Historical demography: Fertility, gender norms and marriage in history

On the impossibility of demographic equilibration
Philip Kreager - Oxford University

Demographic transition, from its initial formulation through many mainstream research programmes, was supposed to end in population stabilisation. Yet, as Ron Lee pointedly remarked, there is 'no natural lower bound for fertility. Nor…a mechanism for fertility to respond to economic signals in such a way that population would equilibrate' (2003: 176). Two decades on, this has become painfully apparent in debates over current low fertilities. A longer historical perspective is needed. Population balances and their means of regulation were already in sophisticated discussion by Aristotle. Later theories, from Graunt to Malthus existed within that classical tradition. Balance only came to imply equilibration chiefly with Quetelet's mid-19th-century 'social physics', then extensively developed in neo-classical economics. Yet even there its unreality was exposed by Tinbergen and Kuznets. Lotka fully formalised the idea, pointedly remarking that diffusion phenomena (more recently a major interest of demographers interested in low fertilities) simply cannot be incorporated into his mathematical system. This presentation tracks the lessons of this history to inform discussion of where we go from here.

Childhood education and the fertility decline in England and Wales, 1881-1921
Jacob Rose - University of Oxford

New census microdata can be probabilistically linked to create panels, opening new opportunities for individual-level historical life course analysis. Researchers can explore how experiences in childhood may affect later-life fertility behaviour, helping move the field beyond examining forces experienced solely in adulthood - such as migration or occupation. Prominent theories of fertility decline formulated in the late 20th century developing world – many of which cited gendered levels of childhood education – can be tested in the context of the first fertility declines.

My paper explores whether schooling expansion inculcated later-life ideational change in the English and Welsh demographic transition from 1881-192. It uses UKDS census microdata and individual-level links provided by other researchers, and women's full birth histories in 1911 imputed by me. I use two strategies. First, I explore how age-specific proxies of schooling contained within the census affected later-life net fertility and its pace at different parities, and how these effects were structured by place and socio-economic strata. Preliminary results indicate a strong associational relationship between lower fertility and schooling, which, although is endogenous to several low-fertility unobserved forces, is robust to available controls.

Second, late-nineteenth century parish-level data on educational interventions (from 1870-80 and in 1891) are leveraged in a series of quasi-experimental tests to explore causal relationships between schooling exposure and family size. Preliminary results show weaker, occupation-specific relationships, likely owing partially to treatment contamination and attenuation biases. However, when additional proxies for mandatory or better-provisioned schooling are added, the results become more significant and negative.

Beyond weak patriarchy: Revisiting family-based gender inequality in Northern Europe around 1900
Mateusz Grzyb & Mikolaj Szoltysek - Cardinal Wyszynski University in Warsaw, Poland

Previous comparative work using the Patriarchy Index (PI) (Szoltysek et al., forthcoming in The History of the Family) has shown that, around 1900, Northern European societies exhibited remarkably low and internally homogeneous levels of family-based patriarchy when compared to the United States. Drawing on NAPP-based census microdata, earlier analyses revealed that most regions in Scandinavia and the British Isles clustered tightly at the lower end of the PI scale, typically between 5 and 12, with Nordic countries displaying especially compressed distributions. These findings have been interpreted as consistent with a historically "weak" patriarchal regime in Northern Europe.

This paper revisits this observation by systematically applying the standard PI to full-count NAPP samples from Denmark, Iceland, Ireland, Norway, Sweden, and the United Kingdom between 1880 and 1910, and by exploring extensions of the index designed to capture emergent forms of patriarchal power in contexts where family organization no longer served as the primary institutional anchor. In addition to the original PI components, we incorporate measures of female labor force participation among married women, spousal age gaps, and related indicators of territorial endogamy in spouse selection.

We argue that while the PI remains effective in identifying family-based patriarchal structures, it becomes relatively insensitive once very low levels are reached and may understate meaningful variation in late nineteenth- and early twentieth-century societies. The extended measures reveal greater differentiation within Northern Europe—particularly within the British Isles—than suggested by the standard index alone. Rather than redefining family patriarchy, this approach highlights historically specific mechanisms through which gender inequality may have persisted under conditions of declining familial patriarchy, offering a more nuanced account of gender relations in early industrial societies.

On the market: Women's work, local industry, and nuptiality in Derbyshire, 1881-1911
Emma Diduch - University of Cambridge

Local industries and sex ratios affect the 'supply' side of marriage, in terms of the pool of potential spouses. Different occupational structures also affect demand for marriage, if wage levels either allowed couples to set up households or allowed individuals to remain independent. Demand for marriage could also be conditional on preferences for a particular type of partner – whether of the right age, occupation, or social class. Using linked census and civil registration data from Derbyshire, I analyse patterns in first marriages based on individual-level observations of occupation and age at marriage instead of relying on aggregate analysis of nuptiality based on estimates of labour force participation and age at marriage by district. If an unbalanced sex ratio in textile districts affected nuptiality, it is important to know whether it was the textile workers themselves who either changed the timing of marriage or did not marry at all. The linked census dataset also allows me to explore associations between a woman's father's occupation, her own work as a child and young adult, and, if she married, the occupation of her husband. I use a split-population cure model to simultaneously analyse the timing of marriage and the likelihood of staying single. The interaction between a woman's occupation and her place of residence before marriage reveals restricted access to or appetite for marriage among several occupational groups, including dressmakers and women in white-collar occupations. In contrast, differences in nuptiality between textile workers and domestic servants seem to have been more rooted in different geographic distributions and access to potential spouses. It is notable that textile employment did not encourage women to substantially delay marriage; on the contrary, textile workers in Derbyshire seem to have been advantaged on the marriage market in some districts.

Bridges of bride: Marriage network diversity and partner selection in 19th–20th Century Guangdong, China
Tianning Zhu - LSE

How marriage markets operate can affect marital sorting, as suggested by evidence from speed dating and dating websites. The way historical marriage markets were organised could also affect the matching outcomes, notably the London Season for British peerage marriages. However, these studies focus on love marriages, which only gained popularity in Asia and Africa over the last century, with a decline in arranged marriages. This paper studies how markets for arranged marriages were embedded in the couple's families' social networks in historical China and examines whether access to a broader marriage market through diverse social networks improves one's marriage market outcomes.

This paper uses Chinese genealogical data from five clan genealogies in Guangdong, China, to reconstruct family social networks for members mostly born between the seventeenth and early twentieth centuries. Male clan members tended to live close to each other, and their brides often moved across villages to join the groom's clan, creating social networks that could facilitate the search for matches across localities. Using the birthplace information of male members' wives, I construct a relational distance-weighted Shannon index measuring the birthplace diversity of older relatives' wives. Then I use logistic regression to study the impact of diverse networks on one's marital partners' social status. The preliminary results show a gendered pattern. Diverse networks improve the odds of marrying up for female offspring. Male offspring also benefit, but the effects are weaker. These results suggest that in-married women might expand opportunities for marital mobility by bridging separate local marriage markets.

Historical demography: Health transition

The evolution of multiple causes-of-death over time in the UK
Alice Reid - University of Cambridge, Hampton Gaddy – LSE & University of Oxford

Most analysis of long time series of causes-of-death has to date been carried out on published tables in which each death has been allocated to a single cause-of-death category. Such tables can give the impression that allocation of cause-of-death was straight-forward and consistent, and encourage the direct comparison on causal groups over time and between places (albeit often with insightful recognition of the impact changing nosologies and medical diagnostics). However the increasing availability of individual-level death records containing causes-of-death, generally from the mid-nineteenth century onwards, is enabling a deeper investigation of the production of such statistics, including the assessment of multiple causes-of-death. Initial analysis indicates that the number of deaths with more than one listed cause increased steadily over time, and was linked to growing medical knowledge and increasing medical attendance at death.

This paper uses a new scheme to allocate underlying cause of death to multiple causes and applies it to UK data for three varied locations. In our paper we compare our allocated underlying causes of death to those allocated by local registrars, we report on common combinations of cause, and we analyse which people were most likely to be allocated more than one cause. We use the results of our analyses to reflect on our understanding of the published series of cause of death.

Turning points in Amsterdam's mortality decline, 1856-1926
Joris Kok - Queen's University Belfast, Tim Riswick - Radboud University

While we have a broad overview of the mortality decline in nineteenth-century Europe, we know less about the specific timing of the decline across causes of death, social groups, and neighbourhoods within cities. Because aggregate statistics lack the detail to study these issues simultaneously, this paper uses individual-level cause-of-death registers for Amsterdam 1856–1926 to identify breakpoints in the city's mortality decline for specific diseases and disease groups and across subpopulations. Causes are classified using ICD-10h, enabling a detailed examination of individual diseases and a reclassification of infectious diseases into categories based on mode of transmission. Breakpoints are estimated using segmented regression by age and sex and across socioeconomic status and city district. These turning points are then interpreted against changes in Amsterdam's water supply, housing density, and public health provision to gain a better understanding of when mortality started to fall, for whom, and why. Preliminary results suggest distinct group-level trends, pushing back on the idea of a uniform, city-wide mortality decline.

The epidemiologic transition revisited: The double burden of disease in England and Wales, 1848-2000
Izzi Carter - LSE

The Double Buden of Disease (DBD) is a phenomenon that has been well documented across the Global South. An 'epidemiological polarisation' which splits mortality from communicable and non-communicable disease within a population across a socio-economic axis, the DBD is often cited as evidence that established theories used to understand processes of demographic change, including epidemiologic transition theory, are no longer fit for purpose. While the DBD has been observed as a key feature of many ongoing health transitions in the 21st century, little attention has been given to the potential of historical cases of DBD and the implications of this for our understanding of health transition processes.

This paper has two main objectives. The first is to develop an approach to quantitative definition and measurement of DBD in historical contexts through the testing of three broad approaches identified in the literature. The second is to apply these approaches to a historical case study of epidemiologic transition through analysis of annual cause of death data for England and Wales between 1848-2000. This paper returns to the main case study used to develop the original epidemiologic transition theory – England and Wales – to consider the possibility that a DBD was present during this transition and, by extension, whether the DBD is a feature of the epidemiologic transition process itself rather than a uniquely modern phenomenon confined to the Global South.

Historical health interventions

Maternal health and newborn survival: Evidence from a mining community in Sardinia
Lucia Pozzi - University of Sassari, Gabriele Ruiu - University of Sassari, Michail Raftakis - University of Bologna, Matteo Manfredini - University of Parma

The aim of our contribution is to analyse reproductive health and maternal mortality, together with foetal and early neonatal mortality, in Iglesias, a mining community in southern Sardina (Italy) from the late 1890 through World War WII.

Alongside traditional demographic sources (civil records of births and deaths, and an individual census survey), we can rely on largely underexplored archival sources: burial permits and a set of qualitative sources preserved in the Historical Municipal Archive of Iglesias, including childbirth and abortion/ miscarriage registers kept there from the end of the 1920's.

The data at our disposal allow us to delve deeper into several aspects that have been little explored so far, including the link between maternal health and newborn health during and after childbirth, and in particular the influence of malaria, one of the diseases that is known to increase the risk of low birth weight, spontaneous abortion, and foetal mortality.

Sardinia offers a particularly interesting case, having recorded some of the highest levels of maternal mortality in Italy since the early post-unification period. The evolution of obstetric care on the island has thus far been studied primarily by historians and anthropologists. Our study deepens the health and historical-demographic aspects, employing an interdisciplinary approach that integrates quantitative and qualitative sources.

Before the 'Sanitary Revolution': Urban sanitation and faecal-oral diseases in British towns and cities 1780 – 1870
Romola Davenport - University of Cambridge, Hannaliis Jaadla - University of Cambridge, Bernard Harris - University of Strathclyde, Toke Aidt - University of Cambridge

A key assumption in most accounts of the 'Sanitary Revolution' in Britain is that rapid urbanisation was accompanied by rising levels of faecal-oral diseases including typhoid, cholera and summer infant diarrhoeal epidemics. Explanations focus on either the negative externalities of unregulated economic growth, or on the unintended consequences of the expansion of sanitary technologies, most notably flush toilets and piped water, that resulted in increased contamination of drinking water and its efficient distribution to thousands of households. However the extent to which faecal-oral disease rates actually rose in the early stages of industrialisation remains unclear, because mortality data are sparse and difficult to interpret before the introduction of civil registration in 1837 in England and Wales and 1855 in Scotland.

This study leverages the distinctive patterning of some faecal-oral diseases by age and temperature to test for trends in these diseases in parish register data pre-1837. Faecal-oral disease outbreaks tended to be concentrated in summer and autumn, and late summer epidemics of infant diarrhoeal mortality were a key component of the urban mortality penalty in Victorian towns. Using a sample of towns for which it is possible to knit together high-quality individual-level or weekly data on burials and deaths across the period c.1780–1870 (including London, Manchester, Glasgow and smaller towns) we test whether pre-registration burials demonstrated particular seasonal, age-specific or cause-specific patterns that were consistent with faecal-oral disease patterns. Work so far indicates that faecal-oral diseases were less prominent in the early nineteenth century than later in the century, with the exception of London.

The impact of sanitary interventions on Scottish urban mortality patterns, 1851–1901
Hannaliis Jaadla - University of Cambridge, Romola Davenport - University of Cambridge, Toke Aidt - University of Cambridge, Bernard Harris - University of Strathclyde, Alex Wakelam, University of Cambridge

Although the chronology of sanitary intervention in many parts of Scotland was substantially similar to the developments in England and Wales, it was not identical. In Scotland, many of the earliest reforms were

incorporated within local Police Acts and no national legislation was introduced before 1867. In addition, Scotland displayed distinctive patterns of faecal-oral diseases, including winter epidemics of cholera and surprisingly low rates of infant diarrhoeal mortality compared with English towns.

This paper will examine the history of public health reform in Scotland's 'principal town districts' using a combination of data sources. First, information on local government investments to WaSH interventions are obtained from the Local Acts of Parliament, the Annual Reports of the Board of Supervision and the Scottish Local Government Board. Second, cause- and age-specific mortality rates are estimated for all larger towns in Scotland by utilizing individual-level Scottish civil registration data provided by Scottish Historic Population Platform (SHiPP). The availability of individual-level data makes it possible to create mortality rates by specific cause and demographic category for bespoke spatial and temporal units, something impossible in England and Wales.

The paper will address questions such as: a) what was the relationship between investments and mortality outcomes; b) how different economic and geographical characteristics of towns influenced impact of sanitary interventions; c) what was the role of municipalisation? Our empirical approach is to estimate two-way fixed effects panel regression models (Chapman, 2019, Aidt et al. 2022).

The long history of child stunting in India

Juliana Jaramillo Echeverri - Bank of Colombia, Maanik Nath - LSE, Eric Schneider - LSE

This paper reconstructs the historical trajectory of child stunting at the state level in India from the 1950s onward from novel data. It shows that stunting trends at the state level were far more varied than one might expect. Stunting rates in Kerala and Tamil Nadu (where stunting is low today) had very high stunting rates in the 1950s similar to the poorest performing states today (Uttar Pradesh). Kerala's stunting rates declined from the 1970s onward and Tamil Nadu's from the 1980s onward. The paper explores the causes of this divergence complicating our understanding of the causes of child stunting in India.