

## ***The Occupational Structure of Britain c.1379–1911 and the International Comparative History of Occupational Structure: An overview of findings and where to find them.***

This document provides a brief overview of the **Occupational Structure of Britain project c.1379–1911 (OSB)**. The project aims (i) to reconstruct the occupational structure of Britain in as much detail as the surviving sources permit over as long a time as possible, (ii) to encourage and facilitate scholars working on other countries undertaking similar work, and (iii) to undertake systematic comparative work ourselves thus contributing to global history. This document is divided into several parts of unequal length: Part I discusses work on Britain; Part II provides information on the **International Comparative History of Occupational Structure (INCHOS)** project; Part III covers the **African Comparative History of Occupational Structure (AFCHOS)** project; Part IV relates to the **European Network for the Comparative History of Occupational Structure (ENCHOS)**; Part V sets out our plans for the **Latin American Comparative History of Occupational Structure (LACHOS)** project, and the final part signposts a number of other projects. The OSB project, based at the Cambridge Group for the History of Population and Social Structure in the Faculty of History at the University of Cambridge, acts as a global hub for all the international projects.

The document is not yet complete, but further sections will be added shortly. The intention is also to update the document as more work is done on the project.

### **Part I**

#### **The Occupational Structure of Britain c.1379–1911**

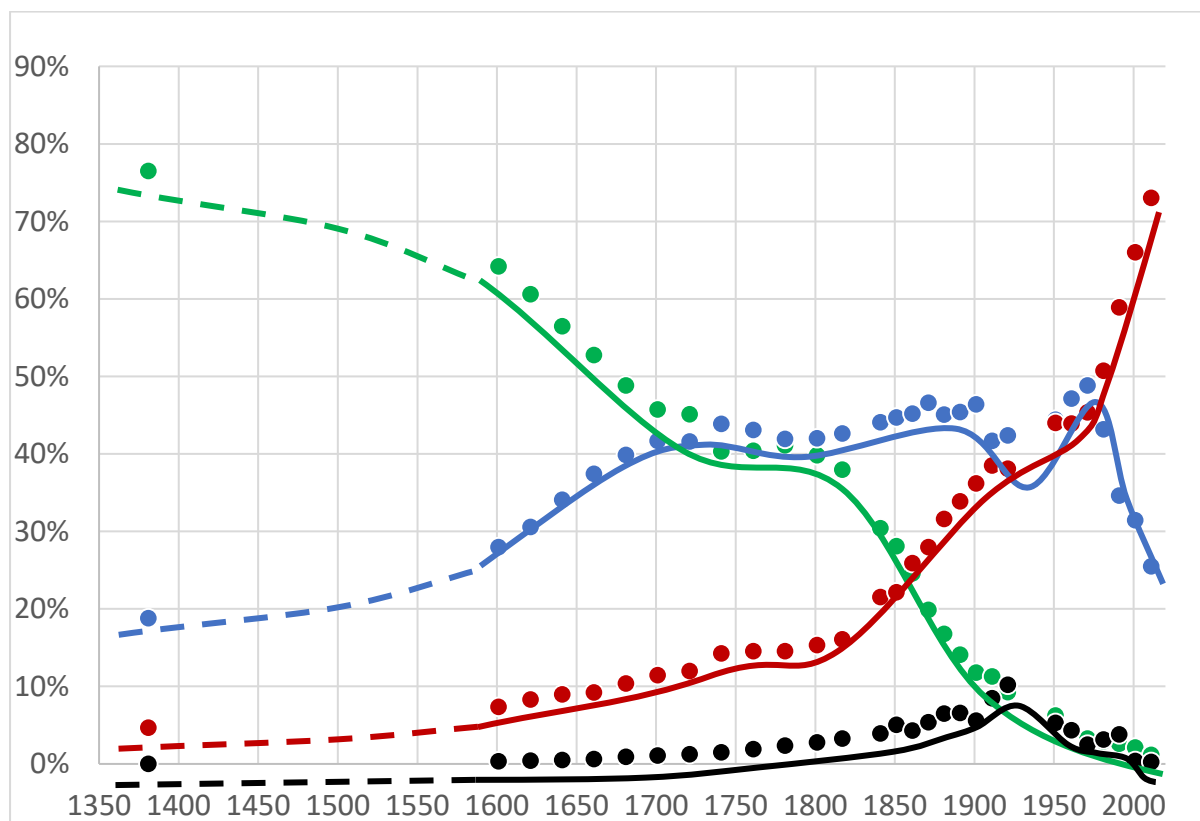
The Occupational Structure of Britain c.1379–1911 project was launched by Leigh Shaw-Taylor and Tony Wrigley in 2003 with initial funding from the ESRC, though preparatory work had begun some years earlier. Amy Erickson, who joined the project in 2005, has co-directed it since 2016. Given the scale and difficulty of what we wanted to do, it made sense to begin with better documented more recent past and to work our way backwards from there, and to focus initially on the collection of the much more abundant data for males. Much work has been done on women's occupations since then, but prior to 1851 we currently have far better data for men than for women.

A full list of published papers can be found [here](#), and many preliminary papers and dissertations are also available online [here](#). A number of working papers have appeared in the Cambridge working papers in economic and social history, available online [here](#). A number of important papers are not yet available. As a result it is currently difficult to get an up-to-date overview of the findings of the project. This part of the document is intended to provide a partial remedy by giving a brief overview of some of the key findings of the project and where to find them (if they are available). It is divided into three sections. Section I provides an overview of the construction of the long-run estimates of male occupational structure; Section II discusses the sources used for female occupations. Section III lists some of the key findings so far.

#### **Section I. Construction of the estimates of male occupational structure c.1381–2011**

We begin with male occupational structure for England and Wales, because we can now present long-run national estimates from 1381 down to the most recent census in 1911. These are shown in figure 1 below. First, we describe the construction of the estimates. In section II we discuss the results.

**Figure 1. Estimates of Male Occupational Structure 1381–2011**



A **population census** has been taken in Britain every ten years since 1801, with the exception of 1941. The occupational data in the censuses of 1801–1831 is of limited value, but since 1841, very detailed occupational data has been collected and published in summary tables. The data from 1841 onwards shown in figure 1 derive from the published census reports. Before 1841 we have to turn to other sources. From the 1<sup>st</sup> January 1813, it was a legal requirement to record father’s occupations in **Anglican Baptism registers**. From these we created a ‘census’ of male occupations deriving from 2.2m baptism records from around 11,400 baptism registers over the period 1813–20. The midpoint of the data falls in 1817, and we refer to this as the c.1817 dataset. We have a detailed working paper describing the construction of this dataset and establishing that it is representative of male occupational structure: P. M. Kitson, L. Shaw-Taylor, E. A. Wrigley, R. S. Davies, G. Newton, and A. E. M. Satchell, ‘The creation of a ‘census’ of adult male employment for England and Wales for 1817’ (2012, 2013). This paper can be found online as paper 4 [here](#). Prior to 1813, it was not a legal requirement to record fathers’ occupations in baptisms, but sometimes this was done. We surveyed all surviving registers for the period from 1695 to 1799 to identify good runs of occupational recording. Around 1,100 baptism registers met the criteria for good occupational recording between 1695 and 1725 and were used to create a national estimate for c.1710. Data were also collected for c.1755 and c.1785, but were not adequate for creating a national sample. The collection of the baptism data 1695–1799 is described in Kitson, P. M., ‘The recording of occupations in the Anglican baptism registers of England and Wales, 1690-1799’, available online as paper 14 [here](#).

A preliminary account of male (and female) occupational structures 1710–1871 with national estimates for England and Wales appeared in Shaw-Taylor, L., and Wrigley, E. A., ‘Occupational Structure and Population Change’, in R. Floud, J. Humphries and P. Johnson, eds., *The Cambridge*

*Economic History of Modern Britain: Volume I, 1700–1870* (Cambridge, 2014), pp. 53–88. This contained national estimates for c.1710, c.1817, 1851 and 1871. Data for Scotland were also presented for 1851 and 1871.

The parish register evidence discussed above had the advantage that where it was available, it gave a broadly representative picture of male occupations. Unfortunately, the availability of such data was limited in both space and time before 1813. By contrast, **probate records**, another source of male occupational data covering the period are available almost everywhere from 1660, and for much of the country from 1600. These, however, suffer from severe social biases as wills and probate inventories were much more likely to be left by wealthier individuals than poor ones. Sebastian Keibek in his Ph.D. thesis solved the methodological problem of how to correct the bias in probate inventories, so as to generate estimates of occupational structure that would match those that could have been obtained from parish registers with occupations, had these been available. The thesis, ‘The male occupational structure of England and Wales’ is available online [here](#). The probate correction methodology is set out in Keibek, S., ‘Using probate data to determine historical male occupational structures’ (2017). This is available as paper 26 in the *Cambridge Working Papers in Economic and Social History* series [here](#). Keibek also solved another key methodological problem, how to allocate those termed ‘labourers’ to sectors. This is set out in Keibek, S., ‘Allocating labourers to occupational (sub-)sectors using regression techniques’ (2017) which is available as paper 27 in the *Cambridge Working Papers in Economic and Social History* series [here](#). The decadal estimates shown in figure 1 for the period 1601 to 1801 were created by Keibek using parish registers to calibrate the testamentary data and the labourer allocation methodology described in these two papers. A further advantage of these estimates is that they can be constructed for small units as well as large ones. In conjunction with the nineteenth century parish register data and the later census material derived from ICeM, we can now map male occupational structure at high spatial resolution with increasing spatial coverage over time from 1600 to 2011. Maps of male occupational structure 1600–1911 and for 2011 can be viewed on our (pre-launch) public engagement site: [www.economiespast.org](http://www.economiespast.org)

Our estimates for 1381 were made by Richard Smith using the **poll tax returns 1377–1381**. These generate an estimate of male occupational structure at the national level as shown in figure 1. The paper is not currently available.

All of the data we have used from 1381 through to 2011 have been coded to the PST occupational coding scheme devised by Tony Wrigley with the late Rose Davies. A paper describing the PST scheme, Wrigley, E. A., ‘The PST system of classifying occupations’, is available online as paper 20 [here](#). The 2010 version of coding scheme and associated look-up tables can be downloaded [here](#).

The national numbers presented in the CEHMB chapter superseded those in four preliminary papers still online:

- Shaw-Taylor, L., and Wrigley, E. A., ‘The occupational structure of England c.1750–1871: A preliminary report’ (2006). Available as paper 1 [here](#).
- Shaw-Taylor, L., ‘The occupational structure of England and Wales c.1750 to 1911’ (2009). Available as paper 19 [here](#).
- Shaw-Taylor, L., Wrigley, E. A., Kitson, P., Davies, R., Newton, G., and Satchell, M., ‘The occupational structure of England c.1710–c.1871’ (2010). Available as paper 22 [here](#).
- Shaw-Taylor, L., Wrigley, E. A., Kitson, P., Davies, R., Newton, G., and Satchell, M., ‘The occupational structure of England and Wales c.1817–1881’ (2010). Available as paper 23 [here](#).

Whilst the numbers in these papers have been superseded, we have left them online for three reasons: first, they have been widely cited in published work by others; secondly, they form part of the historiographical record; thirdly, they each contain some discussions not available elsewhere. The first paper sets out the intellectual context for the project more fully than it is currently elaborated

elsewhere. The second of these papers is almost entirely redundant, but the last two still contain useful material because they treat the subject at greater length than was possible in the CEHMB chapter. The last listed paper also provides a much fuller account of 19th century economic geography than is provided anywhere at present. All these need to be read while bearing in mind that many of the numbers have been updated in later work.

Work by project members has made use of other sources of male occupational data, but this work does not currently contribute directly to the national series shown in figure 1:

- We have used data from **coroners' inquests** of accidental deaths in the sixteenth century, kindly provided by Steve Gunn and Tomas Gromelski, as a cross-check on Keibek's probate estimates in his Cambridge Ph.D. thesis, 'The male occupational structure of England and Wales', available online [here](#).
- A number of project members have used **Quarter Session Recognizances** for local or regional studies. These include: Rudnicki, T., 'The male occupational structure of northwest England, circa 1600 to 1851', Cambridge M.Phil dissertation (2015), available as dissertation 8 at <https://www.campop.geog.cam.ac.uk/research/occupations/outputs/preliminary/>; Wells, J., 'The male occupational structure of Kent in the seventeenth and eighteenth centuries', Cambridge B.A. dissertation (2017); Wells, J., 'The Male Occupational Structure of Yorkshire c.1500–c.1817' (2018); Sugden, K., 'Clapham Revisited: The Transference of the Worsted Industry from Norfolk to the West Riding, c. 1700–1851', *Continuity and Change*, 33 (2018), pp. 203–24. [Link to article](#)
- We now have a very large body of occupational data arising from the **Court of Common Pleas** from 1413 onwards. This work is being led by Tony Cockerill, but we do not yet have papers available. Use was made of some of these data in Sugden, K., Keibek, S., and Shaw-Taylor, L., 'Adam Smith Revisited: Coal and the Location of the Woollen Manufacture in England Before Mechanization, c.1500–1820', *Cambridge Working Papers in Economic and Social History*, no. 33 (2018), available online [here](#).

## Section II

### Sources and findings on pre-census female occupations

For the period from 1851 to 1911 we have an abundance of very good but still imperfect data for women in the **decennial population censuses**. The literature casting doubt on the utility of the census data for female employment has been effectively challenged by the findings of a number of project members: Shaw-Taylor, L., 'Diverse Experiences: The Geography of Adult Female Employment and the 1851 Census', in N. Goose, ed., *Women's Work in Industrial England: Regional and Local Perspectives* (Hatfield, 2007), pp. 29–50; McGeevor, S., '[How Well Did the 19th Century Census Record Women's 'Regular' Employment in England and Wales? A Case Study of Hertfordshire in 1851](#)', *History of the Family*, 19 (2014), pp. 489–512; and You, X., 'Women's Labour Force Participation in Nineteenth-Century England and Wales: Evidence from the 1881 Census Enumerators' Books', *Economic History Review*, early online view, 2019. Specific problems, as distinct from general failings, with the census are discussed in these works and also in: Xuesheng You's Cambridge Ph.D. thesis, *Women's employment in England and Wales, 1851-1911* (2017); You, X., 'Working with Husband? 'Occupation's Wife' and Married Women's Employment in the Censuses in England and Wales Between 1851 and 1911', *Social Science History* (forthcoming); and Shaw-Taylor, L., Sugden, K., and You, X., '[A preliminary estimate of the female occupational structure of England and Wales 1700-1911](#)', Paper 33 (2019), at [OSB Working Papers](#). Extensive mapping of census data can be found at our beta (pre-launch) public engagement website, [www.economiespast.org](http://www.economiespast.org)

Before the census it is *much* more difficult to reconstruct female occupations and patterns of work than it is for men and also far more time-consuming (and hence expensive) to collect each

observation. This is because women's occupations were much less frequently reported in the historical record than were men's, thanks in large part to the 1413 Statute of Additions that stipulated women's identification by marital status and men's by 'estate, degree or trade'. However, data do exist and in some abundance. A survey, which indicates our long-term plans (subject to obtaining funding), is available in Field, J., and Erickson, A.L., '[Prospects and preliminary work on female occupational structure in England from 1500 to the national census](#)', Paper 18 (2010) at [OSB Working Papers](#). For London, court depositions and apprenticeship records have been used to establish that women's participation in gainful employment was comparable to men's, even during marriage, and that half of women shared their husbands' trades but half were in different trades (Erickson, A.L., '[Married women's occupations in eighteenth-century London](#)', *Continuity & Change* 23:2 (2008), 267-307). While historians have long recognised that 'Mrs' before the nineteenth century indicated social rather than marital status, it appears that 'Mrs' in the historical record was more likely to identify an employer than a gentlewoman (Erickson, A.L., '[Mistresses and marriage; or, A short history of the Mrs](#)', *History Workshop Journal* 78 (2014), 39-57). The term 'spinster', which originated as an occupational descriptor but is taken as a marital one from the fifteenth century, was still being used in its occupational sense at least in northwest England in the nineteenth century. (Erickson, A.L., '[Marital status and economic activity: interpreting spinsters, wives and widows in pre-census population listings](#)', *Cambridge Working Papers in Economic & Social History* 7 (2012).

Labour force participation was common across the social spectrum up to the gentry. London gild records show elite girls apprenticed in highly skilled and highly capitalised trades in the eighteenth century (Erickson, A.L., '[Eleanor Mosley and other milliners in the City of London companies 1700-1750](#)', *History Workshop Journal* 71 (2011), 147-72). Business cards advertised the services of jewellers, goldsmiths, printers, and a wide range of fashion merchants (Erickson, A.L., *City Women in the 18th Century* exhibition, [citywomen.hist.cam.ac.uk](#)). These women were single, married and widowed (Erickson, A.L., '[Esther Sleepe, fanmaker, and her family](#)', *Eighteenth-Century Life* 42, 2 (2018), 15-37). Uncovering women as employers extends our understanding of the labour market by illuminating the demand for female labour in manufacturing, retail, and domestic contexts (Erickson, A.L., 'Wealthy businesswomen and marriage in eighteenth-century London', submitted to *Business History Review* January 2020). The demand for wet nurses we now know was far wider than previously thought in London, particularly in wealthier areas of the city (Newton, G., '[Infant mortality variations, feeding practices and social status in London between 1550 and 1750](#)', *Social History of Medicine* 24, 2 (2011), 260-280), and this may be partly explained by the significant numbers of women in public-facing employment.

Most cities throughout Europe contained substantially more women than men by the eighteenth century. Traditionally attributed to the urban demand for domestic servants, in fact it appears that the high sex ratio may have been equally due to the demand for female labour in manufacturing. (Erickson, A.L. and Schmidt, A., 'Migration', in MacLeod, C. and Ågren, M., eds, *The Whole Economy*, Cambridge University Press, forthcoming)

From the account books of large estates, it appears that female wages stagnated in the long run (Field, J.F., '[Domestic service, gender, and wages in rural England, c.1700-1860](#)', *Economic History Review* 66, 1 (2013), 249-272) – possibly giving rise to a move towards manufacturing?

In northwest England, the 1787 Westmorland Census, which lists some women's occupations, compared with the 1851 census enumerators' books illustrates the catastrophic decline in textile employment for women with the mechanisation of spinning (Terki-Mignot, A., '[Changing Patterns of Female Employment in Westmorland, 1787-1851](#)', Cambridge BA dissertation, 2016). Terki-Mignot's 2018 MPhil dissertation shows the effects of rural and urban de-industrialisation in two French regions: '[Patterns of Female Employment in the Pays de Caux and the Perche, 1792-1901](#)'.



### Section III

#### Key findings on England and Wales

- (1) One of our most important findings is how industrialised the economy of England and Wales was by the beginning of the eighteenth century. Our latest estimates document that around 1710, 42 per cent of adult males were employed in the secondary sector (excluding mining). Our estimates for women suggest that at the same date, 47 per cent of adult female labour was in the secondary sector, and that for the whole adult labour force (males and females), 44 per cent worked in the secondary sector. This compares with figures of 46, 38 and 44 per cent respectively in 1851. Where more than a hundred years of scholarship had suggested, on the basis of entirely inadequate evidence, that the major long-term historical shift in the structure of the labour force towards the secondary place had taken place during the classic Industrial Revolution period (say, 1750–1850) and during the transition to modern economic growth (Kuznets), we found this shift was essentially complete two generations before either the Industrial Revolution (as conventionally conceptualised) or the widespread diffusion of mechanisation had begun. If we stick to the male estimates, which are more securely based, then secondary sector employment rose marginally from 1700 to 1851 from 42 per cent to 46 per cent of the labour force. Once we factor in the female estimates, even that growth disappears. These findings were first formally published in Shaw-Taylor, L., and Wrigley, E. A., ‘Occupational Structure and Population Change’, in R. Floud, J. Humphries and P. Johnson, eds., *The Cambridge Economic History of Modern Britain: Volume I, 1700–1870* (Cambridge, 2014), pp. 53–88. However, earlier versions of our estimates for males were published on our website between 2006 and 2010 and have been widely cited. These earlier estimates appeared in the four papers listed in the preceding section, but the numbers given there were superseded by the estimates in the CEHMB chapter. The latest male estimates (1600–1851) can be found in Keibek, S., ‘The male occupational structure of England and Wales’, Cambridge Ph.D. thesis (2017) which is available online [here](#). The most recent female and both-sexes estimates (1700–1851) can be found in Shaw-Taylor, L., Sugden, K., and You, X., ‘A preliminary estimate of the female occupational structure of England and Wales 1700–1911’, available online [here](#). The CEHMB chapter and the Keibek’s thesis currently contain the fullest discussion of our findings based on the estimates which have only changed marginally since then and contain most of what is discussed as findings (2) to (6) below. The four earlier papers listed in Section I above contain fuller discussions but on the basis of estimates which have been superseded.
- (2) A further implication of these findings is that the structural shift of the labour force towards the secondary sector, since it did not take place in either the eighteenth or nineteenth century, happened before 1700. We first put preliminary numbers on this using the coroners’ inquests, which suggested that the change was concentrated between 1500 and 1700, but there were unknown margins of error around these first estimates; Keibek’s thesis, which is available online [here](#), put firm numbers on this for male occupational structure, indicating that the male share of the secondary sector rose from 29 in 1601 per cent to 41 per cent in 1701, and thus revealing the seventeenth century as the key period of industrialisation. Richard Smith’s work, based on the 1377–81 poll tax returns (see Section I), suggested a figure of around 18 per cent c.1381. On this account, the male share of the secondary sector rose 11 per cent between 1381 and 1601, and 12 per cent between 1601 and 1701. Figure 1 above simply presents a fitted trend between 1381 and 1691, but it is important to realise that we lack data points in between these two dates. Since urbanisation is known to have been rapid from about 1550, it is likely that a disproportionate amount of the growth between 1381 and 1601 took place in the last fifty years of the period. Further research on this period will be required for any certainty and this is likely to focus on coroners’ inquest and the Court of Common Pleas discussed above. On present evidence it seems that the vast bulk of the structural shift in male employment took place during the early modern period between 1550 and 1700. There is no reason to think this finding would be substantially changed by data on female employment. Given the growth in

textiles from 8 per cent to 11 per cent of male employment between 1601 and 1701 on Keibek's estimates, and the much greater numbers of women employed in textiles, data on women is only likely to amplify this finding.

- (3) The shift in the structure of employment towards the secondary sector 1550–1760 must have been accompanied by a substantial increase in the share of the secondary sector's output over this period. However, in the absence of pervasive technological change in manufacturing in this period, it is unlikely that output grew substantially faster than the labour force. We therefore see this as a process of labour intensive industrialisation. After 1760, we know that there were revolutionary and unprecedented increases in labour productivity, spear-headed in the first instance by the mechanisation of cotton spinning, and gradually becoming more pervasive thereafter. This indeed is why the levels of secondary sector output per capita could rise with unprecedented rapidity without in fact requiring ever larger shares of the labour force. We would therefore characterise the period after 1760 as a period of technologically intensive industrialisation. The industrialisation of the early modern period, therefore, was quite distinct from the industrialisation of the 'Industrial Revolution' period.
- (4) The relative growth of secondary sector employment 1550–1750 was made possible, as figure 1 attests, by a steady decline in the share of the labour force employed in agriculture. Since famine first attenuated and then disappeared over this period, and England and Wales became a net exporter of grain by the eighteenth century, we see this as driven by rising labour productivity in agriculture and strong evidence for an 'agricultural revolution' in this period. However, we also characterise the 1750–1850 period as one of continued agricultural revolution. The continued decline of the relative importance of agricultural employment at the time, combined with a tripling of population, the extension of cultivation onto formerly marginal lands, only a modest shift towards net imports, no recurrence of famine and no significant statistical relationship between mortality and grain prices suggest a continuation of earlier trends increasing labour productivity together with increases of land productivity despite a falling average natural land quality.
- (5) One of the most striking findings to emerge from the new data is the continuous increase in the relative importance of tertiary sector employment across the whole period 1600–1911 in the male data. This finding is only amplified when we include female data from 1851 and female estimates at earlier dates. It has long been recognised that the Industrial Revolution is something of a misnomer because it was dependent on changes in both agriculture and industry. A number of historians have previously suggested that the service sector was a key component of 'industrialisation' and the 'Industrial Revolution', but these views have not been widely heeded in accounts of the period. For the period before 1841, this has never been quantified before. Our findings, in fact, indicate: (i) that the tertiary sector was, with mining, the most dynamic area of relative employment growth throughout the period; (ii) that the tertiary sector has been growing almost continuously as a share of all employment for the last three hundred years; and (iii) that after about the mid eighteenth century until after the First World War, structural change in the labour force was composed *not* of a relative shift (or scissors) from agriculture to industry, but a structural shift from agriculture to services. A major reason for the expansion of the service sector *vis a vis* the secondary sector after 1750 was, of course, that technological change was much less pervasive in services than in manufacturing.
- (6) Within the tertiary sector, transport and distribution (shopkeepers, merchants, warehouse men and so forth) made up something over 50 per cent of all male employment throughout the eighteenth and nineteenth centuries. Put simply, as Britain urbanised and regions specialised, more and more people were required to distribute more and more primary and secondary sector outputs greater and greater average distances. Mining and transport saw the greatest expansion in the male labour force over the whole period 1600–1900. By the time of the 1911 census, an astounding one man in eight worked in the transport sector and there were a million coal miners

in Britain – productivity at the coal-face had not changed much necessitating near linear increase in employment as output rose.

- (7) All the findings above depend on counts of occupational descriptors, which are an indication of the principal economic activity of the individuals concerned. However, it is widely believed that some large percentage of the labour force were involved in multiple economic activities prior to the Industrial Revolution, a phenomenon known as by-employment. Shaw-Taylor first suggested in ‘Nature and scale of the cottage economy’ (2010), available as paper 15 [here](#), that historians had been lead to systematically overstate the importance of by-employment in early modern England as a result of the biases inherent in probate inventories, but he did not attempt to quantify this. A methodology for overcoming the bias in probate inventories was developed by Sebastian Keibek in his Cambridge B.A. dissertation; this allowed the real incidence of by-employment to be estimated. This was first published in Keibek, S., and Shaw-Taylor, L., ‘Early Modern Rural By-employments: A Re-examination of the Probate Inventory Evidence’, *Agricultural History Review*, 61 (2013), pp. 244–81. An improved methodology was developed by Keibek for his Cambridge M.Phil dissertation; this is documented in his ‘Correcting the probate inventory record for wealth bias’, available as paper 29 [here](#). The most recent findings on by-employment are set out in Keibek, S., ‘By-employments in early modern England and their significance for estimating historical male occupational structures’, available as paper 28 [here](#). This paper argues that the by-employment problem is vanishingly small, for three reasons. First, the probate inventory evidence is shown to exaggerate the incidence of by-employments by a factor of two as a consequence of its inherent wealth bias. Secondly, it is demonstrated that even after wealth-bias correction, the probate record greatly overstates by-employment incidence as most of the traces of subsidiary activities in the inventories actually point to the employments of other members of the household and not to by-employments of the inventoried male household head. Thirdly, even if one ignored this and assumed that they did, in fact, point to his by-employments, they are shown to have been relatively small in economic importance compared to the principal employment, and to necessitate only a very minor adjustment of the principal-employment-only male occupational structure.
- (8) A first attempt to estimate the labour force for both sexes for the period before 1851 using male data was published in Shaw-Taylor, L., and Wrigley, E. A., ‘Occupational Structure and Population Change’, in R. Floud, J. Humphries and P. Johnson, eds., *The Cambridge Economic History of Modern Britain: Volume I, 1700–1870* (Cambridge, 2014), pp. 53–88, but estimates of female employment were not published there. Estimates of female occupational structure 1710–1911, including corrections to the census, can be found in Shaw-Taylor, L., Sugden, K., and You, X., ‘A preliminary estimate of the female occupational structure of England and Wales 1700–1911’ (2019), available online as paper 33 [here](#). The same approach was applied to male data back to 1600 in Keibek, S., ‘The male occupational structure of England and Wales’, Cambridge Ph.D. thesis (2015) which is available online [here](#). As discussed in (1) above, these estimates make the English and Welsh economy look even more industrial in 1700 than the male estimates on their own. But they also suggest a spectacular decline in female labour force participation rates, driven largely by the mechanisation of spinning after 1760 and by longer term trends in agriculture. It is unlikely that female labour force participation rates recovered to ‘pre-industrial’ levels until after World War II, and quite possible they did not do so till the 1980s.
- (9) Leigh Shaw-Taylor in ‘Diverse Experiences: The Geography of Adult Female Employment and the 1851 Census’, in N. Goose, ed., *Women’s Work in Industrial England: Regional and Local Perspectives* (Hatfield, 2007), pp. 29–50, documented the extraordinary geographical variation in adult female labour force participation rates in 1851, which ranged from as low as 17 per cent in parts of the Durham coal-field to a high of 78 per cent in the hat-making district around Luton in Bedfordshire. On the basis of these cross-sectional data, he suggested that a-spatial narratives about the changes in female labour force-participation rate during the Industrial



Revolution were likely to be misleading, since it was inherently unlikely participation rates could have been rising everywhere for 200 years (De Vries) or declining everywhere for 100 years as other writers had suggested.

- (10) Xuesheng You, in his *Economic History Review* article, 'Women's Labour Force Participation in Nineteenth-Century England and Wales: Evidence from the 1881 Census Enumerators' Books', extended Leigh Shaw-Taylor's initial findings above to parish level and further considered the spatial patterns of female labour force participation by marriage, life cycle stage, husband occupation, local economic structure and migration. By examining the interaction between demand and supply factors in the female labour market, he showed that demand for female labour played the most important role in determining the female labour force participation rate.
- (11) Auriane Terki-Mignot, in her Cambridge BA dissertation, 'Changing Patterns of Female Employment in Westmorland, 1787–1851', available online [here](#) as dissertation 8, showed that in Westmoreland, between 1787 and 1851, the mechanisation of spinning led to a drastic reduction in the relative importance of female employment in the local textile industry, and that this led to a very large reduction in the female labour force participation rate.
- (12) Leigh Shaw-Taylor, in 'Family Farms and Capitalist Farms in Mid Nineteenth Century England', *Agricultural History Review*, 53 (2005), pp. 158–91, documented the geography of farm size across England and Wales and the very considerable variations in labour requirements in 1851. He built on these findings in 'The Rise of Agrarian Capitalism and the Decline of Family Farming in England', *Economic History Review*, 65 (2012), pp. 26–60, which documented, using occupational data, that the transition to capitalist agriculture in southern and eastern England occurred prior to 1700. It could not therefore have been a product of parliamentary enclosure after 1750.
- (13) Leigh Shaw-Taylor and Amanda Jones, using militia ballot lists in 'The male occupational structure of Northamptonshire 1777-1881: A case of partial de-industrialization?' (2006), noted considerable de-industrialisation and a shift of occupational structure towards agriculture in late eighteenth century Northamptonshire consequent on the collapse of local worsted industry in the face of competition from Yorkshire. This was further explored by Keith Sugden in his Cambridge M.Phil dissertation, 'The Occupational and Organizational Structures of the Northamptonshire Worsted and Shoemaking Trades, circa 1750-1821' (2011). Leigh Shaw-Taylor, E. A. Wrigley, Peter Kitson, Ros Davies, Gill Newton and Max Satchell argued in 'The occupational structure of England c.1710–c.1871' (2010), available online [here](#), that many counties experienced deindustrialisation in the eighteenth century, but some of the numbers derived from samples of baptism registers that were unrepresentative. Keibek, S., 'The male occupational structure of England and Wales', Cambridge Ph.D. thesis (2017) produced much more robust estimates of the occupational structure of for nearly all counties in England and Wales over the 1600–1800 period. In doing so, he showed that across the seventeenth century, virtually every single county in England and Wales was industrialising. However, in the seventeenth century, whilst a minority of counties continued to industrialise, most were de-industrialising as their textile industries collapsed. Thus, the deindustrialisation that exports of British cotton yarn brought to many other countries around the globe in the nineteenth century mirrored what happened in much of England and Wales in the eighteenth century. Keith Sugden used a variety of sources to track textile employment in Norfolk over time in 'Clapham Revisited: The Transference of the Worsted Industry from Norfolk to the West Riding, c. 1700–1851', *Continuity and Change*, 33 (2018), pp. 203–24, paper available [here](#). In 1700, Norwich was one of the largest towns in England, its economy driven by the worsted stuff manufacture. This paper tracks the decline of that industry over the following 120 years. Several sources of male occupational data, for instance quarter sessions records, freemen's lists, poll books and baptism registers, were utilized. The data show that the industry began to decline during the

second half of the eighteenth century, if not sooner, and earlier than other historians, including John Clapham, had previously realized. The transfer of the industry to the north of England began decades before the introduction of steam-powered spinning or weaving. Market competition, notably from Lancashire printed cottons, and the loss of export trade through war, were the likely causal factors.

- (14) Tony Wrigley had previously found that over most of the early modern period, English counties had all experienced very similar rates of population growth; in the eighteenth century, however, there were sharp divergences. These findings correspond very closely with Keibek's findings that all counties were industrialising in the seventeenth century but that in the eighteenth century, while some counties continued to industrialise, many others experienced considerable de-industrialisation. See: Wrigley E. A., 'Rickman Revisited: the Population Growth Rates of English Counties in the Early Modern Period', *Economic History Review*, 62 (2009), pp. 711–35.
- (15) As noted in (12) above, the textile industry declined across most of England from the late seventeenth century and right across the eighteenth century. In some counties this began in the late seventeenth century. Sugden, K., Keibek, S., and Shaw-Taylor, L., 'Adam Smith Revisited: Coal and the Location of the Woollen Manufacture in England Before Mechanization, c.1500–1820', *Cambridge Working Papers in Economic and Social History*, no. 33 (2018) shows that the textile industry did not simply concentrate in certain counties, foremost amongst them the West Riding of Yorkshire and Lancashire, but concentrated overwhelmingly either directly on coal-fields or in places well connected to coal by navigable water. This suggests that coal was central to the success of the north-western textile industries locational advantages at least a century before the application of steam-power, a finding which has not been noted hitherto. This begs the question why? The paper suggests tentatively, following Adam Smith, that space heating for workers may have been key, though further research is needed.
- (16) In a methodologically pioneering study, 'Occupational Study to Track the Rise of Adult Male Mule Spinning in Lancashire and Cheshire, 1777–1813', *Textile History*, 48 (2017), pp. 160–75, Keith Sugden used occupational data to document with entirely novel spatial and chronological precisions the adoption of mule spinning. Analysis of the occupations of bridegrooms recorded in the marriage registers of Lancashire and Cheshire show the rise of adult male spinning following the introduction of Samuel Crompton's mule in 1780. The data indicate that the adoption of the mule was rapid, faster than has been shown previously. Temporal change in the ratio of spinners-to-weavers indicates that cotton spinning by hand and by jenny was effectively redundant by the 1790s. Other historians have suggested that use of the spinning jenny explains why the industrial revolution took off in Britain rather than elsewhere, but this data suggests that such an explanation is flawed because the lifetime of the jenny in cotton spinning was short, the machine redundant within 25 years or so of its introduction.
- (17) In 'The Location of the Textile Industry in England and Wales, 1813–1820', *Textile History*, 47 (2016), pp. 208–26, Sugden utilizes male occupational data recorded in the baptism registers of England and Wales 1813–1820 to locate the geographical distribution of the textile manufacturing industry at that time. By comparison with female and male occupations abstracted from the 1851 census, it shows that the location was set at least as early as the second decade of the nineteenth century, and before the introduction of steam power or the mechanization of weaving could have played significant roles. By 1813–20, the once great regional textile centres of East Anglia and the West Country were no more. Approximately 66 per cent of fathers employed in the textile industry lived in Lancashire and the West Riding of Yorkshire. Moreover, textile manufacturing was further concentrated into a small number of parishes. Two-thirds of fathers lived in 36 parishes, and 50 per cent resided in only 19 parishes.

An association between the location of the main textile parishes and the proximity of the coal measures is evident.

- (18) Jacob Field and Leigh Shaw-Taylor, in ‘The male occupational structure of London 1700-1881: A complex picture of London's development’, available online as paper 31 [here](#), using male occupational data from the Fleet Prison marriage registers, baptism records and the nineteenth century censuses have shown that London, whilst remaining the largest manufacturing centre in Britain, was shifting structurally towards tertiary employment right across the seventeenth and eighteenth centuries, with the tertiary sector rising from about 35 per cent of male employment in 1700 and approaching 60 per cent by 1911. Male employment in the tertiary sector came to exceed the secondary sector as early as 1881. For both-sexes, the threshold was crossed some decades before.

## Part II

### International Comparative History of Occupational Structure (INCHOS)

The international network for the comparative history of occupational structure (INCHOS) was launched in late 2007 by Dr Leigh Shaw-Taylor (University of Cambridge) and Professor Osamu Saito (Hitotsubashi University). This followed on from a session at the International Economic History Association meeting in Helsinki in 2006 and a very successful workshop on occupational structure hosted by Hi-Stat at Hitotsubashi University in Tokyo in September 2007. A further meeting was held in Cambridge in 2008 which led to an ongoing book project. Sessions have also been organised under INCHOS umbrella at a number of other international conferences: European Social Science History Conference in Vienna in 2014; World Economic History Conference in Kyoto 2015; European Social Science History Conference in Valencia in 2016; Asian Historical Economics Conference in Seoul 2016.

The aim of INCHOS is to develop a genuinely comparative history of occupational structure by using a common occupational coding system (PSTI – a modified version of E. A. Wrigley's PST system) and common methodologies to ensure commensurable results. Our interest is not in a particular period, but on industrialisation in the long-run process of modern economic growth, which means that the focus is on different time periods in different countries. The original network is now focussed primarily on a book project: *Occupational structure, industrialization and economic growth in a comparative perspective*, edited by Osamu Saito and Leigh Shaw-Taylor.

The book will contain eighteen country chapters (Belgium, Bulgaria, China, Denmark, England and Wales, Germany, Egypt, France, Japan, India, Italy, Korea, the Netherlands, the Ottoman Empire/Turkish Republic, Russia/Soviet Union, Spain, Sweden, Taiwan and the United States) written by country specialists, and a set of thematic essays covering topics such as by-employment, female occupations, the importance of the tertiary sector and so on. The datasets underlying the book will be made available online in digital form. A more detailed [description of the book](#) including a full list of chapters and authors is available. [Guidelines for authors](#), on the terminology and concepts used to describe economic development, which will become a chapter in the book are also available. Three key findings can be mentioned here. First, the deep-seated scholarly orthodoxy that the onset of modern economic growth is accompanied by an increase in the share of the labour force in the secondary sector and then at a later date the share of the tertiary sector begins to grow (Petty's Law) has to be rejected, as only one country out nineteen (Germany) actually follows this pattern. Secondly, in some cases, most notably Britain, Belgium, the Netherlands and the US before 1900, the secondary sector grew very little or not at all during the transition to modern economic growth. Essentially, this was because labour productivity growth was so rapid in the secondary sector that the structure of output could shift dramatically to the secondary sector without a parallel shift in the structure of the labour force. Thirdly, in many countries tertiary-sector employment increased significantly with the growth of manufacturing and, in some cases, without industrialisation. The focus of this book will be

on the changes in aggregate occupational structure associated with industrialization and the transition to modern economic growth.

This project has shown that paths to modern economic growth were much more sectorally diverse than has been hitherto realised, and that the widely assumed sequence of first a shift to the secondary sector and only at a later stage to the tertiary sector actually occurred only in Germany. The tertiary sector thus played a much more important role than is usually ascribed to it during industrialisation. Results on individual countries will require major re-thinking of national historiographies. Work by Alexis Litvine showed France had half the secondary sector employment of England and Wales across the 18th century, which serves to kill off long-standing claims that France could have industrialised first. Erik Buyst has shown that Belgium, the first continental industrialiser, like Britain had transformed its occupational structure before the transition to modern economic growth, contra Kuznets.

### Part III

#### African Comparative History of Occupational Structure (AFCHOS)

This international project seeks to replicate what the [INCHOS](#) project has achieved for Eurasia and North America by creating consistently coded and harmonised datasets on historical occupational structure for as many countries as possible in sub-Saharan Africa and engaging in systematic comparative analysis. A first major goal is producing a monograph, tentatively titled: *Structural Change in African Economies: an Occupational Perspective*, to be edited by Gareth Austin and Leigh Shaw-Taylor (both Cambridge). Currently thirteen country or area chapters are in preparation and nineteen scholars are actively involved, from nine universities or institutes in Europe, Southern Africa and the USA.

The quantitative analysis of occupational structures is especially pertinent to our understanding and measuring of economic growth and development in Africa, where the quality of national income accounts has been severely criticised. Studying the changing sectoral composition of African economies can illuminate the mechanisms of economic expansion, and the constraints upon it, particularly during periods of structural shifts such as the growth of agricultural exporting during the colonial period, the state-led development strategies in the first decades after independence, the adoption of 'Structural Adjustment' in the 1980s, and the recent period of general economic expansion – but without industrialization – since c.1995. Regarding structural change, quantifying changes in occupational structure will also encourage new readings of the fortunes of manufacturing, from the craft sectors of the precolonial economies to the contemporary manufacturers' struggles with Chinese competition. The project will contribute to comparative and global economic and labour history, and to the debates about development policy in Africa.

AFCHOS uses the PSTI system for classifying occupations already used in [INCHOS](#). Unlike the established Primary-Secondary-Tertiary system, PSTI includes mining in the secondary rather than the primary sector. In African history, however, mining and other forms of mineral extraction usually have different properties from both agriculture and manufacturing. Therefore, the AFCHOS country studies show the data in 4 sectors, with mining/extraction as a separate entity besides primary production, manufacturing, and services, before eventually summarising in PSTI terms. We hope thereby to do justice to the particularities of Africa, while achieving commensurability with the Eurasian/North American study.

In the present phase the following country or area chapters are in preparation:

- Botswana: Jutta Bolt and Ellen Hilbom (both Lund University),
- Congo (Belgian Congo, Zaire, DRC): Ewout Frankema, Michiel de Haas and Dácil Juif (all Wageningen University),

- Ghana: Gareth Austin (University of Cambridge),
- Kenya: Karin Pallaver (University of Bologna),
- Malawi: Erik Green (Lund University), Wapulumuka Mulwafu (Chancellor College, University of Malawi) and Rory Pilosoff (Free State University),
- Mozambique: Filipa Ribeiro da Silva (International Institute of Social History, Amsterdam),
- Northern Nigeria: Emiliano Travieso and Gareth Austin (both University of Cambridge),
- Senegal: Marlous van Waijenburg (University of Michigan),
- Sierra Leone Colony in 1831: Stefania Galli (Gothenburg University),
- South Africa: Johan Fourie and Omphile Rampela (both Stellenbosch University),
- Tanzania: Karin Pallaver (University of Bologna),
- Zambia: Duncan Money and Rory Pilosoff (both Free State University),
- Zimbabwe: Erik Green (Lund University), Wapulumuka Mulwafu (Chancellor College, University of Malawi) and Rory Pilosoff (Free State University).

Further details and updates may be found on the project webpages [here](#).

#### **Part IV**

##### **European Network for the Comparative History of Occupational Structure (ENCHOS)**

We launched the European Network for the Comparative History of Population Geography and Occupational Structure 1500–1900 in early 2017. The underlying aim of ENCHOS is to improve our understanding of Europe's long-run economic history and the origins of modern economic growth. Its goals are (i) to create a long-lasting network of scholars committed to working together within an agreed methodological framework, and (ii) to establish multiple projects generating robust harmonized datasets on occupational structure and population geography at the local, regional and national levels 1500–1900, for as many European regions as possible, and (iii) to create a quantitative data-infrastructure, scalable to any spatial scale from local communities, to regions, polities and beyond.

Economic historians are drowning in detailed local studies and buffeted by contradictory and methodologically problematic international comparisons based on incommensurable national studies. While we have estimates of national aggregates such as GDP per capita and real wages for many countries, we lack a detailed, quantitative and integrated account of European economic development 1500–1900 based on harmonized and robust data available at a sub-national level. ENCHOS would try to change that by jump-starting projects aimed at creating an integrated set of inter-related datasets that would allow us to trace, in a directly comparable manner, the evolution of Europe's local, regional and national economies over four centuries. The intention is to create a quantitative scalable framework for European economic history to which more particularistic studies could be fitted. Long-term economic development is closely connected with two major interrelated structural changes which the historic record allows us to document in considerable detail over many centuries. First, as economic development proceeds, population tends to concentrate in towns and industrial or proto-industrial regions. Secondly, individuals tend to become more specialized while localities, regions and nations experience shifts in occupational structure away from an early predominance of agricultural employment.

#### **Part V**

##### **Latin American Comparative History of Occupational Structure (LACHOS)**

This international project aims to create consistently coded and harmonised datasets on historical occupational structure for as many countries as possible in Latin America. The new datasets will allow us to develop systematic comparative analyses, both within the region and in dialogue with the results produced by the INCHOS and AFCHOS projects for Eurasia, North America and Sub-Saharan



Africa. LACHOS was launched in the 6<sup>th</sup> Latin American Economic History Congress (Santiago de Chile, July 2019) by Marc Badia-Miró (Universitat de Barcelona), Leigh Shaw-Taylor and Emiliano Travieso (both University of Cambridge).

The LACHOS team plan to use occupational data to better describe and explain some of the defining traits of Latin America's long-term economic development: structurally high levels of inequality, large productivity gaps between sectors, and an inability to converge with the income levels of the leading Western economies. Economic historians and development economists have so far studied these structural features predominantly within a national accounts framework. As a result, whereas over the last two decades scholars have significantly improved the coverage and accuracy of historical estimates of output, trade, and average incomes, our knowledge of occupational structures in modern Latin American history is still extremely limited. Each LACHOS chapter will be the first to examine occupational structures over a long period for its respective country, going as far back as data permit – meaning, in most cases, the late-nineteenth century. The results will allow us to sidestep two crucial limitations of the state-of-the-art in the quantitative economic history of the continent: the index number problem that arises when comparing incomes across economies with different price structures, and the limited capacity of national output data to account for regional developments. To overcome these issues, LACHOS will offer directly comparable indicators of economic development to produce a better description of the diversity of trajectories between Latin American countries, and sub-national occupational data to explore the spatial structure of the regional economies within them.

A second aim of the project is to offer a new vantage point from which to discuss the chronologies and typologies often used to analyse Latin American economic development in historical perspective. Reconstructing occupational structures will shed new light on the boundaries and definitions underlying the current mainstream periodization, from the era of export-led growth starting with the First Globalisation (1870–1930), to the growth of manufacturing under the period of state-led, import-substitution industrialization (c.1930–1980), and the subsequent era of 'Structural Adjustment' and the 'turn back to the market' (since 1980). Occupational structures can also provide a new perspective from which to discuss the classic typologies of Latin American societies, which are largely based on an interpretation of their economic structures.

LACHOS will use the PSTI system for classifying occupations; however, consistent with the approach taken in the AFCHOS project, mining and extraction will first be considered as a separate category, along with primary production, manufacturing and services, before the data is presented in summary form using the PSTI categories. In the present initial phase of the project the following country chapters are in preparation:

- Argentina: Florencia Araoz, Esteban Nicolini and Mauricio Talassino (all Universidad del Norte Santo Tomás de Aquino, Argentina),
- Bolivia: José Peres Cajías (Universitat de Barcelona, Spain),
- Brazil: Cecilia Lara (Universidad de la República, Uruguay),
- Chile: Monsterrat Pacull and Marc Badia-Miró (both Universitat de Barcelona, Spain),
- Costa Rica: Andrea Montero Mora and Ronny Viales Hurtado (both Universidad de Costa Rica),
- Peru: Bruno Seminario (Universidad del Pacífico, Peru) and María Alejandra Zegarra (Brown University, USA),
- Uruguay: Emiliano Travieso (University of Cambridge), Sabrina Siniscalchi and Henry Willebald (both Universidad de la República, Uruguay).

## **Part VI**

### **Other related projects**

**The Occupational Structure of the Okanagan, British Columbia, and Canada, 1881–present day**

We are collaborating with the University of British Columbia to investigate occupational structure and temporal economic change in the Okanagan, British Columbia, and Canada, 1881–present day. The Okanagan is a small region situated in southern British Columbia in an area defined by the Okanagan River and Lake, and stretching from Sicamous in the north to the border with the United States of America in the south. The region has developed to become one of Canada’s key entrepreneurial and growth areas, of national and provincial importance. Kelowna, the principal city, is home to 633 technology companies and 240 wineries, and accounts for more than one-half of the Okanagan’s population. It is one of the fastest growing cities in Canada. The Kelowna Metropolitan Area is the largest in British Columbia outside of Vancouver and Victoria. Yet, in 1891 Kelowna did not exist. The temporal occupational growth of the Okanagan and the economic rise of Kelowna have not been studied by economists or historians in any quantitative, systematic manner. Our collaboration is a long-term study to address this gap. The present work, concerned with change from 1881 to 1941, will be published by the University of British Columbia Press in 2021. Subsequent studies will examine economic change from the 1950s through to the present day, and then use the historical evidence of structural transformation from 1881 onwards to suggest how the Okanagan could develop in the future. Given that the Okanagan experience is one of rapid entrepreneurial growth, the overall study has implications for other regions, both within Canada and internationally. Project website [here](#).

### **Industrialisation and Urban Growth from the mid-nineteenth century Ottoman Empire to Contemporary Turkey in a Comparative Perspective, 1850–2000**

This project, headed by Erdem Kabadayi at Koc University, aims to overcome historiographical and disciplinary limitations in social and economic history, historical geography and urban studies for the Ottoman Empire and the Republic of Turkey. The chosen long-term Ottoman/Turkish perspective is intended to facilitate comparative approaches so as to overcome the limitations of national historiographies. By extending the analysis up to 2000, the project also challenges the disciplinary divide between economic history, economics and urban studies in research on Turkey. To pursue these multiple goals, the project will adopt both an interdisciplinary approach and a comparative perspective. Throughout the project the focus will be on the dynamics of industrialisation, urbanisation and their accompanying changes in occupational structures and residential and migration patterns. To be able to contextualise and compare changes in occupational structure and urban growth trajectories across time and space, solid and detailed datasets of occupational structure and historical demographics for a very large part of the Ottoman Empire in the 19th century and for the entire Turkey in the 20th century will be constructed. This project is an attempt at bringing Ottoman/Turkish history into the newly emerging field of digital humanities. It will use advanced techniques of spatial data and multiple correspondence analysis in conjuncture, to answer long debated research questions and to formulate, and work on new ones by taking an unprecedented step forward toward establishing a digital research infrastructure for the social and economic history of the Ottoman Empire and the Republic of Turkey. This project will redefine industrialisation and its connection with urbanisation from a spatiotemporal analytical perspective for Anatolia and the Southeast Europe. to ask time and space specific questions about simultaneity and geographical convergence of Eurasian economic development since 1850. Project website [here](#).

### **Technological Shocks and Regional Resilience: Changing Occupational Structure and Development in the Swedish Regions (1640–1900)**

This project, based at the Department of Economic History, Lund University, Sweden and run by Kerstin Enflo and Anna Missiaia, will start in 2020.

The emergence, disappearance and relocation of jobs are inherent features of modern economic growth and a result of technological change, globalisation and changing market conditions. These dynamics often have redistributive effects among workers with different skills and specialization, with great economic, social and political implications. There is also an important regional dimension of this process, with regions striving and declining. These dynamics are observed in today’s globalized

world, but occurred also during past waves of globalization and industrialization. This project will look at the case of Sweden, a late industrializer that developed into one of the most innovative and dynamic economies of the continent. It will construct a database on the occupational structure of the Swedish parishes by gender from 1640 to 1900 and test whether Swedish local economies responded to external factors, such as openness to trade, or to internal conditions such as pre-industrial occupational specialisation and land ownership. The project will also test how specific protectionist policies of the 18th century, such as subsidizing manufactories and providing monopoly rights to trade in towns, affected subsequent regional industrialization.

### **Collaborative Micro Mapping of UNExploited HIStorical District-Boundary Data**

This project funded by the Agence Nationale de la Recherche (ANR, France) and INED (France) is led by Alexis Litvine (Campop) and Isabelle Séguy (INED).

The COMMUNE HIS-DBD project will build the first historical-GIS capturing all changes in the boundaries of French communes since the Revolution and create a multi-modal dataset of transport networks from 1750 to the present.

It combines the strength and expertise of INED (team led by Isabelle Séguy), the Cambridge Group for the History of Population and Social Structure (CAMPOP) based at the University of Cambridge (team led by Max Satchell and Alexis Litvine), and the ThéMA lab at the Université de Bourgogne (team led by Thomas Thévenin). It also benefits from the technical expertise of the Institut National de l'Information Géographique et Forestière (IGN) and the active support of some of the most prominent European scholars in our Advisory Board.

Previous attempts have not succeeded in producing a reliable and accurate database of boundary changes, mostly because they did not rely on historical records to reconstruct historical administrative units. As nobody has yet undertaken the painstaking historical reconstruction on a national scale, the exact shape and delimitation of French administrative units in the past remain largely unknown. The unique combination of the historical and cartographic expertise of our teams will allow us to fill this major historical gap. Thanks to the seminal work by Séguy and Théré, who compiled a list of all boundary changes since 1801, we have devised a method to reconstruct historical administrative boundaries efficiently and accurately. We will be using a combination of historical and cartographic sources drawing upon administrative records, official maps from both the Service Géographique de l'Armée (SGA) and IGN, and other cartographic material such as cadastral mapping and recent land surveys. Overall, c.15% of all communes will require exhaustive archival research all over France in order to digitise contemporary maps of administrative boundaries.

The project will start in early 2020. Further details can be found online [here](#).