years from 1838, and contains little reference to the sources of capital or the mode of its employment.

[10] A.G. Kenwood, 'Capital Investment in North Eastern England, 1800–1913' (unpublished Ph.D. thesis, University of London, 1962), in which the choice of region was influenced by the availability of quantitative material for particular economic sectors, p. 20.

[11] C.H. Feinstein, 'Capital Formation in Great Britain' in *C.E.H.E.* pt. 1, p. 29 & n.3, where the reader is referred to Francois Crouzet's discussion of the supply of capital in his editorial introduction to *Capital Formation in the Industrial Revolution* (1972), pp. 39–64. But although a useful guide to earlier research this essay cannot be regarded as providing a full consideration of the matter.

[12] Joan Robinson, *The Accumulation of Capital* (1956), p. viii.

[13] Simon Kuznets, 'International Differences in Capital Formation and Financing', in National Bureau of Economic Research, *Capital Formation and Economic Growth*, vol. 19 (Princeton, 1955), pp. 19–25.

[14] J. Hibbert, 'Modern Practices and Conventions in Measuring Capital Formation in the National Accounts', in Higgins & Pollard, eds. *Aspects of Capital Investment*, p. 11.

[15] Crouzet, *Capital Formation*, p.1 n.1. This definition is here relegated to a footnote, and there is a lack of discussion of conceptual problems in the volume as a whole.

[16] The hazards of terminology have been set out in official publications of the United Nations, *Concepts and Definitions of Capital Formation* (New York, 1953), p. 7 and the Central Statistical Office, R. Maurice, ed. *National Accounts Statistics: Sources and Methods* (1968), p. 360.

[17] Simon Kuznets, *Quantitative Economic Research: Trends and Problems* (New York, 1972), pp. 1–7.

[18] S.S.R.C., *Research in Economic and Social History* (1971), p. 11.
[19] Ibid. pp. 10–11.
[20] Stanley D. Chapman, *The Early Factory Masters* (Newton Abbot, 1967), p. 125.
[21] Phyllis Deane, 'Capital Formation in Britain before the Railway Age', in Crouzet, ed. *Capital Formation*, p. 95; Sidney Pollard, 'The Growth and Distribution of Capital in Great Britain, c. 1770–1870', *Third International Conference of Economic History*, I (1965), p. 362. See also Crouzet, ed. *Capital Formation*, p. 64.
[22] Feinstein, in *C.E.H.E.* pt. 1, p. 28; Feinstein, in Roderick Floud & Donald McCloskey, eds. *The Economic History of Britain since 1700* (Cambridge, 1981), I, p. 129.
[23] Feinstein, in *C.E.H.E.* pt. 1, p. 90 & n. 225.
[24] Lance E. Davis & Robert E. Gallman, 'Capital Formation in the United States during the Nineteenth Century', in *C.E.H.E.* pt. 2, pp. 1–69.
[25] John Billingsley, *General View of the Agriculture of the County of Somerset, Drawn up in the Year 1795* (Bath, 1797), p. 16.
[26] Thomas Garden Barnes, *Somerset 1625–1640: A County's Government During the 'Personal Rule'* (Oxford, 1961), pp. 1–17. For general background see R.W. Dunning, *A History of Somerset* (Bridgwater, 1978) and *Somerset and Avon* (Edinburgh, 1980); for an examination of the characteristics which encouraged and maintained a high degree of social cohesion and order in the county see S.C. Pole, 'Crime, Society and Law Enforcement in Hanoverian Somerset' (unpublished Ph.D. thesis, University of Cambridge, 1983).
[27] Phyllis Deane & W.A. Cole, *British Economic Growth 1688–1959: Trends and Structure* (Cambridge, 2nd edn. 1967), p. 103, Tab. 24.
[28] E.K.C. Gonner, 'The Population of England in the Eighteenth Century', *Jnl. Roy. Stat. Soc.*, LXXVI (1913), pp. 261–96.
[29] Deane & Cole, *British Economic Growth*, pp. 108–09, Tab. 25.
[30] *Victoria History of the County of Somerset*, II (1911), pp. 338–52.
[31] William Camden, *Britannia*, I (3rd edn. 1753), p. 90.
[32] J.F. Davis, 'The Forest of Dean and Bristol and Somerset Coalfields' (unpublished Ph.D. thesis, University of London, 1959); Bryan Brown, 'A Survey of the Development of the Leisure Industries of the Bristol Region' (unpublished Ph.D. thesis, University of Bath, 1971). Also, Stephen Jackson, 'Population and Change: A Study of the Spatial Variations in Population Growth in North East Somerset and West Wiltshire 1701–1800' (unpublished Ph.D. thesis, University of Liverpool, 1979).
[33] Kenneth Hudson, 'The Membership of the Bath & West Society During its First 200 Years', *Acta Musaeorum Agriculturae*, XII (1978) pp. 50–6.
[34] Bristol Law Society, *The First Two Hundred Years* (Bristol, 1970); Robert Robson, *The Attorney in Eighteenth Century England* (Cambridge, 1959), pp. 36–8, 166–7, Appendix IV.
[35] B.J. Buchanan, 'A Comment on the Manufacture of Black Powder', *Journal of the Society for Industrial Archaeology*, 2 (University of West Virginia, 1976), pp. 75–80; B.J. Buchanan & M.T. Tucker, 'The Manufacture of Gunpowder: A Study of the Documentary and Physical Evidence Relating to the Woolley Powder Works near Bath', *Industrial Archaeology Review*, 5 (1981), pp. 185–202.
[36] Arthur Elton, 'The Pre-history of Railways, with Special Reference to the Early Quarry Railways of North Somerset', *Proceedings of the Somersetshire Archaeological & Natural History Society*, 107 (1963), pp. 31–59; Kenneth R. Clew, 'The Avon Navigation 1712–96' in *The Kennet & Avon Canal* (Newton Abbot, 1968), pp. 15–23.
[37] B.J. Buchanan, 'The Financing of Parliamentary Waste Land Enclosure: Some

Evidence from North Somerset, 1770–1830', *Agricultural History Review*, 30 (1982), pp. 112–26.

[38] B.J. Buchanan, 'The Evolution of the English Turnpike Trusts: Lessons from a Case Study', *Econ. Hist. Rev.*, 2nd ser. xxxix (1986), pp. 223–43.

[39] Buchanan, 'Financing Parliamentary Waste Land Enclosure', pp. 112–7.

[40] Feinstein, *C.E.H.E.* pt. 1, pp. 59–60; J.E. Ginarlis, 'Road and Waterway Investment in Britain, 1750–1850' (unpublished Ph.D. thesis, University of Sheffield, 1970), p. 103.

[41] S.R.O. D/T/wel, Wells Turnpike Trust; D/T/ba, Bath Turnpike Trust. Parliamentary Papers containing details of turnpike trust mileages are cited misleadingly by Ginarlis as P.P. 1820, IV and P.P. 1833, H.o.L. Vol. X, B.M. (Ginarlis, thesis, p. 102 n.2). I should like to thank Mr D.J. Johnson, Deputy Clerk of the Records of the House of Lords Record Office for his help in identifying these papers as: H.L.R.O., H.C. 1821 (747) iv, p. 343 *et seq, Report from the Select Committee appointed to consider the Acts now in force regarding Turnpike Roads and Highways in England and Wales, and the Abstract of Returns from Turnpike Road Trusts* and H.L.R.O., H.L. 1833 (81 & 24) cccxxiii, p.1 *et seq, Reports of the House of Lords Select Committee to examine the Turnpike Returns now upon the Table and the Abstract of Returns from Turnpike Road Trusts for the year 1829.*

[42] Buchanan, 'Turnpike Roads'; S.R.O. D/T/ba, Bath Turnpike Trust; B.G.A. Papers of the Bath Improvement Commissioners.

[43] S.R.O. Papers of the Beauchamp, Gore Langton, Hippisley, Hylton, Mogg, Popham, Rees Mogg, Samborne, Strachey, and Waldegrave families, and of Messrs. Foster of Wells, solicitors; B.A.O. Lovell Papers.

[44] This industry has been well-served by its historians. See K.G. Ponting, *A History of the West of England Cloth Industry* (1957); J. de L. Mann, *The Cloth Industry in the West of England from 1640 to 1880* (Oxford, 1971); N.B. Harte & K.G. Ponting, eds. *Textile History and Economic History, Essays in Honour of Miss Julia de Lacy Mann* (Manchester, 1973); K.H. Rogers, *Wiltshire and Somerset Woollen Mills* (Edington, 1976).

[45] S.R.O. D/RA Somerset River Board Papers: AD 1–6, Axe Drainage & SW 1–18, Congresbury & Weston Drainage; B.A.O. Sturge Papers, 32395 & 25642.

[46] B.A.O. Harford Papers, 28048.

[47] S.R.O. Papers relating to the Somerset coalfield and coal canal. Also, John A. Bulley, 'To Mendip for Coal: A Study of the Somersetshire Coalfield before 1830', *Proc. Som. Arch. Nat. Hist. Soc.*, 97 (1953), pp. 46–78 & 98 (1955), pp. 17–54; Kenneth R. Clew, *The Somersetshire Coal Canal and Railways* (Newton Abbot, 1970).

[48] S.R.O. D/T/ba, Vol. 9, 6 July 1793 and 7 January 1797.

[49] Bristol Public Reference Library, 'The Committee Book . . . of the Joseph Percival and Copper Company', B4771.

[50] B.L. Anderson, 'The Attorney and the Early Capital Market in Lancashire' in Crouzet, ed. *Capital Formation*, pp. 223–55; M. Miles, 'The Money Market and the Early Industrial Revolution: The Evidence from West Riding Attorneys, c. 1750–1800', *Business History*, XXIII (1981), pp. 127–46.

[51] Buchanan, 'Turnpike Roads', p. 238.

[52] S.D. Chapman, 'Industrial Capital before the Industrial Revolution: an Analysis of the Assets of a Thousand Textile Entrepreneurs c. 1730–50' in Harte & Ponting, eds. *Textile History*, pp. 113–37, argues that in those years it was relatively easy to transfer capital to other industries since a high proportion of assets were maintained in liquid form and fixed capital was non-specific. But examples are limited to maltings, the retail trade, inns and property.

[53] Mann, *The Cloth Industry*, pp. 37–8.

[54] Roger Anstey, *The Atlantic Slave Trade and British Abolition, 1760–1810* (1975), pp. 38–48.

[55] On the voyage of the *Bristol Merchant*, 1747–8, these goods made up more than one-quarter of the barter cargo with which the ship's master was instructed to purchase Negroes at Bonny in the Bite of Africa. After their sale in Jamaica he was to load the ship for Bristol with a cargo including 'some good Cotton to Stow Between the Decks'. I am indebted to Mr Frank Strahan, Archivist of the University of Melbourne, for drawing my attention to the Bright Papers, in Vol. VI of which this item appears.

[56] Studies of the French port of Nantes (Pierre M. Boulle, 'Slave Trade, Commercial Organization and Industrial Growth in Eighteenth Century Nantes', *Revue Francaise d'Histoire d'Outre-Mer*, LIX (1972), pp. 70–112, referred to by Anstey, *Atlantic Slave Trade*, pp. 50–7) suggest a similar industrial development in that area between 1730 and the mid-1750s, when it was curtailed by wartime setbacks to trade. The question of this stimulus to industrial development was earlier raised by Eric Williams, *Capitalism and Slavery* (North Carolina, 1944), pp. 65–84.

[57] For recent critical reviews of this concept see D.C. Coleman, 'Proto-Industrialization: A Concept Too Many', *Econ. Hist. Rev.*, 2nd ser. XXXVI (1983), 435–48 and Rab Houston & K.D.M. Snell, 'Proto-Industrialization? Cottage Industry, Social Change, and Industrial Revolution', *Historical Journal*, 27 (1984), 473–92.

[58] R.G. Wilson, 'The Supremacy of the Yorkshire Cloth Industry in the Eighteenth Century' in Harte & Ponting, eds. *Textile History*, pp. 225–46 and Pat Hudson, 'Proto-industrialization: the case of the West Riding Wool Textile Industry in the 18th and early 19th centuries', *History Workshop*, Issue 12 (1981), pp. 34–61, both contain interesting comparisons with the west of England cloth industry.

[59] For a recent critical assessment of the limitations imposed by the new economic history, or the 'cliometric program', on the scope and content of research as revealed in several major studies, see Steven D. Wentworth, 'Marginalizing History – A Critique of the Cliometric Program in Economic History' (Ph.D. thesis, University of Uppsala, Sweden, 1984).