

4

Research design and data sources

This chapter describes the research design for the quantitative analysis, the data sources used to construct the database and the issues encountered in its construction.

Family reconstitution of four Tasmanian marriage cohorts

To obtain the data for the bivariate and multivariate analyses, I reconstituted families in four Tasmanian marriage cohorts using 19th-century Tasmanian registration data plus information from many other sources. The family reconstitution involved tracking couples from marriage through their childbearing years. This allowed me to compare the fertility and birth patterns of couples in these marriage cohorts according to various characteristics.

I used a marriage cohort approach in my study because examining the birth histories of couples provided me with the information needed to answer my research questions—that is, when, how and why fertility fell during this period. The cohort approach also allowed me to look at the impact of temporal change on fertility in broad terms—for instance, the effects of the 1890s depression, which lasted for about 10 years. The task of reconstructing the birth histories of four marriage cohorts, while time-consuming, is at least feasible. A cross-sectional approach is not feasible. Because the birth registration data do not provide information on the age

of the mother at the birth, parity of the birth or whether the birth is the last, I would have had to reconstitute the birth histories of all mothers giving birth in any of the years under examination. Additionally, because of the under-registration of births, I would have had to examine the birth histories of every married woman of childbearing age to try to find births that were not registered. This is an impossible task. Cross-sectional data would have allowed me to examine the impact of short-term events on fertility, but to do this thoroughly I would have had to include births in every single year within the period, which would also have been unfeasible. Finally, from a theoretical perspective, it can be expected that the long-term trend towards lower fertility was the result of longer-term social and economic changes over several years rather than of one-off events occurring in single calendar years.

The technique of 'family reconstitution'—that is, the reconstitution of families using parish records on births, deaths and marriages—has been used by demographers to study the decline of fertility in historical populations, but it has several problems (Wrigley 1966; Henry and Blum 1988; Gutmann and Alter 1993; Wrigley et al. 1997). A major problem is the data are only available for events within a parish and families who move out of the parish are excluded from the study, giving rise to issues of the representativeness of the study population (Ruggles 1992; Gutmann and Alter 1993). I used an 'enhanced' form of family reconstitution in my study, in which I first reconstituted families using Tasmanian vital registration data, but then used several other sources to track families who moved out of Tasmania, either temporarily or permanently.

As noted in Chapter 1, I selected the marriage cohorts for 1860, 1870, 1880 and 1890 for my study—that is, the population of couples who were married in Tasmania in these years. Examining the available evidence outlined in Chapter 2, it appeared that the earlier cohorts would have had children before the fertility decline and those in the 1880 and 1890 cohorts would have had children during the fertility transition. I chose the 1860 cohort as my first cohort, rather than an earlier cohort, for several reasons:

- By 1860, the Tasmanian population was more settled: transportation ended in 1853 and the exodus to Victoria as a result of the goldrush was all but over. Most of the population were free settlers or were born in the colony.

- Registration, which started in 1838, had greatly improved by 1860 (Kippen 2002a). Although there was still under-registration of births, registration improved throughout the second half of the 19th century.
- Population data were available from 1860 onwards (Kippen 2002c).

The fertility analysis in this book concentrates on the fall in fertility among those who had children and does not investigate trends in childlessness. It was not possible to obtain an estimate of childlessness among couples in the Tasmanian marriage cohorts, since many couples could not be traced to the end of their childbearing years. It is difficult to tell whether there was an increase in childlessness during the Australian fertility decline, but there was clearly a marked decline in completed family size of couples who had children. According to the 1911 census, the proportion of childless women born in the years 1842–46 to 1862–66 was relatively small and remained unchanged for each birth cohort, at around 8 per cent of all married women (Commonwealth of Australia 1914c: 1136).

I decided to examine completed fertility within marriage and to concentrate on women who had survived their childbearing years and whose childbearing had not been interrupted by widowhood. Consequently, the analysis of marital fertility decline is undertaken for a subpopulation of couples in the marriage cohorts—that is, couples in which the wife was in her first marriage, there was at least one child from the marriage and both partners survived the wife’s childbearing years. In the discussion that follows, I refer to this subpopulation as the ‘complete’ group.

Although the fertility analysis concentrates on the complete group, I reconstituted the birth histories of all couples marrying in the four cohorts for whom the wife was in her first marriage and there were children of that marriage, to provide some descriptive data to set the fertility analysis in context (Moyle 2015: 73–89).

Data sources

I used several databases to reconstitute the families from the four marriage cohorts (Appendix B). The main database used in this study was the Tasmanian Civil Registration Digitised Database—Tasbirths, Tasdeaths and Tasmarrriages (Gunn and Kippen 2008; Kippen and Gunn 2011). This database contains digitised records of births, deaths and marriages

registered in Tasmania from the beginning of registration in August 1838 until the end of the 19th century. Tasmania was the first British colony to introduce civil registration of vital events, shortly after civil registration was introduced in Britain (Kippen 2002a).

The Tasmanian Civil Registration Digitised Database contains the following information:

- Tasbirths: Data on place of birth; name; sex; name of both parents; maiden name of mother; occupation of father; date and district of registration; name, status and residence of informant; and name of officiating deputy registrar. From 1895, the date and place of the parents' marriage were also listed.
- Tasmarrriages: Name; age; occupation of husband and wife (if any); marital status of the husband and wife; date and place of marriage; date and district of registration; religion; names of witnesses; whether the husband and/or wife signed the marriage certificate.
- Tasdeaths: Name; age; sex; occupational status of deceased or spouse (if wife) or father (if a minor); date of death; cause of death; date and district of registration; name, status and residence of informant; and name of officiating deputy registrar.

I was very fortunate to have access to another database that linked the births in the Tasmanian Civil Registration Digitised Database to the marriages (Kippen and Gunn 2011). While this database was not complete, when I reconstituted the families, I found that only about 5 per cent of births in the four marriage cohorts had not been linked to a marriage. Kippen and Gunn (2011) initially linked the births by computer linkage with a 70 per cent success rate, although the rate of linkage was much lower for earlier years than for later years. Once they had completed the computer linkage, they began to link the unlinked births manually, but this process had not been completed by the time I started my study. Of the unlinked births that I was able to attach to a marriage, the majority were births in the 1890s that were a later addition to the original database. Other unlinked births were those to widows, where the birth was registered in the woman's maiden name, not the name in which she married. Widows commonly gave their previously married name at the cohort marriage but used their maiden name when registering the children of the cohort marriage.

Many couples in the 1880 and 1890 marriage cohorts had births in the early decades of the 20th century, and parents in all cohorts, particularly the later cohorts, died during the 20th century. To find births and deaths occurring in Tasmania after 1899, I used the Tasmanian Federation Index, which provides information for births from 1900 to 1919 and for deaths from 1900 to 1930.

The Tasmanian Federation birth index provides information on: date of birth; name; sex; full name of father; full name of mother, including her maiden name; and the place of birth. The Tasmanian Federation death index contains information on name, sex and the date and place of death. I also had access to a sample of digitised Tasmanian death registrations for the period 1900–30 (Kippen 2013). These death registrations contain the following information: name, age and sex of deceased; date and place of death; place of birth; cause of death; occupational status of deceased or spouse (if wife) or father (if a minor); name of medical attendant; name, relationship and place of informant; date and district of registration; and name of deputy registrar.

The Tasmanian vital registration data were not wholly adequate for fully reconstituting families in the four marriage cohorts, partly because many families had births or deaths outside Tasmania and partly because many deaths for the later cohorts occurred after 1930. I therefore used several other sources to reconstitute families (Appendix B). These data sources include digitised newspapers in the National Library of Australia; the *Australian Dictionary of Biography*; the Australian births, deaths and marriages indexes (on the website www.ancestry.com); the Australian and New Zealand electoral rolls; NSW, Victorian, Queensland, South Australian, West Australian and New Zealand historical births, marriages and deaths indexes; UK births, deaths and marriages indexes; English population census forms; the Colonial Tasmanian Family Links Database; Tasmanian divorce records; Tasmanian wills; Tasmanian land records; and service records for the Boer War, World War I and World War II. The Australian digitised newspapers were a very rich source of information. This was because Tasmania had a relatively small population during the 19th and early 20th centuries and, unlike in the other colonies, the newspapers reported mundane events about ordinary people, often in great detail. From 1900, it also became very common for people from all socioeconomic classes to place birth, death and marriage notices in

Tasmanian newspapers. Family trees on the website 'Ancestry.com' were a very useful source of information, but I used these data only if they were confirmed by other sources.

Process of family reconstitution and issues encountered

Using Tasmanian records

To reconstitute a family, I started with a marriage and attached the computer-linked births to the couple's marriage record. I then compared these births with those attributed to the couple on the Colonial Tasmanian Family Links Database to see whether there were any other births listed on that database. If I found additional births, I then searched the unlinked registered births on Tasbirths to confirm that a birth was correctly attributed to a family. I also searched the Tasmanian Federation birth index for births occurring in the 20th century. This index provided me with enough information to be confident that the births I found belonged to the correct family.

Once I had attached all the Tasmanian-registered births to a marriage, I searched for the deaths of infants and children under 15 years and of parents, using a variety of sources. I initially used Tasdeaths and the sample of Tasmanian digitised death registrations for deaths occurring between 1900 and 1930. If I could not find a death on these digitised databases, I searched the Tasmanian Federation death index and then checked with the Australian digitised newspapers and the Australian Cemetery Index to confirm that a death on the index belonged to the correct family. The digitised newspapers and the Australian Cemetery Index were also very useful in finding deaths that occurred after 1930. Death notices in a newspaper almost always provided information on whether that person's spouse was still living—for example, 'death of George Brown, dearly beloved husband of Mary Brown' or 'death of Mary Brown, relict of the late George Brown'. In the case of a child's death, death notices also identified the child's parents.

Family mobility

I did not assume that all couples who married in Tasmania stayed there throughout their lives, so I searched for events that had occurred in other locations. This would not have been possible without the digitised records that have become available on the internet in the past five to 10 years. Larson (1994: 33), writing about family reconstitution in the 1980s and early 1990s, considered one of the problems of family reconstitution was that it was impossible to trace families who moved out of the study area or to learn about events that ‘were never recorded, such as a baby born while the family was on a visit to England’. The availability of digitised records accessible through the internet has largely dealt with this problem.

Once I had reconstituted a family using Tasmanian records, I searched for births and deaths that occurred outside Tasmania—that is, in the other colonies, in New Zealand and in other countries. I did not assume that if a couple had births in Tasmania and both parents died in Tasmania all their births had occurred in Tasmania.

The Victorian, NSW, Queensland, South Australian (SA), Western Australian (WA), New Zealand and English births, marriages and deaths indexes, and the English censuses, were useful in providing information on events occurring elsewhere. The Victorian, Queensland and SA indexes all gave births by the wife’s maiden name, which gave me a high degree of certainty that the birth belonged to the correct family. The NSW and WA indexes, however, were much less detailed and I attached the birth to the family only if I could find other sources of information that confirmed the relationship. There was very little information on deaths in most of the indexes, although the Victorian, Queensland and NSW indexes gave some information about the parents of the deceased. The digitised newspapers were an important source of information on deaths occurring in other colonies or countries.

I found a wide variety of patterns of mobility among couples in the four marriage cohorts. Some couples had all their births in Tasmania but moved around Tasmania during the wife’s childbearing years; some couples had births in Tasmania and in another location, while other couples married in Tasmania but had all their births elsewhere.

Only a small proportion of the couples who married in Tasmania did not have any births in Tasmania. For instance, Ernest Augustus Smith, a solicitor, and Grace Fisher married in Hobart in 1890, but all their children were born in Sydney, NSW, and both Ernest and Grace died there in the 1930s.

Some couples had their first birth outside Tasmania, but the rest of their children were born in the colony. John Blythe, a wealthy landowner, and Caroline Delittle were married in Launceston in 1880 and had a son, Robert, born in Invercargill, New Zealand, in 1881. They returned to Tasmania shortly after and had a daughter, born in Launceston in 1882, and another, born in Beaconsfield in 1887. John died in Tasmania in 1912, but Caroline was still living there in the late 1930s.

Some couples had some of their children in Tasmania and then moved to another place and had other children there. Bowden Carthew, a stonemason, married Mary Anne Carpenter in Swansea in 1860. They had their first child in Glamorgan in 1861, their second in Spring Bay in 1862 and two other children in Hobart, in 1865 and 1866. By 1869, they had moved to Ballarat, Victoria, where they had a child born in that year and another born in 1870. Both Bowden and Mary Anne died in Melbourne.

Other couples had one or more children born in Tasmania, then one or more born elsewhere, then went back to Tasmania and had more children there. Richard Fleming, a farmer, married Eliza Barwick in 1860 in Oatlands (Appendix D: Story 4). They had two children in Oatlands, went to New Zealand, where they had another three children, then returned to Oatlands, where the rest of their 13 children were born. Richard died in Oatlands and Eliza in Launceston.

Some families were extremely mobile and had children in many different locations. Ernest Graham, a labourer, married Sarah Freeman in Hobart 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'.

Defining the wife's childbearing years

Although I originally assumed women would have completed their childbearing by age 45, I found that 11 per cent of women in the 1860 and 1870 cohorts had their last birth aged 45–49 years. I thus decided to extend the wife's childbearing years to age 50. However, there was a small number of couples in which one partner died before the wife turned 50, but there were several years between the last birth and the spouse's death, suggesting these couples had completed their childbearing. Within each marriage cohort, I examined the birth patterns of women in couples in which both partners had survived to age 50 to investigate the probability of having another birth. Among those women who gave birth at each age, I looked at the number of women who went on to have another birth and, for those who had another birth, the length of time to the next birth. Based on this analysis, I included couples in the *complete* group where one spouse died before the wife turned 50: if a woman had her last birth in her 20s and there was a 99 per cent probability she had completed her childbearing at the time of the death; if she had her last birth in her 30s and there was a 95 per cent probability of completion; or if her last birth was in her 40s and there was a 90 per cent probability (because of small numbers).

Ascertaining whether both partners lived through the wife's childbearing years

If I could not find any information on the deaths of a husband and wife, I used sources such as the electoral rolls to ascertain whether either or both partners had lived through the wife's childbearing years. The electoral rolls list partners and children living at the same address and give each person's occupation.

However, in every cohort, there was a small proportion of marriages in which the wife was in her first marriage, they had at least one child from that marriage, but they then effectively 'disappeared' from the records. I suspect a relatively high proportion of these marriages ended in separation, particularly in the earlier cohorts. I found separations serendipitously, through sources such as newspaper articles or birth records with the husband or wife having births with another partner. Separations that were initiated by women seem to have been reasonably common in the colony

from its earliest years (Boyce 2010). In these situations, the husband often placed a notice in the newspaper disclaiming all responsibility for his wife's debts.

Margaret Clark and John Stacey, for example, were married in 1860, but he subjected her to considerable physical and emotional abuse in the first years of their marriage (*The Mercury*, [Hobart], 15 May 1863, 26 September 1863). When Margaret left him, John put an advertisement in the newspaper, saying:

CAUTION: My wife, MARGARET STACEY, having left her home without my consent, I hereby caution the public from giving her credit on my account, as I shall not be responsible for any debts she may incur. JOHN STACEY, JUN., Dated this 29th of September, 1863. (*The Mercury*, [Hobart], 1 October 1863)

The digitised divorce records on the Tasmanian Archives website enabled me to find out whether and when a couple divorced. Divorce legislation was first passed into law in Tasmania in September 1860 (Finlay 1999). However, very few of the couples in the study were divorced: in total, only 15 couples in all four cohorts had divorced during the wife's childbearing years. Some couples appear to have separated with one of the partners marrying another partner without being divorced. Some of these men and women went to Victoria and remarried despite having a spouse living in Tasmania. As in earlier times, Victoria was a 'refuge for those seeking ... freedom away from social and economic controls' (Boyce 2010: 250). I suspect a small number of men and women also remarried in other parts of Tasmania despite being already legally married at the time.

Where I did not have any information to ascertain whether the couple survived the wife's childbearing years or were separated or divorced, I continued to search the family histories on Ancestry.com to see whether I could find any clues about the family. I also developed my own website, requesting information on the families. I contacted all the state and territory family history societies, asking them to put a short article in their newsletter or magazine about my search. The article briefly summarised the research, gave details of the website and asked for any help in tracing the families. Most of the family history societies very generously agreed to my request, but I obtained little information through this source. Many of the people who contacted me had been unable to trace the relevant individual or couple and had no more information than I did about their fate.

The 1860 cohort proved to be the most difficult to trace (Table 5.1), partly because some of those marrying at this time, mostly men, were ex-convicts. I suspect ex-convicts were more likely to have been mobile and to have changed their names when they moved. I found some instances where a husband or wife was an ex-convict and they had changed their name at marriage or after they married. There were several ex-convict men in the *complete* group in the 1860 marriage cohort and a possible two or three ex-convict women, as far as I can tell, but most of the women were too young to have been convicts. Most ex-convict men marrying in the 1860 cohort married widows, while ex-convict women either were widows or, if marrying for the first time, did not have any children of the marriage. I did not find any ex-convicts in any of the other marriage cohorts.

The 1890 cohort was the easiest to trace (Table 5.1). One of the reasons for this was that names—both first names and last names—became much more diverse throughout the 19th century. In the 1860 cohort, most women were called Margaret, Catherine, Anne, Mary, Jane, Elizabeth or Sarah, while men were mostly called Henry, John, James, George, Thomas, Charles or William. There were also a limited number of last names in the colony. Thus, ‘John and Mary Davis’ or ‘George and Margaret Brown’ were almost impossible to identify correctly. From the 1870s, however, children were given a much wider variety of first names, and last names also became more diverse with immigration into the colony, both from other countries and from other colonies.

Unregistered births

Under-registration of births was an issue in Tasmania during the 19th and early 20th centuries (Kippen 2002c). Kippen (2002c) estimated that the proportion of unregistered births was 13 per cent in the 1860s and 1870s, 7 per cent in the 1880s, 5 per cent in the 1890s and fell to 2 per cent by the beginning of the first decade of the 20th century (Kippen 2002c: 55–6; and Personal communication). Kellaway (1999) similarly estimated the proportion of unregistered births in Tasmania at 10.4 per cent for the 1860s and early 1870s. Tasmanian experts writing at the time believed many of the unregistered births were of illegitimate children, although they had no evidence for this (Hall 1872, cited in Kippen 2002c). There is some evidence, however, that in 19th-century Victoria, ex-nuptial births were less likely to be registered than nuptial births (Carmichael 1996).

Searching for unregistered births was a very time-consuming and painstaking task. For this reason, I decided to limit the search for unregistered births to the *complete* group that is the focus of the fertility analysis.

I found unregistered births in Tasmania through several sources:

- Where the family's religion was 'Catholic', I used microfilms of some of the Catholic parish records to search for baptisms of children whose births were not registered. I concentrated on families with very large birth intervals, particularly between marriage and the first birth.
- Some families listed on the Colonial Tasmanian Family Links Database had births attributed to the family (usually sourced from church records) that were not on Tasbirths.
- Some family histories on Ancestry.com had an additional child or children attributed to a family.
- I sometimes found an additional child or children mentioned in a newspaper article or notice about a parent's death.
- I found some infants and/or children whose deaths were registered but for whom there was no birth registration. In most of these cases, the child had lived only a few hours and presumably the family thought it too costly to register the birth. Deaths were more likely to be registered than births, since a family wishing to bury a family member was required to show the death certificate to the clergyman, otherwise he was required to notify the deputy registrar of noncompliance with the registration Act (Kippen 2002a).

When I found the additional child or children, I went through several steps to confirm they belonged to the family in my study. First, I checked to see whether the additional child or children belonged to any other family. If not, I checked the family reconstitution to see whether the child or children fitted into any possible birth gaps. If so, I then used various sources to check on the likelihood of the child belonging to the family. These sources included: the Australian birth index; Victorian, Queensland and NSW death indexes; birth, death and marriage notices in the digitised newspapers; parents' obituaries; the Australian Cemetery Index; names of witnesses at sibling's weddings; and Boer War, World War I and World War II service records:

- The Australian birth index on Ancestry.com listed several births that were not in the Tasmanian digitised database. The birth index gave full date of birth, both parents' first names and surnames, including the mother's maiden name, and place of birth.
- If a person died in Victoria or Queensland, either as a child or as an adult, the death index gave both parents' first names and surnames, including the mother's maiden name. NSW death indexes gave both parents' first names.
- The Australian digitised newspapers were a good source of information. Some births were unregistered but were announced in a newspaper. Marriage notices would often say the person was, for example, the third son of John and Mary Smith. A death notice for the child (as an adult) might also provide evidence that the person belonged to the correct family. Death notices for parents were sometimes very useful, in that they listed all the children in the family by name and in birth order. Newspaper obituaries nearly always listed the number of children by sex and sometimes gave their names.
- The Australian Cemetery Index listed members of the family who were buried with that person.
- The Boer War and World War I and World War II records provided information on age, occupation, geographic location and next of kin.

In using the family trees on the Ancestry.com website, I was very cautious about children attributed to the family who were born before the couple married. Where I did not have a birth registration for the child in the husband's name, I often found a birth registration for the mother, but with another man listed as the father. In these cases, the husband had taken his wife's illegitimate child into the family and given the child his surname. In several instances, I found that a child listed as the youngest in the family was the illegitimate child of one of the older daughters.

Another problem I encountered was that children sometimes changed their names in adulthood. A child who was called 'Charles George' at birth changed his name to 'Claude Carlos George' in adulthood, presumably to distinguish himself from his brother who was called 'Charles Henry'. Children often used their second names, rather than their first, and sometimes had unusual nicknames—for instance, one 'Frederick' was called 'Eric'.

The following examples show the use of various sources in tracking unregistered births:

- William Ritchie and Margaret Fawns married in Morven in 1860. I found five children in the birth registration data: three sons and two daughters. These children were born in 1861, 1863, 1864, 1868 and 1870. William was a solicitor in Launceston throughout his career and, when he died in 1897, his obituary was published in *The Examiner* (Launceston). The obituary stated that he left a widow and six children: three sons and three daughters. It also said one of the daughters had married the previous year William G. Baird, a bank manager. I searched for this marriage and found the daughter referred to was the missing child, Florence Margaret Ritchie. She married William in October 1896 at the age of 29, and her sister Elizabeth Agnes Ritchie was a witness at her wedding. I thus estimated Florence's year of birth as 1867, meaning her birth filled a gap between a birth in October 1864 and the following birth in November 1868.
- Donald McKenzie married Marjorie McDonald in Launceston in 1870. They had six children whose births were registered: John (1872), Jeannie (1875), Margaret (1881), Ann (1883), Mary (1885) and Donald James (1887). All the children were born at roughly two-year intervals, except for a six-year gap between Jeannie and Margaret. Donald McKenzie died in January 1916 and his death certificate was signed by 'his son Lachlan'. I found a notice for Lachlan McKenzie's death in *The Examiner* (Launceston) on 4 April 1951. The notice said Lachlan was the brother of John, Jeannie, Alexander, Margaret, Ann, Mary and James. It also said Lachlan had served in the Australian Imperial Force in World War I. When I looked up the World War I embarkation records, I found Lachlan McKenzie, aged 37, a farmer in Glengarry, along with his brother Donald James, aged 28, a sawmill hand, also of Glengarry, had enlisted on 31 May 1916. Both men gave their next of kin as their brother John McKenzie, also of Glengarry. Lachlan's estimated year of birth was 1879. Since Alexander was listed between Jeannie and Margaret in the newspaper obituary, I estimated his year of birth as 1877, thus filling the six-year gap between two registered births.
- John MacLaine and Emily Salier were married in Hobart in 1870 and went to live on Clarke's Island, 24 kilometres off the north-east coast of Tasmania. They had 11 children, several of whom were unregistered. Several Ancestry.com family trees said the couple had twins, born on

8 July 1877. I could not find any birth registrations, but by searching the Australian digitised newspapers, I found the following birth announcement: ‘MACLAINE: On Clarke’s Island on the 8th July, the wife of J. Maclaine, of twins (son and daughter)’ (The Mercury, [Hobart], 1 October 1877).

I cannot claim to have traced all unregistered births to the *complete* group in the four cohorts, but I have made every effort to find as many as possible. In the process of finding unregistered births in Tasmania, I was also able to find other unregistered births that occurred in other colonies or in New Zealand.

My estimates of unregistered Tasmanian births are consistent with Kippen’s findings outlined above in that they show the proportion of Tasmanian births that were not registered fell steadily from the 1860s to the first two decades of the 20th century (Table 4.1). While 6.8 per cent of the 1860s births to the complete group were not registered, this proportion fell to 1.7 per cent for births in the 1890s and to less than 1 per cent for births in the first two decades of the 20th century.

Table 4.1 Unregistered births and total births for children born in Tasmania, complete group: 1860, 1870, 1880 and 1890 marriage cohorts, Tasmania

Year of birth	No. unregistered births	No. total births	Percentage of total births
1860–69	64	939	6.8
1870–79	66	1,667	4.0
1880–89	65	2,563	2.5
1890–99	50	2,955	1.7
1900–09	7	976	0.7
1910–19	1	130	0.8
Total	254	9,231	2.6

The proportion of couples with one or more unregistered births fell markedly, from 24.6 per cent for the 1860 cohort to 4 per cent for the 1890 cohort (Table 4.2). The extent of under-registration was related to the year of the birth, however, and not to the marriage cohort. A slightly higher proportion of couples marrying in 1860, for instance, registered their 1870s births compared with couples marrying in 1870: 3.2 per cent of 1870 births to the 1860 cohort were unregistered compared with

4.4 per cent of 1870 births to the 1870 cohort. Several families had more than one unregistered birth, with 62 families in the 1860 cohort, for instance, having a total of 85 unregistered births. Many of these families were Catholics, who were less likely to register their births than parents from other religions in every marriage cohort. In 1860, for example, Catholic families accounted for 12.5 per cent of complete families, but 19 per cent of those who had unregistered births. In an extreme case, one Catholic family in the 1870 cohort had all their children baptised, but none of the births was registered.

Table 4.2 Couples with unregistered births in Tasmania as a proportion of couples with at least one birth in Tasmania, complete group: 1860, 1870, 1880 and 1890 marriage cohorts, Tasmania

Marriage cohort	No. couples with unregistered births	No. total couples	Percentage of all couples
1860	62	256	24.2
1870	48	286	16.8
1880	44	417	10.6
1890	21	529	4.0
Total	182	1,442	11.8

Date of birth

As noted above, the full date of birth was missing for some of the unregistered births. Similarly, for births in New South Wales, Victoria, Western Australia and New Zealand, birth indexes gave only the year of birth, not the day and month. I found some full birthdates from notices in the digitised newspapers or from the family histories on Ancestry.com. For some births, I had the month of birth, but for the others I imputed a birth month based on the birth spacing in the family. A birthday of 30 was imputed where the birth month was June, and a day of 15 for every other month.

Missing (full) dates of birth were much more of an issue for children born outside Tasmania. In the complete group, day of birth was missing for 626 of the 952 births occurring outside Tasmania, compared with 136 of the 9,235 births occurring in Tasmania. I ran the multivariate analysis on birth spacing for the complete group, excluding families who had no

children born in Tasmania, and had identical results to the analysis for the entire group, indicating the imputation of birthdates had little impact on the birth spacing analysis.

Stillbirths

Data on the reconstituted families include only births that were ‘live births’ and do not include ‘stillbirths’, since parents were not required to register stillbirths as either births or deaths in 19th-century Tasmania (Kippen 2002c). Although there were 179 stillbirths registered as ‘deaths’ in the Tasdeaths database, only three of these occurred after 1869 and most occurred before 1860.

The family reconstitution data suggest there was probably a change in the definition of ‘live births’ some time in the 1860s. Data on infant deaths show that in the 1860 marriage cohort the proportion of deaths occurring on the same day as the birth was much lower than in the three later cohorts. In the 1860 cohort, only three of the 129 infant deaths occurred on the day the infant was born, compared with 28 of the 158 infant deaths in the 1870 cohort, 22 of the 219 infant deaths in the 1880 cohort and 20 of the 191 infant deaths in the 1890 cohort. This strongly suggests that, prior to the late 1860s, when infants died within a few hours of birth, many were classified as stillbirths and neither the birth nor the death was registered (Kippen 2002c). This suggests another source of under-registration for births as well as deaths during this period. From the late 1860s, most infants who were alive at birth but died shortly afterwards were classified as ‘live births’ and both their birth and their death were registered.

Ex-nuptial births

As noted above, there is some evidence that ex-nuptial births were less likely to be registered than births within marriage. Where Tasmanian ex-nuptial births were registered, it was often difficult to allocate a birth to a woman in my study because of insufficient information on the registration certificate. Thus, ex-nuptial births were mainly allocated to women with unusual names living in small towns or remote areas. For instance, it was relatively easy to allocate a birth to ‘Sedina Woodlands’ living in Glamorgan, but impossible to know whether the birth to ‘Mary Ann Jones’ living in Hobart was to the woman in my study unless I found

evidence from other sources. It was also very difficult to find ex-nuptial births that occurred outside Tasmania. In cases where a woman had more than one ex-nuptial birth, however, I had enough information to be confident I had allocated the births correctly.

In cases where I could ascertain that the wife had an ex-nuptial birth and there was no father named on the birth certificate, it was impossible to tell whether this was a birth to the couple who later married. Unless I had evidence to the contrary, I assumed the husband was not the child's father.

The number of women I identified as having an ex-nuptial birth prior to marriage to a man other than the husband was relatively small. In 1860, for instance, only eight of 482 women in their first marriage with at least one child of that marriage had one ex-nuptial child with another man prior to marriage. It is highly likely this understates the number having an ex-nuptial birth because of the problems of under-registration and of correctly allocating those ex-nuptial births that were registered. For these reasons, I did not use data on these ex-nuptial children in my analysis of completed fertility.

In relation to all births outside marriage, I excluded from the fertility analysis a small number of couples who had one or more births before their marriage because the timing of their births was different from other couples in the marriage cohort—for instance, their marriage took place between the first and second births or between the second and third births or even later. A few couples had several children some years before they married, suggesting the husband or wife may not have been free to marry. I also excluded a very small number of couples for whom the woman had several ex-nuptial births with another man or men before her marriage, since I reasoned her birth pattern more closely resembled that of widows.

Marital status

Marital status was missing for a relatively large proportion of husbands in the 1860 and 1870 cohorts and a smaller proportion of wives, but the recording of marital status improved in the two later cohorts (Table 5.2). Where a woman's marital status was missing and the woman had children from the cohort marriage, I checked the mother's name in the birth registrations. Because of the naming practices for widows, noted above, if the last name given in the birth registration/s was different from the last name at marriage, the woman was classified as a widow. Where the

husband's marital status was missing, I tried to find a previous marriage or children from that marriage to ascertain whether he was a widower or bachelor.

In a small number of cases, men and women stated they were a 'Bachelor' or a 'Spinster' but I found a previous marriage for the person, children of that marriage and the death of the previous spouse. In my analysis, I classified these people as a widow or widower, rather than according to the status they gave at the marriage.

Age of husband and wife

Where an actual age at marriage was provided, I used these data to estimate the year of birth from the year of marriage. In a proportion of marriages, age was given only as 'of age' or 'not of age'—that is, the person was or was not of a legal age to marry without the consent of their parents. If I found the husband's or wife's death, I estimated birth year from age at death—either from the death registration data or from other sources such as the digitised newspapers or the Australian Cemetery Index. For those cases where I did not have the actual age at marriage or at death, I tried to find the husband's or wife's date of birth. It was easier to find the date of birth for those in the two later cohorts since a much higher proportion of spouses were born in Tasmania. However, it was harder to find the age at death for the later cohorts, since many of the husbands and wives died in the 1940s and 1950s.

I concentrated my efforts on finding the birth year of the parents of the *complete* group, since 'age' was a crucial variable for my analysis. For the complete group, I obtained the age (or an estimate of the age) of all mothers in the 1860 and 1870 cohorts and 99 per cent of mothers in the two later cohorts (Table 5.3). I also obtained data on the age of 98–99 per cent of their husbands (Table 5.4).

Occupational status

Data on Tasmanian births from 1900 onwards were derived from the Tasmanian Federation Index, which did not contain details of the husband's occupation. Data indexes for other colonies and for New Zealand also did not provide information on occupation. In some instances, I was able to find information from sources such as digitised

newspapers or electoral rolls. Where a child or parent had died in Tasmania in the early 20th century, I was able to obtain information on the husband's occupation from the digitised death record.

In the bivariate analysis, I used occupation at the birth of the first child, since the data were of better quality than occupation at marriage. Where occupation at the birth of the first child was missing and I could not find any information on the husband's occupation at the birth of the next child, I used the husband's occupation at marriage. In the multivariate analysis, where occupation was missing for children other than the first, I used occupation at the birth of the previous child (Vézina et al. 2014).

Although information on a woman's occupation was recorded on the marriage registration certificate, these data were missing for around three-quarters of couples in the earlier three cohorts. Most of the female occupations listed for women in these cohorts were servant, dressmaker, farmer's daughter or free (not a convict). Occupation at marriage was recorded for around half of women in the 1890 cohort, but these occupations were mainly domestic, servant or daughter of a farmer (or labourer or carpenter). Mother's occupation was not recorded on the birth registration certificate. Married women's occupation on the death certificate either related to their husband's occupation—for instance, widow (wife) of farmer—or was listed as 'domestic duties'.

Summary of accuracy

Throughout the family reconstitutions, I was very careful to avoid recording information unless it could be verified. In the end, I have a high degree of confidence about the accuracy and completeness of the family histories in my *complete* group. This gives me a database with complete birth histories of couples in all social strata of Tasmania, including those who left Tasmania either temporarily or permanently at some time after they married. This database is used in the descriptive analysis of the marriage cohorts in Chapter 5, in the bivariate analyses of the fertility of couples in the complete group in Chapter 6 and in the bivariate and multivariate analyses of starting, stopping and spacing behaviours in Chapter 7.

This text is taken from *Australia's Fertility Transition: A study of 19th-century Tasmania*, by Helen Moyle, published 2020 by ANU Press, The Australian National University, Canberra, Australia.

doi.org/10.22459/AFT.2020.04