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**Centre for  
Aboriginal  
Economic  
Policy  
Research**



**Parentage and indigenous  
population change**

**A. Gray**

**No. 166/1998**

**Discussion Paper**

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Director, CAEPR  
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July, 1998

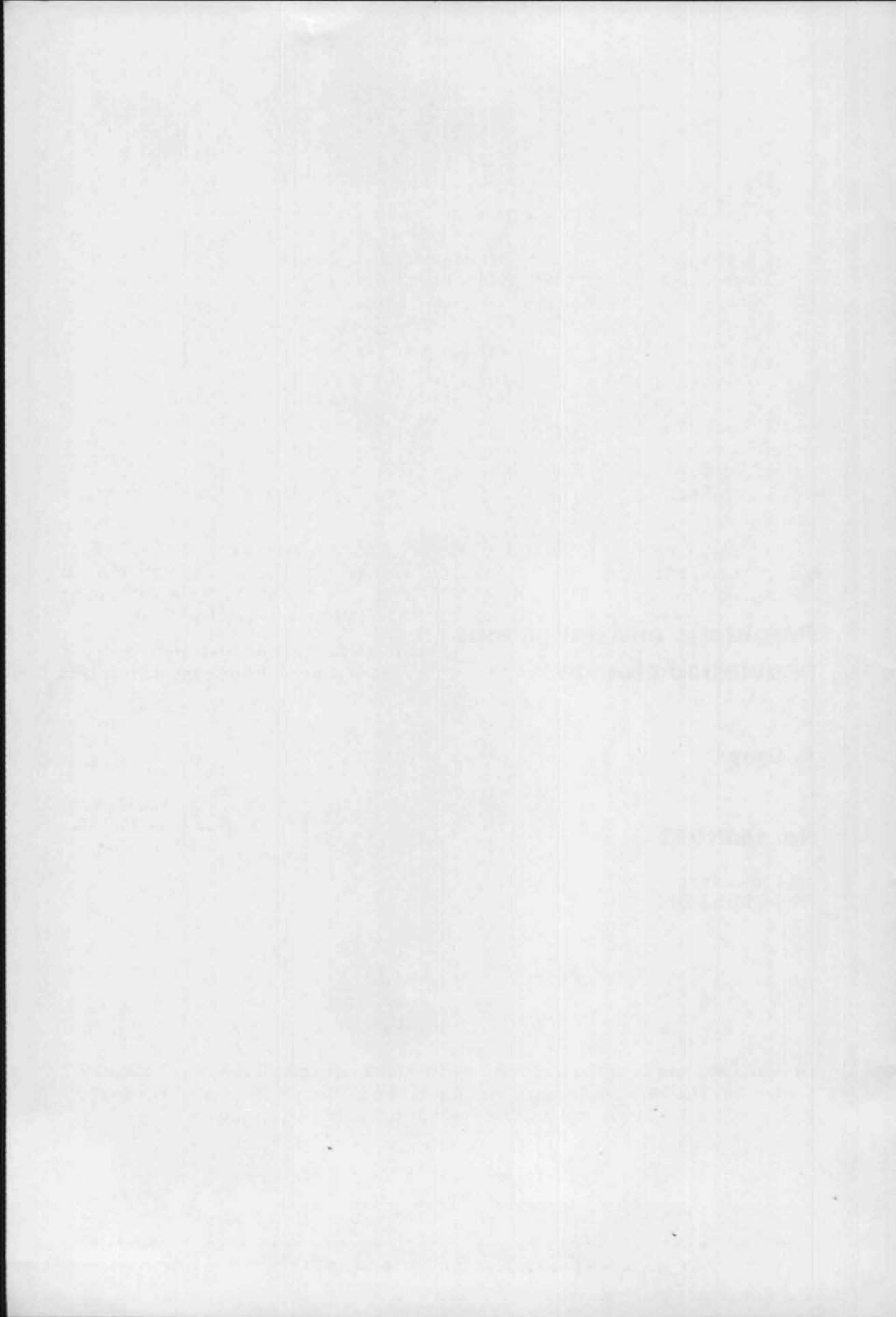
# **Parentage and indigenous population change**

**A. Gray**

**No. 166/1998**

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## Foreword

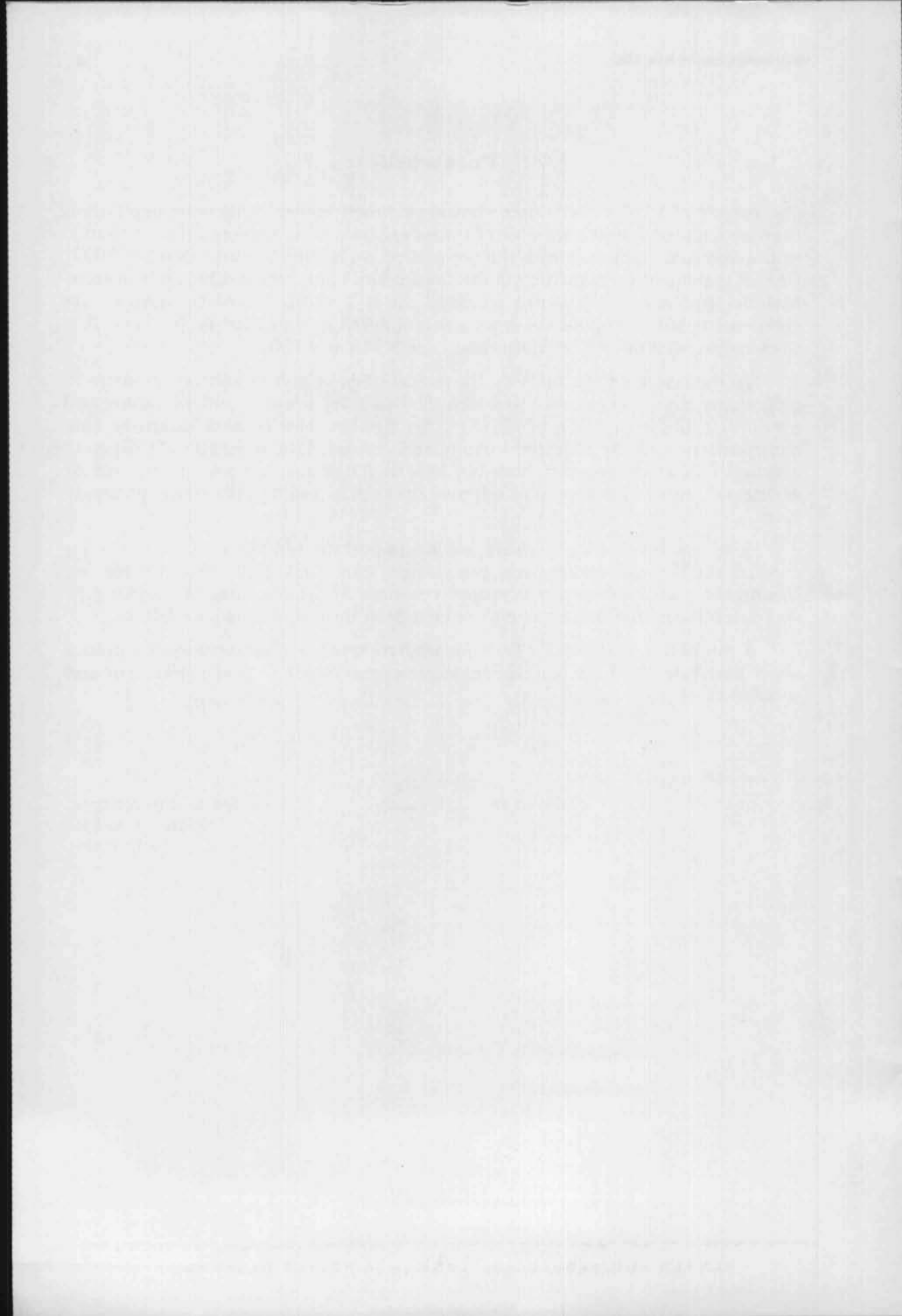
The release of 1996 Census data showing a much higher indigenous population than anticipated raised a number of issues regarding the interpretation of change in the size and composition of the population. In September and October 1997, CAEPR appointed Dr Alan Gray of the Centre for Population and Social Research, Mahidol University, Bangkok, Thailand, as a Visiting Fellow to analyse the components of this population growth and to develop population projections. This work culminated in CAEPR Discussion Papers 142 and 150.

In the course of his analysis, the contribution of non-indigenous mothers to indigenous population growth was identified as a key issue in understanding and predicting the dynamics of change. To further clarify and quantify this contribution, CAEPR acquired customised census data to enable Dr Gray to conduct follow-up research from his base in Thailand and assess the role of Aboriginal family formation and reformation in determining indigenous paternity rates.

The results of this analysis are an important reminder of the need for careful scrutiny of indigenous population dynamics and they provide an invaluable statistical and conceptual resource for policy analysts seeking to accurately measure the components of change in the indigenous population.

I would like to thank Dr Gray for undertaking this follow-up work within a short timeframe and for his characteristic commitment to professionalism and scholarship.

Professor Jon Altman  
Director, CAEPR  
July 1998





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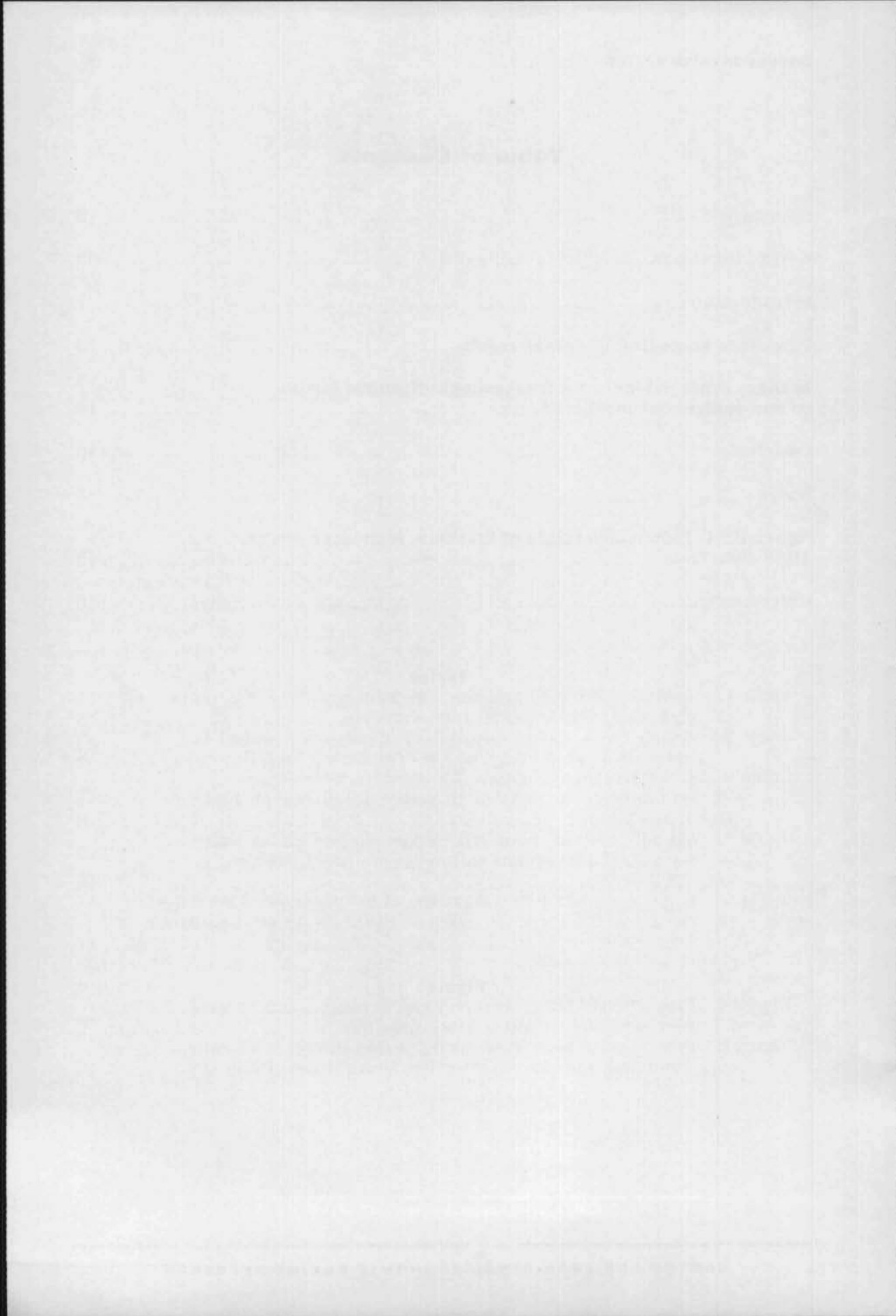
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## Summary

Non-indigenous women contribute to indigenous population growth when they form relationships with Aboriginal and Torres Strait Islander men and bear children. The aim of this discussion paper is to assess this contribution more precisely.

The dynamic patterns of Aboriginal family formation and reformation might not have been considered adequately in recent interpretations of census data, which pointed out that there were rapidly increasing proportions of indigenous children in families consisting of indigenous fathers and non-indigenous mothers. This could occur for reasons other than rapidly increasing intermarriage. There are also pitfalls in interpreting increasing intermarriage as indicative of change in the nature of Aboriginal society. Nevertheless, convergence is the inevitable future for both the indigenous and non-indigenous components of Australian society.

## Parentage according to census results

Because of change in the census question about indigenous origin, the 1996 Census may have caused more confusion than had ever existed before about how the question should be answered on behalf of children, especially in families of mixed indigenous and non-indigenous parentage. It is not clear whether choice of identity either for themselves or their children is perceived to exist by people filling out census forms, although such choice is a possible consequence of an official definition involving self-identification.

In the 1996 Census, 92 per cent of children aged 0 to 14 with an indigenous mother or an indigenous father were themselves identified as indigenous, while 6 per cent were identified as non-indigenous, and 2 per cent had 'not stated' indigenous origin.

Among children identified as indigenous, the proportion in families with indigenous fathers and non-indigenous mothers was highest for the youngest children, and progressively decreased at higher ages of the children. Information of this nature has been used to infer that, over time, increasing proportions of indigenous children are born to mothers who are neither Aboriginal nor Torres Strait Islanders. This conclusion is disputed in this paper, first on the grounds that there should also have been consequent reductions in other specific types of families, and second on the grounds that the same pattern is found in both the 1991 and 1996 Censuses without the displacement that might have logically been expected. It is argued that dynamic processes of family formation are more likely to be the main explanation for the observed patterns.

Similar conclusions, namely that there are confounding effects from the family formation processes, are reached in assessing the patterns of identification of children as non-indigenous. Much more straightforward assessment is available in the case of children classified as indigenous origin 'not stated' but having at least one indigenous parent. The highest proportions of these cases are

found among the very youngest children, and there can be little doubt that this pattern represents confusion about how to answer the indigenous origin question on behalf of babies.

In this way, a more realistic assessment of the processes of Aboriginal family formation has also produced useful information about the extent of uncertain identification of indigenous children in census returns, particularly the very youngest children, and classification of children of indigenous parents as non-indigenous.

### **Is there other evidence for increasing indigenous births to non-indigenous mothers?**

The second part of the paper examines other evidence for increasing numbers of indigenous births to non-indigenous women, using information supplied during birth registration. Only during the past few years has this information become available from all parts of Australia. The birth registration data suggest strongly that there are indeed rapidly increasing numbers of indigenous births to non-indigenous women, and Aboriginal or Torres Strait Islander men. These extra births boost Aboriginal population growth to a continuing high level, even though the fertility of Aboriginal and Torres Strait Islander women has been falling towards replacement level.

### **Conclusion**

There is no need to modify significantly the conclusions reached in recent analysis about the implications for population growth of increasing numbers of indigenous births to non-indigenous mothers. The analysis in the paper does, however, show that great caution should be exercised in acceptance of the superficial implications of census data about Aboriginal and Torres Strait Islander families. Census classifications, and the assumptions which were made in constructing them, might not give adequate recognition to the processes of indigenous family formation.

### **Acknowledgments**

This paper fulfils a commitment to follow up on work that I undertook in 1997 as a Visiting Fellow at CAEPR. I am grateful to Jon Altman for his encouragement to undertake the additional analysis. I am particularly grateful to the Darwin office of the Australian Bureau of Statistics (ABS) for the assistance of its staff in providing the data needed to write this paper. I have been encouraged to continue work on this and related topics in useful discussions that I have had with staff of the ABS during a visit this year. I am also indebted to Yanbali Pty Ltd for its advice and assistance, to Linda Roach and Hilary Bek for editorial assistance, and to Jennifer Braid for the layout and final production.

## Introduction

Marriage, as the fundamental institution of society, is defined and described in terms of the functions and forms in which it occurs within each society. In the past and in the present, legally solemnised marriage according to the laws of the States and Territories has been a step undertaken by few Aboriginal couples anywhere in Australia (Barwick 1963, 1974; Kitaoji 1976; Gray 1983, 1984). Kitaoji (1976) debunked the myth of disorder in Aboriginal families. According to her, the forms of sexual union constituted a logically ordered sequence in which casual liaison and pregnancy preceded the first nuptial union, which may or may not have been permanent, and consensual union usually preceded legal union if the marriage was later legalised.

The difficulty that past observers felt about the matter is illustrated in the observations of Smith and Biddle (1975: 26-7) in the following passage describing a survey undertaken in Brisbane:

One of the more difficult areas in which to gather data using a survey method is that of marriage patterns. From the beginning, study personnel understood the reluctance of respondents to discuss the quality of their marriages ... No questions were asked about the legal status of marriages, but almost 5 per cent of the respondents volunteered the information that their marriages were of a *de facto* nature, and it is quite likely that many more came into this category. In some instances it became clear that a man or a woman had over a period of time a series of marital relationships, generally of a *de facto* type. This may happen more often with the Aborigines than with white Australians.

Since the passage was written, the forms of relationships among non-indigenous Australians have now moved closer to those of Aboriginal and Torres Strait Islander people, and it might seem odd that a perception of disorder could have been strongly influential in the past. Similarity of forms of marriage is not complete, because a careful exception should be made about the issue of early pregnancy.

Aboriginal teenage girls have birth rates that have declined much less than birth rates of older Aboriginal women, and that are extremely high compared with birth rates among non-indigenous women in Australia (Gray 1997a: 8). Indeed, it has been calculated that most Aboriginal fertility occurs before marriage takes place, consensually or legally (Gray 1990). The main implication of this observation is that the reproductive health needs of young indigenous women are an extremely important, continually ignored, area for priority in health service delivery.

Let us acknowledge the priority which should be given to the reproductive health implications of a high level of teenage pregnancies among indigenous Australians, and the lack of attention that has been paid to appropriate services. In the context of the present discussion, the implication of high levels of teenage fertility, not necessarily within marriage, should be a warning that any conclusions about the changing genetic structure of the indigenous population

(O'Reilly 1994: 157) should be regarded sceptically if the statements are based on intermarriage data derived from censuses.

Nevertheless, the extent of intermarriage between Aboriginal and non-Aboriginal people in Australia was mainly unobserved, in the statistical sense, until relatively recently. The appearance of tabulations accompanying 'own-children' estimates of Aboriginal fertility by Jain (1989) provided the first published evidence that intermarriage occurred at a high level, in the sense that families consisting of Aboriginal and non-Aboriginal parents constituted a high proportion of indigenous families. According to the 1986 Census, approximately one-third of Aboriginal families had an Aboriginal head with an Aboriginal spouse, one-third had an Aboriginal head or spouse with a non-Aboriginal partner, and one-third were single-parent families (Gray, Trompf and Houston 1991).

Using results from the 1991 Census, similar analysis by Dugbaza (1994) led to comment on some of the implications of high rates of intermarriage (Dugbaza 1995). In particular, Dugbaza (1995) pointed out that in Aboriginal and Torres Strait Islander 'couple families', the proportion of children with non-indigenous mothers was a rapidly decreasing function of age. He inferred that more and more Aboriginal children were being born to non-Aboriginal women.

O'Reilly (1994) extrapolated the results further, with the observation that 'substantial and increasing' rates of intermarriage between indigenous and non-indigenous Australians constituted an additional, substantial component of growth of the Aboriginal and Torres Strait Islander population. He concluded that intermarriage 'will increasingly change the nature of Aboriginal society in non-remote areas'.

There is no dispute with O'Reilly's observation that previous assessments of Aboriginal population change did not take adequate account of births to indigenous fathers and non-indigenous mothers. The additional component of growth has been included in a recent assessment of the scale and direction of Aboriginal population change (Gray 1997a,b). The importance of recognising the existence of this additional component of growth is high. In the absence of migration, processes of population change are described traditionally in terms of increases due to births and decreases due to deaths, and are restricted to the population under consideration. Until data became available, births among non-Aboriginal Australians were regarded as irrelevant or at most insignificant in indigenous population change.

The sole aim of this discussion paper is to assess more precisely the contribution of non-indigenous mothers to indigenous population growth. In view of what has been noted here about Aboriginal marriage patterns, it should also be very clear that the analysis cannot provide a reasonable model of anything that can be interpreted as change in 'the nature of Aboriginal societies', either in non-remote or remote areas. Change, through convergence, is the inevitable future for both the indigenous and non-indigenous components of Australian society, however distinct they might have been in the past and seem still to be.



## Parentage according to census results

In the 1996 Census, identification of people as Aboriginal, or as Torres Strait Islander, was based on the question: 'Is this person an Aboriginal or Torres Strait Islander?', with possible response categories 'Yes, Aboriginal', 'Yes, Torres Strait Islander' and 'No'. In previous censuses, there had been an additional instruction 'For persons of mixed origin, tick the box to which they consider themselves to belong', but in 1996 this was changed to 'For persons of mixed Aboriginal and Torres Strait Islander origin, tick both boxes'. The changed instruction removed a vestige of the concept of choice of identity, by people of mixed indigenous and non-indigenous parentage. What precisely is measured by the census question is less clear now than it has ever been in previous censuses. While it might be reasonable to expect that parents will tend to classify their children in the same way as they classify themselves, this observation is of little assistance when it comes to children with both indigenous and non-indigenous parents.

Table 1 shows the way in which the children of parents identified as indigenous were classified in the results of the 1996 Census. The table includes all children who had at least one parent classified as indigenous. It does not include children who were identified as indigenous, but whose parents were not specifically identified as Aboriginal or Torres Strait Islander.

**Table 1. Identification as indigenous, children aged 0-14 of parents classified as indigenous, 1996 Census**

| Child identified as: | Both parents indigenous | One parent absent, or with unstated indigenous origin |                   | One parent non-indigenous |                   | Total            |
|----------------------|-------------------------|---|-------------------|---------------------------|-------------------|------------------|
|                      |                         | Indigenous mother                                     | Indigenous father | Indigenous mother         | Indigenous father |                  |
| Indigenous           | 33,918<br>(97%)         | 38,815<br>(95%)                                       | 4,261<br>(94%)    | 21,104<br>(88%)           | 16,469<br>(81%)   | 114,567<br>(92%) |
| Non-indigenous       | 451<br>(1%)             | 756<br>(2%)   | 93<br>(2%)        | 2,281<br>(10%)            | 3,541<br>(17%)    | 7,122<br>(6%)    |
| Not stated           | 441<br>(1%)             | 1,020<br>(3%)   | 178<br>(4%)       | 496<br>(2%)               | 339<br>(2%)       | 2,474<br>(2%)    |
| Total                | 34,810                  | 40,591  | 4,532             | 23,881                    | 20,349            | 124,163          |

Source: Unpublished tabulations from the 1996 Census of Population and Housing, provided to CAEPR by the Australian Bureau of Statistics (ABS).

Parentage is determined by relationship to the family reference person, the first person listed on the family's census form. In a nuclear couple family, this is

usually the man. In such cases the mother is identified indirectly, as a woman classified as wife of the reference person. Motherhood is identified more directly in the case of a family headed by a single woman. The table does not necessarily identify biological fathers or biological mothers.<sup>1</sup>

While 92 per cent of 124,163 children aged 0 to 14 with an indigenous mother or an indigenous father, or both, were themselves identified as indigenous, a total of 9,596 were not. Of these, 7,122 were identified as non-indigenous, with the remainder having 'not stated' indigenous origin. As would be expected, most of the children identified as non-indigenous had a mother or a father who was neither Aboriginal nor Torres Strait Islander. No doubt some of these children were in blended families, where the indigenous parent was not a biological parent. In other cases, a conscious choice of non-Aboriginality might have been made, by parents on behalf of their children. It is not clear whether choice of identity either for themselves or their children is perceived to exist by people filling out census forms, although such choice is a possible consequence of an official definition involving self-identification. If choice is made on behalf of children, it can potentially be reversed later by the child.

There were 15 children, not shown in Table 1, who were classified as Aborigines or Torres Strait Islanders in the 1996 Census, but who had both mother and father classified as non-indigenous. This very small group of cases could be genuine, as a result of adoption for example. A further 227 children were classed as indigenous when neither parent was known to be indigenous, that is at least one parent was not present in the household or had indigenous origin 'not stated'. Again these cases are not shown in the table. Most are likely to be genuinely indigenous in origin. These two groups combined are smaller than the number of cases, 451 according to Table 1, where both parents were recorded to be indigenous but the children were identified as non-indigenous. This too can reflect choices made, especially within blended families, or in the case of adoption.

Besides those children of apparently mixed indigenous and non-indigenous parentage who have been classified as non-indigenous, the table also reveals the existence of a smaller group of children, with at least one Aboriginal or Torres Strait Islander parent, whose indigenous origin has not been stated in the 1996 Census results. Such an outcome can be due to confusion about whether children should, or should not, be classified as indigenous in cases of mixed parentage.

As foreshadowed in the introduction of this paper, an important dimension of the analysis is the process of Aboriginal family formation. What we see in Table 1 is that there are many more indigenous children in mixed marriage families and single-parent families than in families with two indigenous parents. It is probable that many of these families are still in the process of formation. Other families represented in the table can be the result of reformations and blending. These features can be expected to be different for children of different ages.

Consequently, it can be expected that the likelihood that a child of indigenous parents belongs to a family of a specified type will depend on the age of the child, for reasons of family formation processes rather than because of the extent of intermarriage. Table 2 examines the extent of variation according to age of child, for the same children shown in Table 1.

**Table 2. Family types, children aged 0-14 of parents classified as indigenous, proportions by age of children, 1996 Census**

| Age of child | Both parents indigenous | One parent absent, or with unstated indigenous origin |                   | One parent non-indigenous |                   | Total           |
|--------------|-------------------------|---|-------------------|---------------------------|-------------------|-----------------|
|              |                         | Indigenous mother                                     | Indigenous father | Indigenous mother         | Indigenous father |                 |
| (1)          | (2)<br>Per cent         | (3)<br>Per cent                                       | (4)<br>Per cent   | (5)<br>Per cent           | (6)<br>Per cent   | (7)<br>Per cent |
| 0            | 25.7                    | 32.8  | 1.5               | 20.4                      | 19.6              | 100.0           |
| 1            | 26.0                    | 33.7  | 2.4               | 19.1                      | 18.8              | 100.0           |
| 2            | 25.3                    | 34.4  | 2.6               | 20.1                      | 17.7              | 100.0           |
| 3            | 27.3                    | 33.9  | 3.1               | 19.2                      | 16.6              | 100.0           |
| 4            | 28.2                    | 33.4  | 3.4               | 18.8                      | 16.2              | 100.0           |
| 5            | 29.2                    | 32.9  | 3.8               | 18.5                      | 15.7              | 100.0           |
| 6            | 29.3                    | 32.7  | 3.8               | 18.8                      | 15.5              | 100.0           |
| 7            | 28.3                    | 33.1  | 3.7               | 18.8                      | 16.1              | 100.0           |
| 8            | 28.7                    | 32.3  | 3.9               | 19.1                      | 16.0              | 100.0           |
| 9            | 28.2                    | 31.5  | 4.3               | 19.8                      | 16.3              | 100.0           |
| 10           | 30.1                    | 32.1  | 3.9               | 18.7                      | 15.2              | 100.0           |
| 11           | 28.1                    | 31.9  | 4.4               | 19.6                      | 16.1              | 100.0           |
| 12           | 29.6                    | 31.4  | 4.2               | 19.5                      | 15.3              | 100.0           |
| 13           | 28.2                    | 32.0  | 5.4               | 19.2                      | 15.3              | 100.0           |
| 14           | 29.0                    | 31.0  | 5.7               | 19.4                      | 14.9              | 100.0           |
| Total        | 28.0                    | 32.7  | 3.7               | 19.2                      | 16.4              | 100.0           |

Source: Unpublished tabulations from the 1996 Census of Population and Housing, provided to CAEPR by the ABS.

Two columns of Table 2 show very distinct patterns of variation, with age, of the probability that an indigenous child will be found in a family of a particular type. These are children with single indigenous fathers (column (4)), who are found only rarely among the youngest age groups, and children with indigenous fathers and non-indigenous mothers (column (6)), who are found less often among progressively older age groups of children. A less noticeable feature of the table is that at the youngest ages, less than three, slightly but decidedly fewer indigenous



children are found in families where both parents are indigenous. It takes only a moment to realise that only one of these features of the table, namely column (6), is consistent with the hypothesis of rapidly increasing intermarriage. Lack of corresponding change in some other columns is worrying. Moreover, if it is intermarriage that explains the distribution, then it is only increasing intermarriage between indigenous men and non-indigenous women, and not between indigenous women and non-indigenous men, otherwise column (5) would look like column (6).

Changing levels of intermarriage would not explain why increasing proportions of indigenous children are found with single indigenous fathers, although the mechanism for this is rather obvious. The evident explanation is that the mother of a young child is most likely to be present when the child is the youngest, whether the mother is indigenous or non-indigenous. This explanation is framed in the processes of family formation and reformation, and the incomplete family transitions which are occurring during the earliest years of the lives of many Aboriginal children. On the same reasoning, any evidence of stable forms in Table 2 is far more likely to represent an approximate balance of additions and subtractions rather than persistent structures.

Yet the evidence for increasing intermarriage proposed by Dugbaza (1994, 1995) and accepted in subsequent analyses (O'Reilly 1994, Gray 1997a,b) was quite precisely a variant, using 1991 Census data, of the distribution shown in column (6) of Table 2. The only difference was that the proportion was restricted to couple families, that is, omitting children shown in columns (3) and (4) of Table 2. A comparison of the relevant distributions from the two censuses is shown in Figure 1.

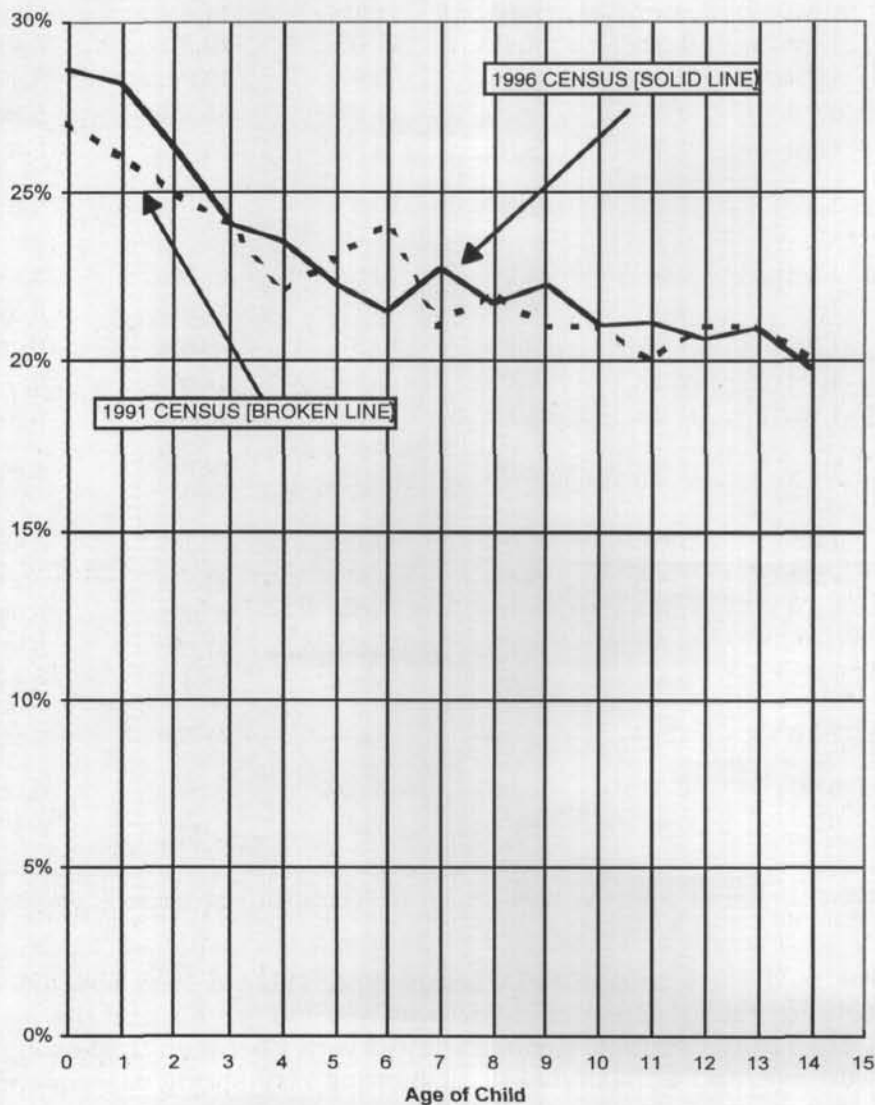
If the proposition is accepted, that the downward slope of these lines is due to increasing rates of intermarriage, then Figure 1 would take quite a different form from its actual appearance. Specifically, we should be able to push the 1991 Census line five years to the right to overlay the two lines nearly exactly for ages from 5 to 14. In fact, a far closer overlay occurs when there is no displacement, as shown in the diagram, despite the slight gap between the two lines at the youngest ages.

The most reasonable conclusion is that the distinctive pattern, found in both censuses in the same form, is not due to increasing intermarriage between indigenous men and non-indigenous women. This conclusion does not rule out the possibility that increasing intermarriage has been occurring. Rather, it indicates that processes of family formation invalidate the use of superficial evidence such as the extent of age-dependent membership of different types of family, as set out by way of example in Table 2.

Before proceeding to further investigation of change in the contribution of non-indigenous mothers to indigenous population growth, it is useful to investigate other features of classification of the indigenous origin of young children of indigenous parentage. One reason that it is useful to do this is that it provides further evidence against acceptance of the patterns in Table 2 as

evidence of increasing intermarriage, but the analysis also reveals other aspects of classification of the indigenous origin of young children. The patterns of classifying children as non-indigenous - 6 per cent of all children of identified indigenous parentage in Table 1, or as origin not stated, a further 2 per cent - have distinctive age-specific patterns. These are shown in Tables 3 and 4.

**Figure 1. Proportion of indigenous children in couple families with non-indigenous mother, 1991 and 1996**



**Table 3. Classification of children of indigenous descent as non-indigenous, proportions within age groups of children, 1996 Census**

| Age group | Both<br>parents<br>indigenous | One parent absent, or<br>with unstated<br>indigenous origin |                      | One parent non-indigenous |                      | Total |
|-----------|-------------------------------|---|----------------------|---------------------------|----------------------|-------|
|           |                               | Indigenous<br>mother  | Indigenous<br>father | Indigenous<br>mother      | Indigenous<br>father |       |
| (1)       | (2)                           | (3)   | (4)                  | (5)                       | (6)                  | (7)   |
| 0         | 1.5%                          | 2.4%  | 0.0%                 | 11.1%                     | 11.6%                | 5.7%  |
| 1         | 1.6%                          | 1.8%  | 1.4%                 | 11.0%                     | 12.1%                | 5.4%  |
| 2         | 1.7%                          | 2.2%  | 0.0%                 | 9.8%                      | 13.0%                | 5.4%  |
| 3         | 0.7%                          | 2.5%  | 3.1%                 | 11.2%                     | 15.1%                | 5.8%  |
| 4         | 1.4%                          | 1.9%  | 2.9%                 | 9.7%                      | 14.7%                | 5.3%  |
| 0-4       | 1.4%                          | 2.2%  | 1.8%                 | 10.5%                     | 13.3%                | 5.5%  |
| 5         | 1.1%                          | 1.9%  | 4.2%                 | 10.5%                     | 17.5%                | 5.8%  |
| 6         | 1.1%                          | 1.6%  | 0.9%                 | 9.1%                      | 17.6%                | 5.3%  |
| 7         | 1.5%                          | 1.9%  | 2.9%                 | 10.5%                     | 18.5%                | 6.1%  |
| 8         | 1.4%                          | 2.2%  | 0.0%                 | 7.9%                      | 21.0%                | 6.0%  |
| 9         | 1.1%                          | 1.6%  | 1.8%                 | 8.6%                      | 19.9%                | 5.8%  |
| 5-9       | 1.3%                          | 1.8%  | 2.0%                 | 9.3%                      | 18.8%                | 5.8%  |
| 10        | 1.2%                          | 1.6%  | 2.9%                 | 8.7%                      | 18.1%                | 5.4%  |
| 11        | 1.2%                          | 1.4%  | 2.8%                 | 7.6%                      | 23.7%                | 6.2%  |
| 12        | 1.2%                          | 1.5%  | 1.0%                 | 8.0%                      | 20.1%                | 5.5%  |
| 13        | 0.8%                          | 0.8%  | 2.3%                 | 8.9%                      | 21.8%                | 5.6%  |
| 14        | 1.8%                          | 2.4%  | 2.4%                 | 9.8%                      | 24.4%                | 6.9%  |
| 10-14     | 1.2%                          | 1.5%  | 2.3%                 | 8.6%                      | 21.5%                | 5.9%  |
| tau-B     | -0.004                        | -0.015  | 0.007                | -0.024                    | 0.081                | 0.006 |
| p<0.01    | No                            | Yes   | No                   | Yes                       | Yes                  | Yes   |

Source: Unpublished tabulations from the 1996 Census of Population and Housing, provided to CAEPR by the ABS.

For three of the five categories of family type, Table 3 shows significant association between identification of children as non-indigenous and the age of the children. The ordinal statistic Kendall's tau-B varies between 0, showing no association with age, and a maximum of 1, showing very strong association. It can be seen that, though significant, the associations shown in the table are weak, and very weak for the total of the categories.

The children most likely to be classified as non-indigenous are those with indigenous fathers and non-indigenous mothers, 11.6 per cent of these children being classified as non-indigenous at age less than one year, increasing to 24.4 per cent at age 14. Recall that it was this type of family that provided the supposed evidence for increasing intermarriage in Table 2. The increasing proportion of children classified as non-indigenous in column (6) can occur for various reasons, only one of which is that as children with non-indigenous mothers get older, the parents tend to classify them as non-indigenous. This would modify significantly the view that the equivalent column of Table (2) provided evidence of increasing intermarriage.<sup>2</sup>

**Table 4. Classification of children of indigenous descent as origin not stated, proportions within age groups of children, 1996 Census**

| Age group | Both parents indigenous | One parent absent, or with unstated indigenous origin |                   | One parent non-indigenous |                   | Total  |
|-----------|-------------------------|---|-------------------|---------------------------|-------------------|--------|
|           |                         | Indigenous mother                                     | Indigenous father | Indigenous mother         | Indigenous father |        |
| (1)       | (2)                     | (3)   | (4)               | (5)                       | (6)               | (7)    |
| 0         | 3.9%                    | 5.5%  | 16.9%             | 4.3%                      | 3.8%              | 4.7%   |
| 1         | 2.0%                    | 3.8%  | 7.2%              | 3.1%                      | 2.2%              | 3.0%   |
| 2         | 1.5%                    | 3.7%  | 6.8%              | 3.1%                      | 2.6%              | 2.9%   |
| 3         | 1.4%                    | 2.9%  | 5.2%              | 2.3%                      | 2.3%              | 2.3%   |
| 4         | 1.6%                    | 2.3%  | 1.9%              | 2.6%                      | 2.2%              | 2.1%   |
| 0-4       | 2.0%                    | 3.6%  | 6.3%              | 3.1%                      | 2.6%              | 3.0%   |
| 5         | 1.0%                    | 2.4%  | 3.4%              | 1.6%                      | 1.4%              | 1.7%   |
| 6         | 1.1%                    | 2.5%  | 3.6%              | 1.4%                      | 2.1%              | 1.8%   |
| 7         | 0.7%                    | 1.8%  | 2.9%              | 1.6%                      | 1.1%              | 1.4%   |
| 8         | 1.0%                    | 1.7%  | 3.7%              | 1.6%                      | 0.9%              | 1.5%   |
| 9         | 0.9%                    | 2.0%  | 3.6%              | 1.7%                      | 0.7%              | 1.5%   |
| 5-9       | 0.9%                    | 2.1%  | 3.4%              | 1.6%                      | 1.2%              | 1.6%   |
| 10        | 1.1%                    | 1.4%  | 3.9%              | 0.9%                      | 0.8%              | 1.2%   |
| 11        | 0.3%                    | 2.0%  | 2.8%              | 2.4%                      | 0.8%              | 1.4%   |
| 12        | 1.0%                    | 1.8%  | 1.9%              | 2.0%                      | 1.1%              | 1.5%   |
| 13        | 1.0%                    | 1.5%  | 3.9%              | 0.9%                      | 0.5%              | 1.2%   |
| 14        | 0.5%                    | 1.7%  | 1.6%              | 0.8%                      | 0.9%              | 1.0%   |
| 10-14     | 0.8%                    | 1.6%  | 2.8%              | 1.4%                      | 0.8%              | 1.3%   |
| tau-B     | -0.043                  | -0.049  | -0.064            | -0.045                    | -0.054            | -0.047 |
| p<0.01    | Yes                     | Yes   | Yes               | Yes                       | Yes               | Yes    |

Source: Unpublished tabulation from the 1996 Census of Population and Housing, provided to CAEPR by the ABS.



The other columns of Table (3) showing significant association with age are columns (2) and (4), for families where indigenous women are single or married to non-indigenous men. In these families progressively older children are slightly less likely to be classified as non-indigenous than younger children.

Table 4 shows a very clear pattern, which is that for every combination of types of parents, children are more likely to be classified as indigenous origin 'not stated' if they are very young. This is consistent with the expectation that parents of very young children can be confused about whether to identify their children as indigenous, on their behalf. The proportion is at least 3.8 per cent of children aged less than one year, for every combination of parentage, and for all categories combined it is 4.7 per cent. This is a very significant proportion of these infants, showing one of the reasons that the youngest indigenous children appear to be under-counted, consistently, when age groups at one census are compared with the same age groups five years older at the next census. The reason is not that they are missed in the census, although that might happen too in some cases, but that they are counted and not classified as indigenous or non-indigenous. On the evidence of Table 4, this is most likely to happen if they have single indigenous fathers, or indigenous mothers without indigenous fathers present.

In summary, there are three major features of the census data. The first is that increasing or decreasing proportions of indigenous children of indigenous parentage in different types of families are logically the balance of additions and subtractions from processes of family formation and reformation, and cannot be interpreted as demonstrating anything about trends of intermarriage. The second is that there is a substantial level of classification, as non-indigenous, of children with at least one indigenous parent. In theory and according to government definition, such children can later decide to identify themselves as indigenous, as long as they are accepted as indigenous by the communities with which they are associated. The third feature of the data is that there is distinct evidence of uncertainty about how to classify young children of mixed parentage, in the form of high rates of non-statement of indigenous origin among the youngest children with at least one Aboriginal or Torres Strait Islander parent.

### **Is there other evidence for increasing indigenous births to non-indigenous mothers?**

The fact is that there is no convincing census evidence for increasing intermarriage between indigenous men and non-indigenous women, and consequently for increasing numbers of indigenous births to non-indigenous mothers. While the supposition that such evidence did exist was a component of my argument (Gray 1997a) for contemplating the coming explosion of Aboriginality, as an increasingly larger proportion of Australians will legitimately claim to have Aboriginal and Torres Strait Islander descent, the explosion will still occur in any case. Eventually virtually all people with Australian-born parents will have indigenous descent, however dilute. Even when indigenous women

achieve replacement level fertility, as is projected to occur in the next ten years (Gray 1997b), the additional contribution of indigenous births to non-indigenous mothers will continue to boost indigenous population growth way above the level achieved by the rest of the Australian population. The questions raised in this paper concern whether there is any evidence to assess the speed of the process whereby an increasing proportion of non-indigenous women are bearing children classified as indigenous.

**Table 5. Logistic model for the proportion of indigenous children born to non-indigenous mothers, based on registration data 1988-96**

| Parameter                    | Coefficient | Standard error | Odds ratio |
|------------------------------|-------------|----------------|------------|
| Constant ( $b_0$ )           | -126.2      | 12.14          |            |
| State( $b_1$ ):              |             |                |            |
| New South Wales              | 0           | Reference      | 1.000000   |
| Victoria                     | -0.01025    | 0.04169        | 0.989802   |
| Queensland                   | -0.6643     | 0.04593        | 0.514634   |
| South Australia              | -0.7168     | 0.04039        | 0.488312   |
| Western Australia            | -1.178      | 0.03396        | 0.307894   |
| Tasmania                     | 1.312       | 0.0843         | 3.713593   |
| Northern Territory           | -2.449      | 0.03991        | 0.086380   |
| Australian Capital Territory | 0.6551      | 0.1548         | 1.925335   |
| Year ( $b_2$ )               | 0.06354     | 0.006087       |            |

Source: Model based on data in Appendix 1.

The other source of evidence in the previous assessment of this issue (Gray 1997a), was registration data about indigenous births. These data, shown in their completeness in Appendix 1, have become available in all the States and Territories of Australia only during the last few years. During this period standards for providing information about births, as recommended by the ABS, have been implemented by the offices of the various Registrars-General. The data have been placed in an appendix to this paper because they are clearly incomplete for some areas of Australia, particularly in the earliest years of collection. Without recommending that the reader inspects the data, it can be affirmed, nevertheless, that the proportion of indigenous births recorded as being to non-indigenous mothers appears to have been increasing rapidly during the decade of the 1990s, in all the States and Territories for which information over a period of years exists. (This is all States except Queensland, where data first became available

with appreciable coverage in 1996; most of the other States were only a few years earlier.)

These data can be modelled, under two assumptions. The first is that the upper limit for the proportion of indigenous births to non-indigenous mothers is one-half. This is hardly likely to be exact, although the upper limit should no doubt be closer to 0.5 than to 0.6 or 0.4. The second assumption is that increase, in the proportion of indigenous births to non-indigenous mothers, is occurring in different States and Territories according to the same logistic model, but displaced in time. The logistic model is shown in Table 5. It takes the form

$$\text{logodds}(2^*p) = b_0 + b_1(\text{State/Territory}) + b_2*\text{year},$$

where  $p$  is the proportion of indigenous births to non-indigenous mothers.

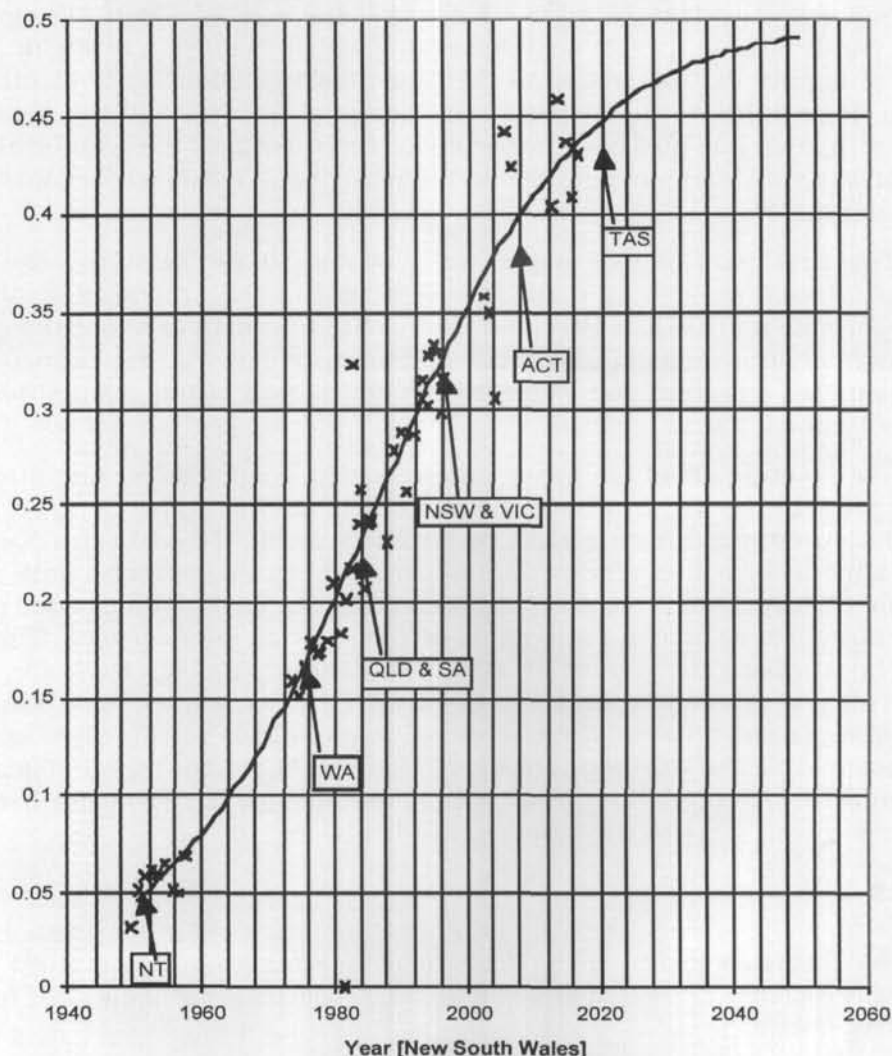
There is no significant difference between the time displacements for New South Wales and Victoria, where New South Wales is the reference category, nor between Queensland and South Australia. Under the assumptions of the model, the same time-dependent process is under way in each State and Territory, but is at different stages. This can be visualised as displacement in time from the stage the process has reached in New South Wales, the reference category. The displacement compared with New South Wales is: for Victoria, -0.2 years; for Queensland, -10.5 years; for South Australia, -11.3 years; for Western Australia, -18.5 years; for Tasmania, +20.6 years; for the Northern Territory, -38.5 years; and for the Australian Capital Territory, +10.3 years. Figure 2 shows a graphic display of the model compared with the original data. The time-displaced locations for the original data are as estimated in the model.

There should be no doubt that the model displayed here is consistent with the data, under specific assumptions of an orderly process under way in different States at different stages. The model fits the observed data from birth registrations quite well. At the same time, unease about the possible existence of alternative explanations for observed patterns is not easily dispelled. In the case of the census data discussed earlier, insubstantial explanations were put forward for patterns which were nevertheless strongly evident in the data. In the case of the model in Figure 2, substantial explanations consistent with the evidence should not be regarded as the sole explanations for the observed patterns.

On logical and observational as well as statistical grounds, there is increased intermarriage between Aboriginal and non-Aboriginal Australians. This results in increasing numbers of indigenous births occurring to non-indigenous women. The model, based on recent birth registration data, suggests that the process is producing rapidly increasing numbers of such births.



**Figure 2. Proportion of indigenous births to non-indigenous mothers (compared with the stage in New South Wales, 1996)**



## Conclusion

As the fabricators of reality, statisticians work to define terms within the existing ideology of the society, build measures to describe those terms, and carry out censuses and surveys to estimate the measures which they have constructed. Descriptions of families in Australian censuses and surveys rely on concepts less appropriate for indigenous Australians than they are for the non-indigenous majority. This has led to mistaken interpretation of the census evidence, and in

particular to belief that census family data provided evidence of rapidly increasing intermarriage between indigenous men and non-indigenous women.

Important work remains to be done on the way in which Aboriginal and Torres Strait Islander people answer questions about indigenous origin, and how forms of inquiry can be related to their own feelings about their identity (Gray 1997a). Research into the structure of Aboriginal families and the dynamics of family formation has also been neglected in the recent past and can be allied in a natural way with work on identity and intermarriage. These have become areas of research priority.

The first part of this paper was devoted to re-examining the census evidence, based on a more realistic assessment of the processes of Aboriginal family formation. This has also produced useful information about the extent of uncertain identification of indigenous children in census returns, particularly the very youngest children, and classification of children of indigenous parents as non-indigenous.

The second part of the paper examines evidence for increasing numbers of indigenous births to non-indigenous women from another source, namely information supplied during birth registration. While it had been necessary to reject a model based on census information, the birth registration data suggests strongly that there are indeed rapidly increasing numbers of indigenous births to non-indigenous women and Aboriginal or Torres Strait Islander men. These extra births boost Aboriginal population growth to a continuing high level, even though the fertility of Aboriginal and Torres Strait Islander women has been falling towards replacement level. There is therefore no need to modify significantly the conclusions reached in recent analysis (Gray 1997a,b) about the implications of this process for population growth. Only the details of the model need to be adjusted.

## Notes

1. 'Own' children of women can be identified, as for example in Dugbaza (1995, Table 1). This term refers to adopted as well as natural children, living in the same household as the woman.
2. Just as with attempted explanations for other features of these age distributions, no single explanation is likely to be adequate or complete. Contemplation of column (6) of Table 3 within the dynamic context of processes of family formation and reformation readily yields several other explanations for the observed pattern. For example, it is possible, without necessarily being likely, that marriages in which the non-Aboriginal women brought non-indigenous children from previous marriages into their relationships with Aboriginal men are more stable than those where the women had no previous children. There are very many ways to explain the observed pattern.

## Appendix 1. Indigenous origin of mothers, registered births, 1988-96

| State or Territory | Mother indigenous? | 1988  | 1989  | 1990  | 1991  | 1992  | 1993  | 1994  | 1995  | 1996  |
|--------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| NSW                | Yes                |       |       |       |       | 35    | 888   | 1,404 | 1,575 | 1,674 |
|                    | No                 |       |       |       |       | 7     | 390   | 607   | 770   | 770   |
| VIC                | Yes                | 260   | 296   | 349   | 378   | 359   | 338   | 344   | 362   | 333   |
|                    | No                 | 78    | 114   | 141   | 131   | 144   | 155   | 167   | 180   | 141   |
| QLD                | Yes                |       |       |       |       | 4     | 21    | 19    | 23    | 1,923 |
|                    | No                 |       |       |       |       | 0     | 10    | 6     | 6     | 611   |
| SA                 | Yes                | 418   | 395   | 453   | 456   | 458   | 415   | 413   | 411   | 423   |
|                    | No                 | 89    | 83    | 99    | 121   | 103   | 104   | 114   | 143   | 134   |
| WA                 | Yes                |       |       |       |       | 1,021 | 1,303 | 1,316 | 1,225 | 1,272 |
|                    | No                 |       |       |       |       | 194   | 232   | 262   | 267   | 266   |
| TAS                | Yes                |       |       |       |       | 130   | 143   | 138   | 158   | 139   |
|                    | No                 |       |       |       |       | 88    | 121   | 107   | 109   | 105   |
| NT                 | Yes                | 1,093 | 1,233 | 1,180 | 1,195 | 1,275 | 1,272 | 1,256 | 1,286 | 1,251 |
|                    | No                 | 35    | 66    | 73    | 78    | 79    | 87    | 68    | 67    | 92    |
| ACT                | Yes                |       |       |       |       | 9     | 28    | 41    | 29    | 38    |
|                    | No                 |       |       |       |       | 5     | 15    | 18    | 23    | 28    |

Note: The data in this table are markedly incomplete, and have been used in this paper only to estimate relative numbers of indigenous births to indigenous and non-indigenous mothers over time and in different parts of Australia.

Source: Published and unpublished data, ABS.

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