

The Carolingian renaissance and human capital formation in eighth- and ninth-century Europe

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In recent debates on human capital formation and the causes of economic growth, a number of scholars have introduced, or elaborated on, the rate of book production to estimate human capital formation. The rate of book production, it is argued, is related to the advanced literacy skills of the population and in turn reduces the access costs to ‘scientific knowledge’, thereby aiding the growth of human capital and, ultimately, contributing to long-run economic growth (Baten and van Zanden 2008).

The factor ‘book production’ invites students of human capital formation to look beyond the modern and early-modern period and include data from as early as the time of the emergence of the book – at least, in its modern form as ‘codex’. This extends the discussion to the early Middle Ages. In my contribution to the debate on the background of human capital formation and the role of book production, I propose to focus on some of the problems facing an early medievalist when attempting to measure human capital formation through manuscript production. I will share my view on the comparability of its outcomes with measures of human capital in later times, concluding with some thoughts on the use of this evidence for cultural historians, such as myself.

1 Measuring book production

In their 2008 article in the *Journal of Economic Growth*, Joerg Baten and Jan Luiten van Zanden introduced a novel indicator for the measurement of human capital formation: the book production per capita. They argue that the evolution of printing techniques from the fifteenth century onwards reduced the access costs to scientific knowledge (through books), thereby contributing to a rise of scientific activity and ultimately a rise of the economy. The proposed indicator on book production has an advantage over previously used indicators which only measure basic literacy skills, since book production can reflect intensive reading and the rate of actual knowledge transfer.

In the paper of Baten and Luiten van Zanden, the indicator is used for the period between 1454 and 1800 and only takes the printed books of the period into account. The output of books is based on the number of titles or editions that appeared, based on relatively complete meta-catalogues. This evidence can be further enhanced by adding the evidence from book fairs, such as the Frankfurt *Buchmesse* which has been held regularly since the seventeenth century. By using the number of editions (including re-editions), the authors also solve the problem of weighting the importance of certain titles, since they assume that books considered to be particularly important would find multiple re-editions (Baten and van Zanden 2008). This data is arguably more accurate than estimates on print-runs. Most importantly, by using the evidence of titles and editions, the problem of the loss of copies over time is circumvented: it does not matter whether only one copy of a title survives or six hundred.

When measuring the output of books written by hand – *manu scripta* –, our evidence is both more scarce and less precise. Bookfairs did not exist in the Middle Ages and there is no contemporary evidence monitoring the production of books, and since print runs of manuscripts (almost) always consisted of one copy only, the evidence supplied by a single surviving manuscript cannot easily be extrapolated. The rate of manuscript loss over the centuries thus has assumed a prominent role in the collection of data. Recently, Eltjo Buringh has conducted research on the manuscript production in the Middle Ages. Ultimately, his figures are based on the surviving manuscripts in libraries all over Europe and North-America, written in medieval scriptoria and, for ease of diachronic comparison, classified according to the corresponding modern state (Buringh 2009). This enhances comparability, but unfortunately obscures the fact that the area of a modern state often housed multiple political, cultural, and social regions in the Middle Ages.

Since the data set for manuscripts is ultimately dependent on the survival rate of the manuscripts, one needs to estimate the rate of loss. The extant manuscripts relate to the total number of produced manuscripts as the proverbial tip of the iceberg to the mass underwater. Buringh does this by comparing the medieval library catalogues of a few monasteries with the number of extant manuscripts from the monastery’s manuscript workshop – or *scriptorium* – from the same period. Such medieval library catalogues are scarce and their reliability is uncertain. Moreover, the holding of a (monastic) library at a certain moment does not reflect all the manuscripts produced at the writing studio of the same monastery. A portion of the library’s book collection came from outside, while the monastery’s scribes will have produced books for people or centres beyond their own monastery. For the early period, Buringh studied the Swiss monastery of St-Gallen, and the French monastery of Fleury (Buringh 2009), both of which had very active *scriptoria*, increasing the risk of the latter complication. In addition, St-Gallen’s ninth-century library explicitly mentions the presence of books

from outside (Duft and Meyer 1954, 40-2). Using this method, Buringh proposes a loss rate of 25 percent per century (Buringh 2009).

Although this seems a very plausible figure on average for the whole period of the Middle Ages, on a more local scale or within a shorter period this number can vary greatly. While we can sometimes identify the reasons behind a single manuscript's survival, we are almost always uncertain about the background of the demise of the great majority (except where victims of the Second World War are concerned), which may have been the result of cultural or political circumstances. A case in point is the suspected involvement of Oliver Cromwell's invasion of Ireland in the virtual disappearance of earlier medieval Irish manuscripts.

2 The Carolingian 'renaissance'

Notwithstanding these cautionary remarks, it is worthwhile to investigate how the indicator of book production, and the notion of Human Capital, can work within the context of a particular episode in the Middle Ages. In this case: western continental Europe during the Carolingian period. In the 752 the house mayor of the Merovingian kings, Pippin III was himself anointed king of the Franks, as the first in a royal line extending to the end of the ninth century and including its first emperor, Charles the Great, or Charlemagne. This century and a half is the Carolingian period, and witnessed what in older historiography has been called the 'Carolingian renaissance'. Instigated by a desire for correction and reform, this revival of scholarship and learning found its most concrete expression in the enormous increase of book production in (particularly) the ninth century. We still possess thousands of ninth-century manuscripts that have survived the ravages of time. In fact, over about 8,500 Carolingian books from the ninth-century survive, against about 1,900 for all centuries before the ninth century.

This explosion in book production significantly reduced the access costs to knowledge. Libraries began to accumulate larger numbers of scholarly texts, and we have evidence of some institutions labouring explicitly to acquire exhaustive collections of learned texts, taking their cue from bibliographical lists of respected authors such as the Venerable Bede or Cassiodorus (Milde 1968, 62-130). School teachers can be seen to be putting together collections of excerpts and notes on specific topics, at the level of difficulty that was appropriate for their students (Meeder 2005). This revived interest in learning resulted in scribes and scholars copying hundreds of texts, increasing the availability not only of texts like the Bible, but also of (late-)Antique works, works of scholarship from areas as far away as Ireland and the Iberian peninsula, and new compositions. Simply by having more copies of scholarly texts circulating, and a rise in the number of scholarly texts, the access to knowledge for an average ninth-century scholar was sig-

nificantly increased. Similarly, the rise in literate culture may be an indicator for the rise of literacy as a whole, which as a tool would be beneficial for a number of economic enterprises in addition to academic (McKitterick 1989).

3 Manuscript production and economic growth

The concept of Human Capital has been used to explain economic growth. A rise in Human Capital, in this case in the form of an increasingly educated population, results in economic growth, for a population that is more literate and schooled, results in a more efficient workforce. The key here is the reduction of access costs to knowledge: a literate and educated person would be able to access new knowledge more easily through reading, would be in a position to adjudge (new) theories more swiftly, and would be able to execute more complex instructions more efficiently, and master more difficult techniques quicker. This facilitates faster innovation, thereby resulting in higher production per capita, and an increasing capacity of the economy to satisfy the needs of goods and services of the members of society, or ‘economic growth’ (Mokyr 2005, 1155-6 (43-4)).

Both qualitative and quantitative historical research demonstrates an increase in the production of manuscripts during the Carolingian period. Can we relate this increase to economic growth? If we want to use Buringh’s findings on manuscript production as an indicator of Human Capital formation, we need to know more about the economy of the period under investigation and the place of books in it. Buringh and Van Zanden, in their article on ‘charting the rise of the West’ conclude that book production is one of a few more or less reliable guides to the long-term development of the European economy. They steer clear of explicitly linking manuscript and book production to Human Capital formation. Instead, they refer to books as a ‘luxury’ item, with the number of books in production as a marker of economic growth. Earlier, Rosamond McKitterick already discussed early medieval manuscript production as an economic enterprise (McKitterick 1989), involving large amounts of capital in the form of the livestock supplying the hides, labourers preparing the parchment, ink, pens, and binding material, and the scribes copying and teaching their successors. That certain manuscripts were luxury product, and viewed as such, is clear from the surviving copies with copious illuminations and beautiful script. These books enhanced the status of their owner, and were often used as a display copy, more often than not containing texts that were fundamental to religion and society, such as the Bible and liturgical texts, and not ‘new’ (arrangements of) knowledge.

While the rise of luxury goods can tell us something about the development of an economy, this is only the case when all luxury goods are examined. The appreciation and prestige of luxury items such as jewelry

and objects made from gold and silver is relatively stable over the centuries. An increase in book production – regarded as a luxury product –, on the other hand, can also signal a cultural shift reflecting a greater appreciation of books as luxury items than other valuables. The manuscript production of the late eighth and ninth centuries is mostly a reflection of the new status of knowledge and learning within society, and thereby reflects an interest in the technology of reading and writing. It is therefore not a straightforward indicator of economic development, as other luxury items may be. In addition, there is a certain tension between the view of book production and accumulation as the reproduction and accumulation of ideas (the ‘hardware’ used in information transmission) and the book as a luxury product. To put it bluntly: a early medieval display copy, much like a modern coffee table book, is not necessarily meant to be read.

An important obstacle in the study of the development of the economy of this period is the fact that the early medieval economy was not a pure market economy. Although markets existed, they formed only part of the economic infrastructure of the early medieval Latin West. Important parts of ninth-century economy consisted of gift exchange, and depended for a large part on the influx of large surpluses in the form of plunder. Such an economy is governed by different incentives and strategies than a market economy in a society that is increasingly organised according to class. It is unclear whether the reduction of access cost to knowledge – and thus the formation of Human Capital – influences a non-market economy in a similar way as a market economy. One could argue that it is doubtful that the knowledge contained in books would have led to an advancement in the plunder sector of the ninth-century economy.

Whether there was economic growth in the ninth century is a matter of debate. In contrast to the early modern period, there is no information on the growth of real wages in the early Middle Ages to be used as a measure of economic growth. Scholars have long ago agreed that numismatic evidence, which is often scanty, is also unhelpful in determining trade routes or the volume of trade. (Morrison 1963) The most important economic sector of the period was agriculture. The debate whether or not the Carolingian period witnessed economic growth centers around the manors, an innovation which in certain regions gained ground in this period, and mostly involved royal and ecclesiastical land. A manor is an estate divided into two parts: one made up out of individual plots from which dependent peasant households supported themselves, and another central plot whose produce was meant for the landlord. For some, these manors typify the efficiency gained through agricultural innovation in this period, while others point out that their sheer size made the administration of manors slow and unable to quickly adapt to new circumstances. The primary impetus for this innovation was not the creation of surplus, although significant surpluses were marketed at certain points, but to generate a stable and predictable flow of produce and goods to

meet the demands imposed by the landlord and the kings. These demands were more important than raising money by selling surplus (Costambeys, Innes, and MacLean 2011, 259-61): it was these demands and the network of gift-giving to which these formed the basis that kept the empire running. Therefore Costambeys *et al.* qualify the Carolingian estates as ‘social resources used to support their owners in meeting those obligations which came with their rank’ . While, as a result of careful and slow steps towards greater efficiency of practices, rather than technical innovations, the economics of scale on these manor did create the possibility of surpluses (Costambeys, Innes, and MacLean 2011), the number of recorded famines for the ninth century is larger than for the preceding and following periods (Curschmann 1900). This complicates our view of economic growth.

From the perspective of the model of Useful Knowledge, advanced by Joel Mokyr (Mokyr 2002), we should pay specific attention to the kind of knowledge specifically beneficial to ‘commercial’ economic activities. In our context, this would mean documents that pertain specifically to the dominant early medieval economic enterprises: agriculture or measures stimulating trade. There is almost no text produced in this period that is directly linked to the most important economic activity: agriculture. One of the most notable exceptions is the capitulary known as the *Capitulare de villis*. A capitulary is a royal missive to the king’s subjects. In this case, this document appears to give instructions on the management of royal estates. In fact, this text seems to give an idealised portrayal of estate management. It survives in only one manuscript (Wolfenbttel, MS Guelf. 254 Helmst.), whose format suggests it was intended to be easily portable. Of course, the fact that such communication could have been sent in written form is evidence of the sufficient amount of literacy to allow written communication, which is probably linked to the number of books. However, this one text appears to be an exception, suggesting that the larger part of agricultural management was undertaken without the use of writing. There was no such thing as an ‘economic’ policy.

Documents on trade are much more prolific, but they all take the form of charters: contracts or testimonies of past agreements. Some of these survive in the manuscripts counted by Buringh, but the majority of the extant charters consist of one leaf only and seem therefore not to be included. Their form and content makes them particularly vulnerable to destruction and their survival rate is probably much lower than that of books. They are, furthermore, not comparable to the printed books in later periods. Yet, more than books, these documents reflect the extent to which the government of the empire relied on the written word, itself an indicator not only of the literacy of those corresponding with the court, but also of the peace and stability of the realm.

Perhaps one must conclude that the most stimulating condition of this time was the formation of elite networks through relative peace and sta-

bility, and the facilitation of communication in a large empire. For in the Middle Ages, the access cost of knowledge was dependent on the extent of unification, peace, and possibilities to travel. There is an important link between the condition of the state and the flourishing of learning. However, the existence of a stable, more centralised realm is not intrinsically dependent on the use of writing in communication, just as a rise in the economy is not necessarily reflected in the rising consumption of a specific luxury good, such as books.

How then are we to relate the book production and the rise of ninth-century economy? Bas van Bavel, in his inauguration address, commented on the question of chronology and causality (van Bavel 2008, 16-19) and in this period in particular we are faced with a chicken and egg problem: the opportunity for a rise in book production was created by enough political and economic stability to allow a greater number of people to be involved in the book production and scholarship in general, as well as the cultural shift that put a social premium on learning and books in general. Correspondingly, growing literacy encouraged the use of written communication in the management of the empire, leading to more control and, arguably, more stability. Whether or not stability then leads to greater economic activity is not beyond debate. The picture appears to be more complicated: in a new synthesis, Costambeys *et al.* have argued that the Viking raids of the ninth century did not in fact result in an economic slump, but rather a push towards a more market-driven economy and the monetisation of the rural economy (Costambeys, Innes, and MacLean 2011, 356-8). The disruption of peace by the Northmen, apparently, had economy-enhancing qualities.

4 Comparability: manuscripts and printed books

This workshop focuses on the comparability of the estimates of Human Capital, and the analysis above is built around the question whether the indicator of book production in the early Modern period to measure Human Capital formation can be a model for the rise in manuscript production in the ninth century to measure the same. The comparability of this indicator over time suffers from a number of societal and economic differences. I have already touched on some of these: Firstly, the survival rate of manuscripts is not only lower than that of printed books, it is also more erratic and less well understood. Secondly, with borders of countries changing through time, one will always have to settle for an artificial division of the data set for one of the periods. Thirdly, the economy of the two periods is very differently organised, with a different place in in for knowledge.

There are two, possibly more essential, differences. Firstly, more than with books, which are of comparable sizes and in general contain one title only, manuscripts are harder to compare: some consist of only one quire,

others of large collections of different titles. Some are richly decorated in large script, while others are rather humble books of small script and thus contain more textual information. The number of produced manuscripts does not necessarily reflect the amount of knowledge (re)produced.

Secondly, the perception of knowledge in the early Middle Ages was vastly different than that of the early Modern period. There was no Francis Bacon in early medieval times, and rather than something subject to constant growth, early medieval scholars viewed knowledge as a stable, unchanging reservoir. Men of learning strove to recover knowledge lost since the end of the Roman Empire, and find new ways to explain and arrange this knowledge, but ultimately they did not attempt to add to this body of knowledge. There was not an era of invention, but of renewal and reform: *renovatio*. This cultural aspect must have its place in the study of early medieval Human Capital.

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