

HISTORICAL LIFE COURSE STUDIES

VOLUME 3
2016



MISSION STATEMENT

HISTORICAL LIFE COURSE STUDIES

Historical Life Course Studies is the electronic journal of the *European Historical Population Samples Network* (EHPS-Net). The journal is the primary publishing outlet for research involved in the conversion of existing European and non-European large historical demographic databases into a common format, the Intermediate Data Structure, and for studies based on these databases. The journal publishes both methodological and substantive research articles.

Methodological Articles

This section includes methodological articles that describe all forms of data handling involving large historical databases, including extensive descriptions of new or existing databases, syntax, algorithms and extraction programs. Authors are encouraged to share their syntaxes, applications and other forms of software presented in their article, if pertinent, on the EHPS-Net website.

Research articles

This section includes substantive articles reporting the results of comparative longitudinal studies that are demographic and historical in nature, and that are based on micro-data from large historical databases.

Historical Life Course Studies is a no-fee double-blind, peer-reviewed open-access journal supported by the European Science Foundation (ESF, <http://www.esf.org>), the Scientific Research Network of Historical Demography (FWO Flanders, <http://www.historicaldemography.be>) and the International Institute of Social History Amsterdam (IISH, <http://socialhistory.org/>). Manuscripts are reviewed by the editors, members of the editorial and scientific boards, and by external reviewers. All journal content is freely available on the internet at <http://www.ehps-net.eu/journal>.

Editors: Koen Matthijs & Paul Puschmann
Family and Population Studies
KU Leuven, Belgium
hislives@kuleuven.be

The European Science Foundation (ESF) provides a platform for its Member Organisations to advance science and explore new directions for research at the European level. Established in 1974 as an independent non-governmental organisation, the ESF currently serves 78 Member Organisations across 30 countries. EHPS-Net is an ESF Research Networking Programme.



The European Historical Population Samples Network (EHPS-net) brings together scholars to create a common format for databases containing non-aggregated information on persons, families and households. The aim is to form an integrated and joint interface between many European and non-European databases to stimulate comparative research on the micro-level.
Visit: <http://www.ehps-net.eu>.



Tracking Couples who leave the Study Location in Historical Studies of Fertility: an Australian Example

Helen Moyle
The Australian National University

ABSTRACT

The paper describes the methods used to create a database to study the fall of fertility in Tasmania, a colony of Australia, in the late 19th and early 20th centuries. The database was initially created from digitised Tasmanian vital registration data using techniques of family reconstitution. However, because of the high mobility in Australia in the 19th and early 20th centuries, couples who moved out of the colony were tracked to other places, and births and deaths that took place in other Australian colonies and other countries, such as New Zealand and England, were included in the database. A wide variety of data sources were used for this task, most of which are available on the internet. The results presented in the paper show that including families who moved outside Tasmania, either temporarily or permanently, produced a database that was more representative of the study population and provided more accurate birth histories for couples who at first glance appeared to have spent their married lives within the colony.

Keywords: Family reconstitution, migration, 19th century Australia, internet resources

e-ISSN: 2352-6343

PID article: <http://hdl.handle.net/10622/23526343-2016-0005?locatt=view:master>

The article can be downloaded from [here](#).

© 2016, Helen Moyle.

This open-access work is licensed under a [Creative Commons Attribution 4.0 International License](http://creativecommons.org/licenses/by/4.0/), which permits use, reproduction & distribution in any medium for non-commercial purposes, provided the original author(s) and source are given credit. See <http://creativecommons.org/licenses/>

1 INTRODUCTION

The technique of 'family reconstitution' (Henry 1961; Henry & Blum 1988), that is, the reconstitution of families using records on births, deaths and marriages, has been used by demographers to study the decline of fertility in historical populations, but it has a number of problems (Gutmann & Alter 1993; Wrigley 1966; Wrigley, Davies, Oeppen & Schofield 1997).

A major problem is that the data are only available for events within the area or region that is being studied, and families who move out of the area or region are excluded from the analysis, giving rise to issues of the representativeness of the study population (Gutmann & Alter 1993; Ruggles 1992). In conventional family reconstitution fertility studies, only couples who marry in the region, live there throughout their childbearing years and have 'completed' their fertility (that is, the husband and wife survive until the wife turns 50 years of age) are included in the analysis.

Gutmann and Alter (1993) argue that the event-history analysis approach overcomes this problem, since all families living in a region are included in the analysis, until they disappear from the records, for instance, because they have migrated out of the region. The event-history approach, however, does not distinguish between fertility-limiting spacing and stopping behaviours, since it models the 'risk of having the next birth', which can reflect either the length of the next birth interval (spacing) or whether the woman stops having children (stopping) (Berger, Merchant & Puerta 2009; Gray, Evans, Anderson & Kippen 2010).

This paper examines the methods used to create a database that enabled me to study the fall of fertility in Tasmania, a colony of Australia, in the late 19th and early 20th centuries (Moyle 2015). A major aim of the research was to examine the extent to which the fall in fertility was due to spacing or stopping behaviours. I thus needed to build a database of families who had completed their fertility for whom I could identify which birth was the last.

Migration was an important feature of Australian society during the 19th and early 20th centuries. Borrie (1994) comments on 'the high level of migration' between Australian colonies during the 19th century (p. 144). By 1901, almost 11 per cent of the population of any Australian state was comprised of people born in another Australian state/colony. New Zealand was also a favoured destination for Australians. Many Tasmanians went to New Zealand in the early 1860s with the discovery of gold in Otago (Kellaway 1999). The gold rush in Western Australia also attracted people from other Australian colonies during the late 1890s and early 1900s. Limiting my database to couples who had all their births in Tasmania and remained there until the end of the wife's childbearing years would have provided me with a much smaller database that was less representative of my study population—that is, couples where the wife was in her first marriage, they had at least one child from/during the marriage and both husband and wife survived the wife's childbearing years.

I thus decided to search for vital events that occurred in other Australian colonies, in New Zealand and in other countries. This would not have been possible without the digitised records that have become available on the internet in the past 5–10 years. Larson (1994) writing about family reconstitution in the 1980s and early 1990s, considered that one of the problems of family reconstitution was that it was impossible to trace families who moved out of the study area or learn about events that 'were never recorded, such as a baby born while the family was on a visit to England' (p. 33). Gutmann and Alter (1993) also noted the 'enormous difficulty in locating and identifying records for many regions and differing registration systems' (p. 165). In the last 20 years, the availability of digitised records accessible through the internet has largely overcome this problem.

The paper outlines the methods and data sources that were used to create the database and presents the results.

2 DATA SOURCES AND METHODS

In Australia, data to analyse the historical fertility decline have been very limited. The forms from the colonial censuses and the early Australian censuses have been destroyed, and the census data are only available in published tables. State vital registration data are generally not digitised and access to full vital registration data is restricted. Most analyses of the Australian historical fertility decline have relied on retrospective census data from the 1911 and 1921 Australian censuses (cf. Jones 1971; Ruzicka & Caldwell 1977), but there have also been studies using small samples of vital registration data from specific colonies or regional areas (cf. Anderson 1999; Carmichael 1996; Larson 1994).

About 20 years ago, however, the Tasmanian Civil Registration Digitised Database, a digitised database of 19th-century Tasmanian births, deaths and marriage registration data, became available for research purposes, enabling much larger and more complex studies of historical demographic events to be conducted (Gunn & Kippen 2008; Kippen 2002). I used these Tasmanian vital registration data plus many other sources to construct an individual-level database (Van Bavel 2004) which enabled me to analyse the Tasmanian historical fertility decline using both bivariate and multivariate methods (Moyle 2015). These vital registration data do not include the Indigenous population of Tasmania. The size of the Indigenous population during the 19th century is unknown, but there were only 250 of the original inhabitants left after the first 30 years of white settlement, mainly due to massacre by the European population (Boyce 2010).

My database consists of reconstituted families from four Tasmanian marriage cohorts - 1860, 1870, 1880 and 1890. The family reconstitution involved tracking couples from the time of their marriage to the end of the wife's childbearing years or to the death of the husband and/or wife, whichever was earlier.

The Tasmanian births and marriage data were initially linked using automated linkage, but this produced only a 70 per cent success rate (Kippen & Gunn 2011). It was then necessary to link the unmatched vital registration records manually. Once a family had been reconstituted using the Tasmanian vital registration data, I searched for births and deaths that occurred outside Tasmania. I looked for births and deaths for all couples in the four marriage cohorts where the wife was in her first marriage. I did not assume that a couple was childless if they had no births in Tasmania, nor did I assume that I had found all their children if they had Tasmanian births.

I used a number of data sources to reconstitute the families of couples who moved from Tasmania at some time after their marriage. These data sources and the periods that they cover are listed in the Appendix.

The Australian colonial vital registration indexes, the New Zealand indexes and the English indexes were a major source of information. The Victorian vital registration indexes are available on CDs and the South Australian indexes on microfilms. They are accessible at a number of Australian libraries, including the National Library in Canberra. The New South Wales, Queensland, Western Australian, New Zealand and English vital registration indexes are available on the internet. The Australian Births, Deaths and Marriages Indexes which are a compilation of vital registration events from all the colonies/states are available on the website www.ancestry.com, but the births' data are more difficult to search, since parental first names cannot be used.

I initially searched for births using the various birth indexes, which contain the following information:

- The Victorian birth index gives place of birth, father's full name and mother's maiden name
- The Queensland birth index gives father's full name and mother's maiden name
- The South Australian birth index gives birth place, registration district, father's full name and mother's maiden name
- The New South Wales birth index gives registration district, father's and mother's first names and sometimes the first initial of their middle names.
- For births up to 1905, the Western Australian index gives the place of birth, father's name and mother's maiden name, but for births after this date it gives only name and sex of the child and registration district.
- The New Zealand birth indexes gives father's and mother's first names and sometimes the

initials of their second names.

- The English birth index gives the name of the child and the registration district.

I then searched the various death indexes for deaths of infants, children and their parents. Within any given area, the information varied depending on how well the informant had known the deceased.

- The Victorian death index gives the age at death, father's full name and mother's first name and maiden name and the registration district. Age of death is given in months for infants and in years for children and adults.
- The New South Wales death index gives the mother's and father's first names and the registration district.
- The Queensland death index gives the father's full name and mother's maiden name.
- The South Australian death index gives the age at death, place of death, place of residence and registration district. Some records also contain father's full name. Age at death is given in months for infants and in years for children and adults.
- The Western Australian death index gives the registration district only for deaths after 1905. If the person died before 1905, the index may also list the age at death and father's name and/or mother's maiden name.
- The New Zealand death index gives age at death in years for children and adults and in hours, days or months for infants.
- The English death index gives the registration district and the age of death (for deaths from 1866 onwards).

For some births and deaths, the information in the indexes was sufficient to be able to attach the event to a family with confidence, that is the information was comprehensive or the names of the parents were very unusual. However, in many cases I had to find other sources of information to confirm events. These sources included the digitised 19th- and 20th-century Australian newspapers, the Australian Dictionary of Biography, the Australian Cemetery Index, the Electoral Rolls for the Australian States and Territories and for New Zealand, and the English Population Censuses. Family trees on the website 'Ancestry' were a useful source of information, but I used these data only if they were confirmed by other sources.

The Australian digitised newspapers, which are available on the internet, were a very rich source of information. Colonies such as Tasmania and Western Australia and regional areas of the larger colonies had relatively small populations and their newspapers reported mundane events about ordinary people in great detail. In the 19th century, upper and middle class people put births, deaths and marriage notices in the newspapers, including the larger city papers. From 1900 onwards, it became very common for people from all socioeconomic classes to put notices of these events in the papers. The newspapers also contained notices or articles about special events, such as Silver and Golden Wedding Anniversaries, and obituaries of ordinary people. Tasmanian newspapers regularly included information about Tasmanian families who were living in other colonies, New Zealand, England or other countries.

I was able to confirm births through birth notices, through a child's marriage notice which listed the parents' names, and through parents' death notices which listed all children alive and deceased. Similarly, I was able to confirm deaths through death notices and obituaries, or to confirm that parents had survived the wife's childbearing years through Silver and Golden Wedding Anniversary notices or short articles in which the family was mentioned. A death notice also gave information about whether the other spouse was alive or dead at a person's death, since if the spouse was dead, the notice said 'wife/husband of the late'.

Some of the men and women in my database who married in Tasmania, but left, were prominent people in Australian society at that time. The Australian Dictionary of Biography (ADB) which is available on the internet gave details of their lives and families.

The Australian Cemetery Index on the website 'Ancestry' was of some help in confirming deaths. This index contains tombstone transcriptions from many cemeteries in the Australian States. The information provided, however, varies markedly from cemetery to cemetery. A record can contain information on age at death, date of death and date of birth or none of these.

Where I was unable to confirm details of the parents' deaths, I often used the Australian and New Zealand electoral rolls to confirm that the parents had survived the wife's childbearing years. These electoral rolls are also available on 'Ancestry'. All New Zealand men and women aged 21 years and older could vote from 1893 onwards, and all Australian men and women aged 21 years and older from 1902 onwards. Most of the couples in the 1880 and 1890 marriage cohorts, and many of those in the 1870 cohort, were alive when the adult population was granted the vote. The Australian and New Zealand electoral rolls contain the full name, detailed address and occupation of the voter. Not only did the rolls allow me to confirm that the husband and wife were still living at a particular date, but they often contained the names of adult children living in the same household, enabling me to confirm births.

The English vital registration index provided the least information of all the indexes. However, I was able to confirm births and deaths, or find evidence that the couple survived the wife's childbearing years through the English Population Census forms on the website 'Ancestry'. I found only a handful of couples who moved to England either temporarily or permanently in any marriage cohort.

3 RESULTS

The database that I constructed consisted of 3,184 couples marrying in Tasmania in the years 1860, 1870, 1880 and 1890. The majority of couples marrying in Tasmania in those years were couples where the wife was in her first marriage and there were children of that marriage (Table 1). The remainder were couples where the wife was in her first marriage and there were no children of the marriage and couples where the woman was marrying as a widow.

In my database, there were three groups of couples where the wife was in her first marriage with at least one child of the marriage: 'complete', 'incomplete' and 'unobserved'. These are defined as follows:

- *Complete group* - couples where the wife was in her first marriage, there were children of the marriage and the husband and wife survived the wife's childbearing years.
- *Incomplete group* - couples where the wife was in her first marriage, there were children of the marriage and the husband and/or wife died during the wife's childbearing years.
- *Unobserved group* - couples where the wife was in her first marriage, there were children of the marriage, but the couple could not be traced to the end of the wife's childbearing years.

Table 1 Type of marriage: 1860, 1870, 1880 and 1890 marriage cohorts Tasmania

	1860	1870	1880	1890
Type of marriage	Number			
Wife's first marriage with children: complete	256	283	417	529
Wife's first marriage with children: incomplete	121	122	156	162
Wife's first marriage with children: unobserved	75	40	59	50
Other marriages	261	228	214	211
Total	713	673	846	952
	Per cent			
Wife's first marriage with children: complete	35.9	42.1	49.3	55.6
Wife's first marriage with children: incomplete	17.0	18.1	18.4	17.0
Wife's first marriage with children: unobserved	10.5	5.9	7.0	5.3
Other marriages	36.6	33.9	25.3	22.2
Total	100.0	100.0	100.0	100.0

Note: 'Other marriages' includes widows and women with no children of the marriage

The four Tasmanian marriage cohorts varied in size and composition (Table 1). Over the four cohorts, the 'complete' group increased as a proportion of all couples marrying in Tasmania, the proportion of those who were 'unobserved' fell and the proportion who were 'incomplete' remained around the same. The fall in the proportion who were 'unobserved' was partly due to an improvement in the records for the later marriage cohorts, such as the availability of the Electoral Rolls. There was a fall in the proportion of marriages that were 'other' over the four cohorts, because of a decrease in the proportion of women marrying as widows.

The 'complete' group, which was the subject of my fertility analysis, was compared with the 'incomplete' and 'unobserved' groups according to a number of characteristics, such as age at marriage, socioeconomic status, religion and urban/rural location (Moyle 2015). This analysis showed that the complete group was representative of women marrying for the first time in Tasmania who had children from that marriage and that it was highly appropriate to use this group to analyse the decline in marital fertility over the period.

Searching for events that had occurred outside Tasmania markedly increased the number of families who were 'complete'. Across the marriage cohorts, only 77-82 per cent of the complete group had births in Tasmania and had died there, or were living there, after the end of the wife's childbearing years (Table 2). Of these couples, a small proportion also had births outside Tasmania, indicating that tracking these couples outside Tasmania improved the accuracy of their birth histories. If I had not tracked couples and their births outside Tasmania, 20-25 per cent of the 'complete' group in each marriage cohort would have been 'unobserved' and one couple (who had all their births outside Tasmania, but died in the colony) would have been classified as childless.

Table 2 Location of all births, couples who complete their childbearing: 1860, 1870, 1880 and 1890 marriage cohorts, Tasmania

	1860	1870	1880	1890
<i>Location of family births</i>	Per cent			
All births in Tasmania: Parents died in Tasmania	74.6	76.7	80.1	77.5
All births in Tasmania: Parents died outside Tasmania	4.3	6.0	7.0	11.2
Births in and outside Tasmania: Parents died outside Tasmania	13.7	8.8	8.2	5.7
Births in and outside Tasmania: Parents died in Tasmania	1.6	2.8	1.7	1.7
All births outside Tasmania: Parents died outside Tasmania	5.9	5.3	2.9	4.0
All births outside Tasmania: Parents died in Tasmania	0.0	0.4	0.0	0.0
Total (per cent)	100.0	100.0	100.0	100.0
Total couples (number)	256	283	417	529

I ran the multivariate analyses of the determinants of stopping and spacing behaviours for the entire complete group, and then for couples who did not have any births outside Tasmania. I found that some of the results were no longer significant when only couples who had all their births in Tasmania were included in the analysis (Moyle 2015). This may be because the sample was smaller or because those who had births outside Tasmania had different characteristics than those who had all their births in the colony.

Tracking couples outside Tasmania also reduced the number of couples who were 'unobserved' because I was able to find the deaths of parents who died outside the colony during the wife's childbearing years. For around 10-20 per cent of 'incomplete' couples, the husband and/or wife had died in another colony or country during the wife's childbearing years (Table 3).

Table 3 Location of all births, couples where one or both parents died during the wife's child-bearing years: 1860, 1870, 1880 and 1890 marriage cohorts, Tasmania

	1860	1870	1880	1890
<i>Location of family births</i>	Per cent			
All births in Tasmania: Parents died in Tasmania	79.3	86.9	87.2	87.0
All births in Tasmania: Parents died outside Tasmania	2.5	3.3	2.6	3.1
Births in and outside Tasmania: Parents died outside Tasmania	10.7	4.1	5.8	8.0
All births outside Tasmania: Parents died outside Tasmania	6.6	5.7	3.8	0.6
All births outside Tasmania: Parents died in Tasmania	0.8	0.0	0.6	1.2
Total (per cent)	100.0	100.0	100.0	100.0
Total couples (number)	121	122	156	162

The following family stories illustrate the different patterns of inter-colony and inter-country migration of the 'complete' group:

- Ernest Augustus Smith, a solicitor, and Grace Fisher married in Hobart, Tasmania in 1890. They had five children born in Sydney, New South Wales between 1891 and 1897. Grace died in Chatswood, Sydney, in 1933 and Ernest in 1938. Their second child, Grace Cossington Smith, was a very successful Australian painter in the 1920s and 1930s.
- John Blythe, a wealthy landowner, and Caroline Delittle were married in Launceston, Tasmania in 1880 and then moved to New Zealand where they had a son, Robert, born in Invercargill in 1881. They returned to Tasmania shortly after and had two daughters born in Tasmania in 1882 and 1887. John died in Tasmania in 1912, but Caroline was still living there in the late 1930s.
- Bowden Carthew, a stonemason, married Mary Anne Carpenter in Swansea, Tasmania in 1860. They had their first four children in Tasmania between 1861 and 1866. By 1869, they had moved to Ballarat, Victoria where they had a child born in that year (who died there in 1870) and another born in 1870. Both Bowden and Mary Anne died in Melbourne, Victoria—Bowden in 1896 and Mary Anne in 1912.
- Richard Fleming, a farmer, married Eliza Barwick in 1860 in Oatlands, Tasmania. They had two children in Oatlands, went to New Zealand where they had another three children, then returned to Oatlands where they had another eight children. Richard died in Tasmania in 1903 and Eliza in 1914.
- Ernest Graham, a labourer, married Sarah Freeman in Hobart, Tasmania in 1890. They had four children born in Hobart between 1892 and 1896 and then moved to New Zealand where they had another four children, born between 1901 and 1904. In 1908, when their ninth child was born, they were back in Australia, living in Cobar in the far west of New South Wales. At some stage they moved again, since by 1934 they were living in Darwin in the Northern Territory where Ernest was a 'retired civil servant'.
- William Henry Vincent, a gasfitter, married Marion Eleanor Larter in Launceston, Tasmania in 1890. They had three children born in Tasmania in 1891, 1893 and 1895 and were still living there in 1899 when their youngest child died. However, by 1930 William and Marion were living in Sydney, New South Wales, where William was still working as a gasfitter. William died in Sydney in 1937 and Marion in 1939.
- Thomas Summers, a farmer/labourer married Catherine Christie in Longford, Tasmania in 1870. Their seven children were all born in Tasmania between 1871 and 1887. Thomas died in Tasmania in 1906 and Catherine moved to Melbourne, Victoria, where she died in 1913.

4 CONCLUSION

The number and variety of sources that have been made available on the internet in the last 20 years or so has made the task of tracking families outside a study area a feasible one for those undertaking Australian historical demographic research. The results presented in this paper show that in a study of the Tasmanian historical fertility decline, tracking families outside Tasmania produced a database that was larger and more representative of the study population. The task also produced complete birth histories for families who married in Tasmania, had births in Tasmania and died in Tasmania, but also had one or more children born in other colonies or other countries. For any historical demographic study, it is worth investigating the resources available on the internet to track families outside the study area. This task will produce a larger, more complete and more representative data set than if the study is limited to events occurring only within the study locality.

REFERENCES

- Anderson, M. (1999). No sex please we're demographers: nineteenth century fertility decline revisited. In: J. Damousi & K. Ellinghaus (Eds.), *Citizenship, women and social justice: international historic perspective* (pp. 251-264). Melbourne: Dept. of History, University of Melbourne and Australian Network for Research in Women's History.
- Berger, S., Merchant, E. & Puerta, J. M. (2009). Responding to fertility shocks: twins as a window into the demographic transition at the family level. Poster presented at the annual meeting of the *Social Science History Association*. Long Beach, California.
- Borrie, W. D. (1994). *The European peopling of Australia. A demographic history, 1788–1988*. Canberra: Australian National University.
- Boyce, J. (2010). *Van Diemen's Land*. Melbourne: Black Inc.
- Carmichael, G. A. (1996). From floating brothels to suburban semi-respectability: two centuries of non-marital pregnancy in Australia. *Journal of Family History*, 21(3), 281-315.
DOI: [10.1177/036319909602100303](https://doi.org/10.1177/036319909602100303)
- Gray, E., Evans, A., Anderson, J. & Kippen, R. (2010). Using split-population models to examine predictors of the probability and timing of parity progression. *European Journal of Population*, 26(3), 275-295.
DOI: [10.1007/s10680-009-9201-2](https://doi.org/10.1007/s10680-009-9201-2)
- Gunn, P. & Kippen, R. (2008). *Database of births, deaths and marriages registered in Tasmania, 1838-1899*. Household and family formation in nineteenth-century Tasmania, 1838-1899. [Computer file]. Canberra: Australian Data Archive, Australian National University.
<https://www.ada.edu.au/historical/01119-b>; <https://www.ada.edu.au/historical/01119-d>;
<https://www.ada.edu.au/historical/01119-m>
- Gutmann, M. P. & Alter, G. (1993). Family reconstitution as event-history analysis. In: D. S. Reher and R. Schofield (Eds.), *Old and new methods in historical demography* (pp. 159-177). Oxford: Clarendon.
- Henry, L. (1961). Some data on natural fertility. *Eugenics Quarterly*, 8(2), 81–91.
- Henry, L. & Blum, A. (1988). *Techniques d'analyse en demographie historique* (2nd Ed.). Paris: INED.
- Jones, E. F. (1971). Fertility decline in Australia and New Zealand 1861-1936. *Population Index*, 37(4), 301-338.
DOI: [10.2307/2733841](https://doi.org/10.2307/2733841)
- Kellaway, R. (1999). Tasmania and the Otago gold rush 1861–1865. *Tasmanian Historical Research Association Papers and Proceedings*, 46(4), 213-229.
- Kippen, R. (2002). *Death in Tasmania. Using civil death registers to measure nineteenth-century cause-specific mortality* (Unpublished doctoral thesis). Australian National University.
- Kippen, R. & Gunn, P. (2011). Convict bastards, common-law unions and shotgun weddings: premarital conceptions and ex-nuptial births in nineteenth-century Tasmania, *Journal of Family History*, 36 (4): 387-403.
DOI: [10.1177/0363199011412720](https://doi.org/10.1177/0363199011412720)
- Larson, A. (1994). *Growing up in Melbourne: family life in Melbourne in the late 19th century*. Canberra: Australian National University.

- Moyle, H. (2015). *The fall of fertility in Tasmania in the late 19th and early 20th centuries*. (Unpublished doctoral thesis). Australian National University.
- Ruggles, S. (1992). Migration, marriage and mortality: correcting sources of bias in English family reconstitution. *Population Studies*, 46(3), 507-522.
DOI: [10.1080/0032472031000146486](https://doi.org/10.1080/0032472031000146486)
- Ruzicka L. T. & Caldwell, J.C. (1977). *The end of the demographic transition in Australia*. Australian Family Formation Project, Monograph No. 5, Department of Demography, Australian National University. Canberra: Australian National University.
- Van Bavel, J. (2004). Detecting stopping and spacing behaviour in historical demography: a critical review of methods. *Population*, 59(1), 117-128.
DOI: [10.2307/3654930](https://doi.org/10.2307/3654930)
- Wrigley, E. A. (1966). Family reconstitution. In: Wrigley, E. A. (Ed.), *An introduction to English historical demography: from the sixteenth to the nineteenth Century* (pp. 44–95). New York: Basic Books.
- Wrigley, E. A., Davies, R. S., Oeppen, J. E. & Schofield, R. S. (1997). *English population history from family reconstitution: 1580–1837*. Cambridge: Cambridge University Press.

Appendix Data sources used for family reconstitution

1. Tasbirths Birth registrations for Tasmania, 1838–99, Tasdeaths Death registrations for Tasmania, 1838–99, and Tasmarriages Marriage registrations for Tasmania, 1838–99. Civil register data collected in machine readable form c.1993 as part of the *Nineteenth-Century Household Formation in Tasmania Project* by P. Gunn, University of Tasmania. Funded by the Australian Research Council under grants A78715590, A79131567 and A79532723, Australian Data Archive, Australian National University, Canberra.
2. Kippen, Rebecca 2013. Database of deaths registered in Tasmania, 1900-1930. Melbourne: University of Melbourne.
3. Catholic Church Museums and Registers. Various Tasmanian Catholic parish registers for 19th century. Microfilm. Founders and Survivors Project. University of Melbourne.
4. Federation Index. Births 1900-1919, Deaths and Marriages 1900–1930, Registry of Births, Deaths and Marriages Tasmania, 2006. Tasmanian. CD format.
5. Colonial Tasmanian Family Links database. Archives Office of Tasmania. This database is designed to provide an initial online genealogical research resource. The database is incomplete and the information not always accurate. <http://portal.archives.tas.gov.au>
6. Index to Divorces, 1861–1920. Archives Office of Tasmania. <http://portal.archives.tas.gov.au>
7. Index to Wills and Letters of Administration from 1824–1989. Archives Office of Tasmania. <http://portal.archives.tas.gov.au>
8. Pioneer Index, Victoria 1836–1888, Index to births, deaths and marriages in Victoria. Melbourne: Registry of Births, Deaths and Marriages, Victoria. CD format.
9. Federation Index, Victoria, 1889–1901, Index to births, deaths and marriage in Victoria. Melbourne: Registry of Births, Deaths and Marriages, Victoria, 1997. CD format.
10. Edwardian Index, Victoria, 1902–1913, Index to births, deaths and marriages in Victoria. Melbourne: Registry of Births, Deaths and Marriages, Victoria. CD format.
11. Great War Index, Victoria, 1914–1920, Index to births, deaths and marriages in Vic-

- toria. Melbourne: Registry of Births, Deaths and Marriages, Victoria. CD format.
12. S.A. births 1842–1928, S.A. deaths 1842–1972, S.A. marriages 1842–1937 [microform] indexes. South Australia. Births, Deaths and Marriages Division. 1985–1988.
 13. NSWBirths1788–1913.NSWDeaths1788–1983.NSWMarriages1788–1963.NSWGoverment Registry of Births, Deaths and Marriages. Attorney General and Justice. www.bdm.nsw.gov.au
 14. Queensland Births 1829–1914. Queensland Deaths 1829–1984. Queensland marriages 1829–1939. www.bdm.qld.gov.au
 15. WA Births 1841–1932. WA Deaths 1941–1971. WA marriages 1941–1936. WA Government, Registry of Births, Deaths and Marriages. Department of the Attorney General. www.bdm.dotag.wa.gov.au
 16. NZ Births 1848–1913. NZ Deaths 1848–1963. NZ Marriages 1854–1933. Birth Death and Marriage Historical Records. New Zealand Department of Internal Affairs. www.bdmhistoricalrecords.dia.govt.nz
 17. FreeBMD UK. (Births 1837–1939, Deaths 1837–1968, Marriages 1837–1951). Civil Registration Index for England and Wales. FreeBMD. Registered charity in UK. www.freebmd.org.uk
 18. Australian Birth Index 1788–1922, Australian Death Index 1788–1985, Australian Marriage Index 1788–1950. Ancestry. Compiled by Ancestry from State and Territory vital registration data. www.ancestry.com.au
 19. Australian Cemetery Index, 1808–2007. Ancestry Cemetery transcriptions compiled from various local family history societies. Name of compiler is provided for each record. www.ancestry.com.au
 20. Australian Electoral Rolls 1903–1980. Ancestry Original data: Australian Electoral Commission. www.ancestry.com.au
 21. New Zealand Electoral Rolls, 1853–1981. Ancestry Original data: *New Zealand Electoral Rolls, 1853–1981*. Auckland, New Zealand: BAB microfilming. Microfiche publication, 4032 fiche. www.ancestry.com.au
 22. English Censuses, 1871, 1881, 1891, 1901 and 1911. Ancestry Original data: *Census Returns of England and Wales*. Kew, Surrey, England: The National Archives of the UK (TNA): Public Record Office (PRO). Data imaged from The National Archives, London, England. www.ancestry.com.au
 23. Public Member Family Trees. Ancestry. www.ancestry.com.au
 24. TROVE Digitised Newspapers and More. Canberra: National Library of Australia. www.trove.nla.gov.au (Covers newspapers, both city and regional, in all colonies from the early 19th century to the middle of the 20th century—e.g. For Tasmania, includes newspapers from 1816–1954)
 25. Australian Dictionary of Biography (ADB). The ADB is produced by the [National Centre of Biography](http://www.nca.gov.au) at the Australian National University. Canberra. www.adb.anu.edu.au
 26. [Boer War Embarkation Rolls](http://www.awm.gov.au). Australian units in the Boer War, 1899–1902. *Official Records of the Australian Military Contingents to the War in South Africa*, compiled and edited for the Department of Defence by Lieutenant-Colonel P. L. Murray RAA (Ret.). Australian War Memorial Canberra. www.awm.gov.au

27. World War 1 Embarkation Rolls. Official Records series AWM8, *Unit embarkation nominal rolls, 1914–18 War* Australian War Memorial, Canberra. www.awm.gov.au
28. Discover Our Anzacs. Canberra: National Archives of Australia. Records of Australians serving in various wars, including World War 1 and World War 2. www.discoveringanzacs.naa.gov.au