Mobility of Aboriginal and Torres Strait Islander people: A literature review

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Introduction

Mobility plays a key role in the traditional and contemporary lifestyles of Aboriginal and Torres Strait Islander peoples in regional and remote Australia. For all human populations, mobility is an important means of facilitating economic participation, the acquisition of goods and services and engaging in the social and cultural interactions that individuals and groups have the right to value. A common perception, however, is that the relatively high level of temporary mobility of Aboriginal and Torres Strait Islander Australians creates frictions with mainstream models of economic participation and service delivery, and frustrates attempts to reduce Aboriginal and Torres Strait Islander disadvantage (Morphy 2010a, Prout 2008). This is an impression that has persisted since the first contact between Aboriginal and Torres Strait Islander people and the European settlers, for the many policies designed to 'civilise' and 'assimilate' the Aboriginal and Torres Strait Islander population that were to follow have revolved around an explicit aim of sedentisation as a precursor to further progress (Young 1990 p. 186). Despite the longevity and persistence of this view, even now only limited evidence exists on the drivers or extent of temporary mobility of Aboriginal and Torres Strait Islander people, and there remain significant deficiencies in existing statistics. Further, evidence on best practice in accommodating such mobility into policy and practice remains critically under-developed.

This report reviews the existing literature about the *temporary* mobility of Aboriginal and Torres Strait Islander people in remote Australia. It follows a number of other literature reviews on this topic, including Habibis et al. (2010), Memmott et al. (2004) and a comprehensive survey article by Prout (2008). While some of the same ground is covered as in those earlier contributions, the material covered here is aimed specifically at informing future research designs to increase our understanding of the temporary mobility of Aboriginal and Torres Strait Islander people, and to facilitate the modelling of temporary population flows for the purpose of improving service delivery, resource allocation and employment opportunities for Aboriginal and Torres Strait Islander Australians.

Temporary mobility can be distinguished from a number of other forms of mobility, such as migration and micro-mobility, as defined in the following section. The focus on temporary mobility reflects an interest in a particular set of social and policy issues for which temporary movements are the most pertinent. It does not dismiss the importance of academic research or policy issues relating to other categories of mobility, including longer-term population shifts between smaller settlements and regional centres. Salient features of temporary mobility are that it does not involve a change in place (or places) of 'usual residence'; it may involve visits to multiple destinations in the one trip; and such trips are of short duration, typically a few days to two weeks (Prout 2008 p. v). These features are also key reasons behind the failure of standard statistical collections to adequately capture patterns of temporary mobility.

Terms and definitions

There are many ways in which the movement of people can be categorised. Previous studies have distinguished between temporal, spatial and demographic mobility (Habibis et al. 2010 pp. 15–17).

Depending upon the motivation of the analyst, several other dimensions may be important, such as people's reasons for moving and the various characteristics of the places people move from, through and to, such as size and remoteness. Temporal mobility is concerned with duration of the movement, which can be short-term (temporary mobility) or long-term (temporary or permanent migration). The distinction between mobility and migration is usually made on the basis that the latter involves a change in the individual's place of 'usual residence', while the former does not. But even this most basic distinction risks imposing culturally inappropriate assumptions, for it is not uncommon for Aboriginal people to have several places that they call home (Habibis et al. 2010 p. 13, Musharbash 2008 p. 148, Young 1990 p. 188, Young & Doohan 1989 pp. 15–16). It is migration rather than mobility that has been more thoroughly researched.

Literature on the mobility of Aboriginal and Torres Strait Islander Australians has distinguished between a number of different forms of spatial mobility. These include 'circular mobility', 'chain' or 'line mobility', 'beats' and 'micro-mobility' (Habibis et al. 2010, Memmott et al. 2006, Young 1990, Young & Doohan 1989). Habibis et al. define circular mobility as 'frequent, short-term movement across an identifiable mobility region that often involves a circuit of temporary stopping places before the return home' (2010, p. 16). Chain or line mobility involves stops over an extended area, usually on the basis of kinship connections. Memmott et al. (2006) attribute the term 'beats' to Beckett (1988), and define these as 'a set of places which he or she can visit and expect to obtain hospitality and economic support if necessary, and in which a person is most likely to find their spouse' (Memmott et al. 2006 p. 80). Micro-mobility relates to intra-settlement mobility in which household composition changes from day to day or night to night as a result of individuals changing residencies. This form of mobility in particular has had less attention (Elvin et al. 2010). As one example of this, Musharbash (2008 pp. 124–27) describes the practice of daytime 'cruising' in Yuendumu, in which an individual will move from point to point within the settlement, driven partly by personal networks and intentions, but continually being redirected by news, gossip and chance encounters. Demographic mobility is concerned with demographic factors involved with the life-course (such as gender, age and marital status) and how they relate to temporary mobility (Habibis et al. 2010 p. 18).

Temporary mobility, in the sense used here, therefore includes circular mobility, beats and chain mobility, but not migration (neither permanent nor temporary), nor micro-mobility. It involves movement from one location or settlement to another with at least one night's 'stop' – and hence at least one change in the location or settlement at which the individual sleeps. However, it does not involve a change in the main places at which one has access to, and regularly utilises, for accommodation. We would consider movements falling within the category of temporary mobility to potentially span up to several months in duration, as defined by Prout (2008 pp. 2–3) , but clearly any decision rule for differentiating between temporary and permanent, or between mobility and migration, on the basis of duration will inevitably be somewhat arbitrary.

It should also be stressed that this review is concerned with understanding and measuring contemporary Aboriginal and Torres Strait Islander mobility practices. As Memmott et al. (2006 p. 8) and others have noted, any treatment of mobility needs to be conscious of a history of engagement and, more often than not, a history of displacement experienced by Aboriginal and Torres Strait Islander people. An anthropologist's interest in mobility practices may well relate to mobility as it occurred within the traditional lifestyle of Aboriginal and Torres Strait Islander people prior to, or unaffected by, contact with Western civilisation. However, mobility has been inexorably conditioned by historical events, including the forced displacement of Aboriginal and Torres Strait Islander people from their traditional lands to missions, reserves, or the fringes of towns, and legal restrictions on the movements of 'natives' between regions. Some mobility is generated by movement back to visit traditional lands as a consequence of prior displacement, and subsequent relaxation of legal restrictions (Young & Doohan 1989 pp. 2, 15). Structural factors arising from government policies relating to housing, transport, education and so on continue to significantly impact upon patterns of mobility (Habibis et al. 2010 pp. 20–22, Young & Doohan 1989 p. 27). Patterns of temporary mobility observed today, and described in almost all the existent literature, reflect some combination of surviving traditional practices, the legacy of historical impositions, and a contemporary struggle between the aspirations of Aboriginal and Torres Strait Islander people and the policies of the State.

Theoretical models of mobility

The literature canvassed has revealed surprisingly little in the way of the development of conceptual frameworks to explain and model temporary mobility. Four main potential models were identified and are briefly discussed: the Harris-Todaro model and its extensions in neo-classical economics, the modified gravity model, resource variability models and an 'anchored kin-based network model' recently proposed by Morphy (2010a).

The Harris-Todaro model was formulated to explain the phenomenon of rural to urban migration, and followed Lewis' (1954) seminal 'dual sector' model of economic development. Drawing upon the neo-classical paradigm of utility-maximising individuals, Harris and Todaro (1970) assume that in deciding whether or not to migrate, individuals act to maximise their expected income. The expected income in urban areas is the product of the urban wage rate and the probability of being employed. Hence the expected wage at a location is a decreasing function of the local unemployment rate. Workers would move from rural areas to cities as long as the expected income in the city exceeded their marginal productivity (income) in the agricultural sector (plus costs of migration). The Harris-Todaro model could account for the continued rural to urban migration, despite significant pools of urban unemployment, through the differential between the urban wage rate and marginal productivity in the agricultural sector. This can be seen as one particular case of what has developed into a broader theory of 'compensating differentials' in labour economics, which seeks to explain differences in equilibrium wages across regions by differences in other attributes affecting utility (see Rosen 1986). For example, firms may be able to pay lower wages in

cities with lower housing costs or a better climate, with labour supply (worker migration) equating expected utility across regions.

The modified gravity model suggests that the probability of moving from one location to another is dependent on the size (population) of one's current location and populations of possible destinations, and inversely related to the 'distance' between the two points. Distance is determined based on costs of migration, which may be social or economic. Social costs of migration include the person's ability to maintain their social contacts. Economic costs include physical costs of moving or temporary loss of income or the loss of the spouse's income (Biddle & Hunter 2006 p. 332).

McAllister et al. (2009) developed a model specifically related to arid environments. Noting that resource distribution in arid environments is typically highly variable, they consider how the resources necessary for survival are accessed. Just as portfolio theory in finance shows how risk can be managed through diversification, this variability in resources in arid environments may be managed by diversifying resource access across time and space. McAllister et al. (2009) describe the different responses animal and plant species have developed to survive in the desert. Two strategies relevant to humans are nomadism and exploitation, which involve moving into regions only in resource-rich times, and these may be embedded in culture and social organisation. While nomadism involves costs in the form of time, energy and information gathering, there is a trade-off between these and the cost of storing resources. Mobility of desert peoples may thus be seen as a response to their environment: 'Aboriginal people survived through persistence with an immense store of knowledge, but a relatively low level of total production' (McAllister et al. 2009 p. 345). This is in line with earlier anthropological perspectives canvassed by Young and Doohan (1989) on the importance of the availability of resources, including water, as shaping social structures, Aboriginal law, spirituality and mobility in central Australia: '… a map of the Dreaming provides a kind of ecological map for the efficient and secure exploitation of resources' (Young & Doohan 1989 p. 27, citing Toyne & Vachon 1984). Consistent with the importance of resource availability as a driver of mobility, people in the more resource abundant, tropical areas of the north appeared to have lower mobility than most nomadic peoples (Prout 2008 p. vi).

Based on studies of the social networks of the Yolngu people, Morphy (2010a) argues that mobility patterns can best be described by a three-layered model capturing sacred geography and associated settlements, nodal individuals, and kin networks. Sacred geography and nodal individuals are interrelated, and in turn kinship networks are built around these individuals. Such a model, argues Morphy, is far more appropriate to capturing the essence of Yolngu patterns of mobility than the 'bounded container' models underpinning standard demographic categories (2010a p. 366). Her study of the Aboriginal population of the Fitzroy Valley in the Kimberley, though not a study of mobility, draws upon a related categorisation of the population at the household and community level into a stable core who count only one place as 'home'; a mobile core who, through circular mobility, count more than one place as home; and a periphery of people who may visit temporarily from time to time (Morphy 2010b).

As is typically the case with competing theoretical models, each of these approaches contains some degree of applicability. Choosing the most appropriate model depends on the different emphases put on various relationships, the model's ability to fit empirical observations, and the practicality of applying the model given such factors as its informational requirements. The Harris-Todaro model and the modified gravity model are more suited to modelling migration than temporary mobility; and the gravity model is perhaps better seen as an empirical modelling tool rather than a conceptual framework. Biddle and Hunter (2006) draw upon both the Harris-Todaro model, which they term the Human Capital model, and the modified gravity model in analysing migration patterns of Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander Australians. A large proportion of the remote Aboriginal population do reside in the desert environs, where McAllister et al.'s (2009) model of resource variability may hold some relevance, as well as offering valuable insights into the anthropological precedents of the importance of mobility in Aboriginal culture. However, the evidence from studies of the drivers of temporary mobility strongly support Morphy's as the most appropriate approach for capturing the intricacies of Aboriginal and Torres Strait Islander temporary mobility. Although it is based on the Yolngu people of north east Arnhem Land, Morphy notes that it can potentially be applied wherever Aboriginal and Torres Strait Islander people maintain 'kin-based social universes' (2010a p. 353), which is clearly the case throughout remote Australia. However, it is also extremely data – and hence resource – intensive. So while it would be the preferred approach to analysing mobility for one region or peoples, it may be impracticable as the basis for a more general model of temporary mobility.

Measuring mobility: methodology and findings

Temporary mobility of Aboriginal and Torres Strait Islander people has been analysed through ethnographic (or anthropological) studies, through case studies and surveys specifically designed to collect qualitative and quantitative data on mobility, and through analysis of pre-existing statistical collections. Many authors have noted the limitations of existing data collections, such as the Census, for the purposes of studying the mobility, particularly the *temporary* mobility, of Aboriginal and Torres Strait Islander people (see, for example, Taylor 2006). Undoubtedly the handful of ethnographic studies provides the richest understanding of the nature and drivers of Aboriginal and Torres Strait Islander temporary mobility, but these studies are specific to the location or the peoples studied and thus cannot be generalised. Case studies and broader survey-based studies have provided additional information on the extent of mobility. Ethnographic, case study and survey-based studies have universally found that maintaining kinship ties – fulfilling kinship obligations and the maintenance of social relationships – is the key driving force behind temporary mobility.

More specifically, the literature has relied on three main data sources in studying temporal mobility in Australia: (1) the Census (e.g. Biddle & Prout 2009a), (2) the National Visitor Survey and other national surveys (including the National Aboriginal and Torres Strait Islander Social Survey, or NATSISS) (e.g. Taylor & Kinfu 2006), and (3) Ethnographic/case studies (e.g. Musharbash 2008) or small-scale

community surveys (e.g. Biddle & Prout 2009a, 2009b; Centre for Remote Health and Tangentyere Council 2011; Foster et al. 2005; Habibis et al. 2011; Morphy 2010b). These various methodologies provide valuable insight into the different drivers of mobility for Aboriginal and Torres Strait Islander people. Table 1 summarises the data sources and key variables used in a number of studies of Aboriginal and Torres Strait Islander mobility, encompassing both temporary mobility and migration. It is noteworthy that only one study identified (Prout 2010) makes a substantial use of administrative records, and this remains a potentially valuable approach that has not been fully exploited in Australian research about the mobility of Aboriginal and Torres Strait Islander people. Habibis et al. (2010 p. 13) also noted the potential offered by administrative datasets, but argue this is limited due to unsystematic data collection and data management practices.

The remainder of the section then discusses some of the strengths and weaknesses of the various approaches and provides an overview of findings with respect to identifying the drivers and extent of temporary mobility.

Table 1: Measuring Aboriginal mobility: key data sources, methods and variables

Authors	**Data Source**	**Variables**	**Temporary mobility or permanent migration**
Charles-Edwards, Bell & Brown (2008)	National Visitors Survey	Overnight trip	Temporary
Biddle & Hunter (2005)	2002 NATSISS	Whether or not a person migrated in the last year For those who migrated, the number of moves and reason for move	Permanent migration
Biddle & Hunter (2006)	2001 Census	Person's usual residence on night of Census; one year ago; and 5 years ago	Permanent migration
Biddle & Prout (2009a, 2009b)	2006 Census	Place of enumeration; place of usual residence	Temporary
Prout (2010)	Administrative data systems and interviews with public servants	Attendance	Temporary (primary school students)
Memmott, Long & Thomson(2006)	Case study-survey based interviews	Frequency of visits; destination of visits; key drivers of mobility; places visited	Temporary
Long & Memmott (2007)	Case Study-field survey	Identity of home community and country; household characteristics; the movement patterns of householders and young people; the identity of the householder's relatives and their movement patterns and motivators of mobility	Temporary & permanent migration
Foster et al. (2005), Centre for Remote Health/ Tangentyere Council (2011)	Case study-survey based interviews	Who else stayed in that house (visitor or resident); duration of stay; where they last stayed.	Temporary & permanent migration
Prout (2009)	In-depth interviews	Nature and service implication of Aboriginal mobility practices	Temporary

Authors	Data Source	Variables	Temporary mobility or permanent migration
Taylor & Kinfu (2006)	2002 NATSISS	Propensity to move; reasons for movement	Temporary or permanent migration
Memmott et al. (2004)	2001 Census	Place of enumeration; place of usual residence; one year ago; and 5 years ago	Temporary and permanent migration
Memmott et al. (2006)	Case study-field survey interviews	Identity of home community & country; household characteristics; movement patterns of householders; the identity of relatives and their movement patterns.	Temporary and permanent migration
Morphy (2010b)	Case study-field survey interviews	Categorisation of population into stable core, mobile core and active/inactive periphery	Temporary

The Australian Census is conducted every five years by the Australian Bureau of Statistics (ABS). It is designed to count all people in Australia on a particular night, with the exception of foreign diplomats and their families. The main objective of the Census is to get reliable estimates of the population of each State and Territory, and for smaller geographic areas, for the purposes of setting electoral boundaries and for the distribution of government funds (ABS 2011). It can provide valuable information on both the permanent and temporary migration patterns of the Australian population (Bell & Ward 2000, Bell & Brown 2006). Each individual's address on the night of the Census is collected as well as their place of 'usual residence'. This enables visitors to be identified, along with where they are visiting from. Data on where people lived one year and five years ago allows identification of changes in people's places of usual residence (migration).

Advantages of the Census:

1. It provides information on the whole Australian population, including those at other locations on the night of the Census.
2. It can provide detailed information on temporarily mobile individuals based on 46 multi-part questions.
3. It can provide origin and destination flows through its coded locations.

Disadvantages of the Census:

1. It does not provide information on duration, frequency of movements or reasons for movement.
2. The absence is recorded on a weeknight on a particular night of the year, which may be different to an absence on a weekend or a different time of the year.
3. Some temporarily mobile individuals are excluded because of classification, such as students at boarding schools (Bell & Ward 2000).
4. Despite concerted efforts to improve procedures through the Indigenous Enumeration Strategy, it is still believed that the Census significantly undercounts Aboriginal and Torres Strait Islander people, notably those in remote areas, the young, the mobile and the socially marginalised. The ABS themselves estimated undercounts of Aboriginal and Torres Strait Islander peoples of 7% and 6.5% in the 1996 Census and 2001 Census respectively (Martin et al. 2002 p. 9).

The National Visitors Survey is a continuous dwelling-based survey that assesses 120,000 Australians older than 15 years of age on their domestic travel over the past four weeks. This includes information on the duration, timing and frequency of travel, where they ended up and why they travelled. To assess temporary mobility, the overnight trip variable used. It is defined as 'travel involving a stay away from home for at least one night (but less than one year) at a place more than 40 kilometres from home' (Charles-Edwards et al. 2008 p. 22).

Advantages of the National Visitor Survey:

1. It is a continuous survey that can provide information on timing of movements.

Disadvantages of the National Visitor Survey:

1. It is a dwelling-based survey that may miss those more mobile.
2. Some temporarily mobile individuals are missed, such as school children under the age 15 attending boarding school.
3. There is variability in the sampling, affecting the reliability of data on the number of visitors in regional areas (Charles-Edwards et al. 2008).
4. As it is a general population survey, sample numbers for Aboriginal and Torres Strait Islander people outside of major population centres are small.

Case studies or small-scale community surveys allow for more in-depth analyses of specific communities, cultural groups or geographical areas. They may provide detailed information on mobility practices from an Aboriginal and Torres Strait Islander perspective or provide data on specific geographical areas between one year and five year periods provided by the Census (Prout 2008).

Advantages of case studies or small-scale community surveys:

1. They can collect detailed information associated with individuals' temporary mobility, such as cultural factors or historical circumstances (Prout 2008).
2. They can include temporarily mobile individuals the Census would have missed.
3. They can examine areas with small populations.
4. They can examine the dynamic experiences of temporary mobility.

Disadvantages of case studies or small-scale community surveys:

1. The results are community specific and therefore not generalisable.
2. Conducting continuous surveys is usually not possible (Warchivker et al. 2000).
3. They generally do not allow comparisons to other populations, such as the non-Aboriginal and Torres Strait Islander population.

Drivers of mobility

We have noted the limitations for Aboriginal and Torres Strait Islander Australians of the 'usual residence' and 'visitor' concepts used in the Census. More limiting, however, is that the Census collects no data on the reasons for moves or visits. Thus, when it comes to understanding the drivers behind mobility, the Census is restricted to analysis of demographic factors associated with mobility (for example, Biddle & Prout 2009a, 2009b, discussed below). The NATSISS also relies on changes with respect to respondents' 'dwellings' as the key indicator of mobility. Data are collected on length of time in current and previous dwellings, and for those who changed dwellings in the past five years. NATSISS also collects data on the main reason for the moves according to a number of areas, including family, housing, employment and accessibility to services. Clearly this approach captures movements associated with migration rather than with temporary mobility. Analysing the 2002 NATSISS, Taylor and Kinfu (2006) found that family and housing were the most significant reasons for movement. To the best of our knowledge, no analyses of the mobility data from the more recent 2008 NATSISS have yet been published, but the questions in that survey were similarly inappropriate for studying the drivers of temporary mobility, as opposed to changes in residence.

Musharbash's (2008) study of Yuendumu provides the one true ethnographic study of Aboriginal mobility that we have identified. She explores the temporary movement of one particular female camp, or *jilimi*, at Yuendumu to describe the movement of the Warlpiri people. She documents how people move nightly to different camps, altering their sleeping arrangements. This micro-mobility highlights the social relationships between the Warlpiri people and explains how they interact in intimate ways with each other. The mapping of these movements also characterises the feelings of immediacy among Warlpiri people. Musharbash also extensively describes the nature of temporary trips by accounts of the flow of women through the *jilimi*, finding that mobility patterns reflect people's needs – most importantly, the need to create and maintain social networks through face-to-face interaction (2008 p. 74).

Foster et al. (2005) conducted four surveys in the 19 town camps of Alice Springs, with as comprehensive coverage as possible. The sampling unit was 'dwellings', with the survey being administered to the 'house boss' of each dwelling. The house boss identified who in the dwelling were residents and who were the visitors to the camps, how long they stayed, where they were from and where they last stayed. In approximately half the dwellings, a 'long survey' instrument was administered in which, with permission of the house boss, visitors were also surveyed and asked why they had come to town. By far the most frequent response was family visits, followed by housing reasons, shopping, to access services, and for sport (Foster et al. 2005 p. 38). The Karnte and Ilperle-Tyathe Camps had the highest number of visitors. The reasons given for the high rate of visitors was they were the most northern and southern camps, which meant they were significant entry points for most remote visitors. They also represented significant connections to the traditional land, and so movement between these traditional lands and other town camps was high. Both temporary and permanent movements (one night to greater than three months) were relatively consistent.

Examples of studies based on the case-study approach include Young and Doohan's seminal 1989 report, Memmott et al. (2006) and Habibis et al. (2011). The extensive analysis presented in Young and Doohan (1989) was based on eight detailed case studies of five different types of communities conducted over a period from 1978 to 1985: an Aboriginal town with outstations (Yuendumu), three Aboriginal-owned cattle stations, an 'open' Aboriginal town (Finke), a non-Aboriginal cattle station (Harts Range), and two specific outstations. These five categories were selected because the drivers of mobility were expected to vary for these different types of communities. The methodology involved compiling historical information and existing data sources, as well as extensive field work focusing on understanding the mobility process through observation and interviews (including of service providers). The focus was not on generating numerical estimates (Young & Doohan 1989 pp. 19–24).

Memmott et al. (2006) is based on case studies of two remote communities (Dajarra and Alpurrurulam) and their main service centre (Mt Isa) conducted in 2004 and 2005. Quantitative and qualitative data were collected through interviews with four categories of people: household heads, young men, young women, and service providers; and covering four key fields: identity of home community/country, household characteristics, movement patterns of householders, identity of relatives and their movements (Memmott et al. 2006 p. 11).

Despite the time span between these two studies, both highlight the maintenance of kinship as the key driver of Aboriginal mobility.

Habibis et al. (2011) report on case studies of sites in Western Australia (Carnarvon, Broome and Fitzroy Crossing) and South Australia (Port Augusta/Cooper Pedy, Adelaide/Port Adelaide) and the Northern Territory (Tennant Creek/Alice Springs and Nhulunbuy/Darwin). These involved face-to-face interviews and focus groups with a small number of individuals in each site (between 7 and 24). In both South Australia and Western Australia, access to medical services – notably treatment for renal disease – was identified as a prominent factor shaping temporary mobility, along with the influence of the wet season in Broome and Fitzroy Crossing. Motivations for mobility were found to vary over the life-cycle, but visiting family and friends featured prominently among the reasons for travel: 'Kinship relationships form both the medium and the motivation for a great deal of temporary mobility within Indigenous populations' (Habibis et al. 2011 p. 4).

Table 2 outlines a number of key cultural, social and economic drivers of mobility for Aboriginal and Torres Strait Islander people derived from a large number of studies. Like the studies briefly discussed above, this further reinforces that kinship rather than labour market or other economic forces represents the main driver associated with Aboriginal and Torres Strait Islander mobility (Kinfu 2005). A driving force for Aboriginal and Torres Strait Islander mobility, kinship is defined by blood ties and marriage and includes a range of social activities such as visiting friends and family (Memmott et al. 2006). Young (1990 pp. 191–92) suggests these drivers of mobility can be loosely classified into two broad groups of 'traditional' and 'non-traditional' drivers. Traditional drivers include ceremonies, subsistence activities, visiting country and maintaining kinship networks. Non-traditional reasons for movement include

participation in employment, housing, collecting social security and accessing other services. While there is an inevitable degree of interplay between such motivations, and a likely growing impingement of mobility for non-traditional reasons upon mobility undertaken for traditional purposes, the findings from these studies clearly emphasise traditional drivers as the key underlying motivation behind the temporary mobility of Aboriginal and Torres Strait Islander people in remote Australia.

A further category of drivers that has not been included in Table 2 is what may be called 'environmental' drivers. These would relate to mobility that arises due to climatic and other environmental changes that affect living amenity and resource availability. Probably the most important of these relate to seasonal movements associated with the wet and dry seasons in the north of the country, though mobility associated with these seasonal patterns may also be incorporated into traditional cultural practices.

Table 2: Cultural, social and economic drivers of mobility for Aboriginal and Torres Strait Islander people

Reason	**Reference**
Country and ceremony	
Visiting country	Smith 2004 p. 243; Long & Memmott 2007 p. 4
Looking after country and customary responsibilities	Young & Doohan 1989 p. 20; Smith 2004 p. 243
Visiting outstations	Peterson 2004 p. 230; Smith 2004
Succession to country	Veth 2003 p. 3
Returning to home community/settlement	Peterson 2004 p. 234
Access to country for native title, land rights and cultural heritage	Smith 2004 pp. 246–247
Avoidance of places/moving around places/ places of non-visitation	Veth 2003 pp. 2–5; Long 2005
Planning and attending ceremony	Peterson 2004; Memmott & Moran 2001; Altman 1987; Veth 2003 p. 2; Smith 2004 p. 243; Young & Doohan 1989 pp. 92–105
Kinship and social interaction	
Kinship networks and the maintenance of relatedness and autonomy; the movement (including dispersal) of kin; reuniting with family	Memmott & Moran 2001; Peterson 2004 pp. 224–230; Smith 2004 pp. 243, 250–252; Taylor & Bell 1999 p. 10; Young & Doohan 1989 pp. 108–120; Long & Memmott 2007 p. 3; Memmott et al. 2006 p. 93; Foster et al. 2005 p. 38; Taylor & Kinfu 2006 p. 65.
Marriage, responsibility to in-laws	Smith 2004 p. 243
Interdependence and independence from family and extended family households	Taylor & Bell 1996 pp. 400, 408
Maintenance of social networks	Young & Doohan 1989 pp. 108–120; Memmott & Moran 2001; Peterson 2004 pp. 224, 299; Smith 2004 p. 248; Taylor & Bell 1999 p. 16; Memmott et al. 2006 p. 93
Birthdays and other celebrations	Long 2005; Maddigan & Finnila 2004 pp. 1, 4
Funerals and Sorry Business	Peterson 2004; Smith 2004 p. 248; Memmott et al. 2006 p. 93; Foster et al. 2005 p. 38; Morphy 2007 p. 35

Reason	Reference
Tombstone opening	Torres Shire Council 2002; Howie-Willis 1994 pp. 1082–1083
Payback and square up, social responsibilities	Memmott & Moran 2001; Altman 1987; Smith 2004 p. 252
Social tensions, conflict, violence and shame	Memmott & Moran 2001; Peterson 2004 p. 224; Smith 2004 pp. 25–253
Exchange and carrying of goods and resources	National Native Title Tribunal 1999; Beckett 1994 p. 1092; Howie-Willis 1994 p. 963; Maddigan & Finnila 2004 p. 1; Smith 2004 p. 252
Attending meetings of Aboriginal and Torres Strait Islander organisations	Smith 2004 pp. 246–247, 252; Young & Doohan 1989 pp. 187–192
Travel for recreation, entertainment, sport, etc	Young & Doohan 1989 pp. 192–197; Memmott 1979; Memmott & Moran 2001; Peterson 2004 pp. 231–233; Smith 2004 p. 248; Long 2005; Memmott et al. 2006; Long & Memmott 2007 p. 4; Foster et al. 2005 p. 38
Shopping and business	Young & Doohan 1989 pp. 177–185; Smith 2004 p. 252; Memmott et al. 2006; Long & Memmott 2007 p. 4; Foster et al. 2005 p. 38; Habibis et al. 2011
Employment, training, social security, income	
Employment participation and employment prospects	Taylor & Bell 1996 pp. 400, 404; Taylor & Bell 1999 pp. 13, 14, 33; Beckett 1994 p. 1092; Memmott & Moran 2001; Smith 2004 p. 252; Taylor & Kinfu 2006 p. 65
Employment that promotes mobility (with major infrastructure projects, seasonal work)	Taylor & Bell 1999 pp. 10, 14, 16
CDEP	Taylor & Bell 1996 p. 400; Taylor & Bell 1999 pp. 9, 13–14
Obtaining social security/Centrelink payments	Altman 1987; Memmott & Moran 2001; Smith 2004 p. 252; Taylor & Bell 1999 p. 35
Seeking reduced cost of living	Gray 2004 p. 209
Accommodation and settlement	
Seeking housing or temporary accommodation (single men, single women, young people and families)	Taylor & Bell 1999 pp. 8, 36; Taylor & Bell 2004 p. 7; Gray 2004; Taylor & Kinfu 2006 p. 65
Leaving poor living conditions at home community (poor housing, services, noise)	Smith 2004 p. 250

Sources: Memmott et al. 2004 pp. 35–38; Memmott et al. 2006 pp. 123–129

The extent of temporary mobility

Empirical estimates of the level of temporary mobility among Aboriginal and Torres Strait Islander Australians clearly confirm the general perception that Aboriginal and Torres Strait Islander people are highly mobile relative to the non-Aboriginal and Torres Strait Islander population. What is disputed is that this mobility is essentially random or uncoordinated in its nature (Habibis et al. 2010, Musharbash 2008, Peterson 2004, Prout 2008, Young & Doohan 1989). Biddle and Prout (2009a, 2009b), for example, used 2006 Census data to assess the temporary mobility of Aboriginal and Torres Strait Islander people. They

found that 6.8% of Aboriginal and Torres Strait Islander people were not at their usual place of residence on Census night. This may appear low, but it is 50% higher than for the non-Aboriginal and Torres Strait Islander population (4.3%). Temporary mobility was highest among young Aboriginal and Torres Strait Islander adults, particularly among males in their 20s. However, it starts to decline for both male and female Aboriginal and Torres Strait Islander people from the age of 30, with a substantial decline for females. There were similar or slightly higher levels of temporary mobility from urban and regional Australia for the Aboriginal and Torres Strait Islander population when compared to the non-Aboriginal and Torres Strait Islander population (Biddle & Prout 2009a). Contrary to popular belief, there were higher levels of temporary mobility for the non-Aboriginal and Torres Strait Islander population in remote areas compared with the Aboriginal and Torres Strait Islander population (Biddle & Prout 2009b). The distance travelled is greater for non-Aboriginal and Torres Strait Islander people compared with Aboriginal and Torres Strait Islander people (Biddle & Prout 2009a). Outward temporary mobility for the Aboriginal and Torres Strait Islander population was highest from remote dispersed settlements but also significant from Aboriginal and Torres Strait Islander towns and remote towns. Aboriginal and Torres Strait Islander towns had lower rates of inward temporary mobility compared to city areas for the Aboriginal and Torres Strait Islander populations. However, remote dispersed settlements reported higher rates of inward temporary mobility for the Aboriginal and Torres Strait Islander population (Biddle & Prout 2009b).

For numerous reasons noted, the Census count is problematic for assessing the extent of temporary mobility among Aboriginal and Torres Strait Islander people. However, existing case study and ethnographic evidence also points to high levels of temporary mobility. Data collected in 1978–79 for Aboriginal people in Yuendumu and Willowra showed that almost all males (over 90%) and the majority of women (83.7% from Yuendumu and 67.3% from Willowra) had visited Alice Springs in that year. Data collected from the 'house bosses' in the town camps within Alice Springs at four points in time from June 2004 to June 2005 suggest that typically around 20% of people in the town camp dwellings at any one time were visitors (Foster et al. 2005); this figure was even higher in public housing dwellings in Alice Springs (Centre for Remote Health and Tangentyere Council 2011). Records kept by Musharbash for 221 nights (not consecutive) for the four-bedroom women's camp in which she stayed while in Yuendumu showed 160 different people stayed in the camp. On the average night there were 12 adults and 5 children, but the count varied from 9 to as many as 30 (2008 p. 62). These figures included a 'core' of 11 residents who stayed 100 or more of those nights, 12 'regulars' who slept between 44 and 76 nights, and 48 'sporadic residents' who stayed 1–6 nights (excluding 'sorry mobs') (Musharbash 2008 pp. 77–94).

From their case studies, Memmott et al. (2006) estimate extensive trips by their study participants, notably to Mt Isa, and visits to their households by kin and others. Young male participants from Dajarra, for example, are estimated to have made an average of 23 trips in the preceding year and women an average of 28 trips (Memmott et al. 2006, pp. 34–38). Habibis et al. (2011) report significant changes in population for a number of their case study sites based on secondary data collections. For example, there were significant and regular fluctuations in the populations of Western Australian communities due to the wet season: visitors to Burringurah would increase the population from around 150 to 200, and to Mungullah

from 150 to 250 (Habibis et al. 2011 p. 50). Fitzroy Crossing was reported to have 310 visitors regularly living in the town (2011 p. 63). Of the 32 communities around Tennant Creek in the Northern Territory only 14 are occupied permanently, as people in communities are likely to be cut off by the wet season and move to other communities (Habibis et al. 2011 p. 123). Though Morphy's study of the Fitzroy Valley population was not directly a study of mobility, she estimated around 10% of the population was absent at the time of the survey; she classified around 75% as 'stable core', 3% as mobile core and 22% as 'peripheral' people (or status unknown) who may occasionally stay in the household or community (2010b p. 19).

To the extent that some of the same forces may be at work in shaping temporary mobility and migration, and indeed some migration may be the result of travel that was initially intended to be 'temporary', findings relating to permanent and temporary migration also have some bearing. A comparison of results from the 2001 and 2006 Censuses reported that 46.5% of Aboriginal and Torres Strait Islander people (compared to 43.1% of non-Aboriginal and Torres Strait Islander people) changed their place of residence. This change was generally local, but about 70% of those who changed their place of residence also changed the area in which they lived (Biddle 2010a). Taylor and Kinfu (2006) used the 2002 NATSISS survey to determine the number of houses or dwellings Aboriginal and Torres Strait Islander people had lived in over the last 12 months. They found that 30.9% of participants who were over 15 years of age moved in the last 12 months to a different place or dwelling.

Based on Biddle's comparison of the 2001 and 2006 Census data, Figure 1.1 shows the migration between four geographical areas: cities, large regional towns, small regional towns and remote areas. Remote areas include remote towns, town camps and remote dispersed settlements or outstations. Biddle notes that for the Aboriginal and Torres Strait Islander population, migration is most significant between remote or small regional areas to more urbanised regions, particularly for school-age children, who move most frequently for educational reasons. There also appear to be movements back to regional/remote areas in the older age groups. Taylor et al. (2006 p. 61) conducted a similar exercise modelling net migration flows between the arid, semi-arid, savannah and 'rest of Australia' biogeographical zones. They found net migration flows from more arid areas to less arid areas, with particularly strong net flows to the rest of Australia. This exodus from drier zones is much more pronounced for non-Aboriginal and Torres Strait Islander people. It is projected that the Aboriginal and Torres Strait Islander population is set to rise considerably in remote areas particularly in semi-arid and savannah zones, as natural population growth more than offsets net migration; additionally, the Aboriginal and Torres Strait Islander proportion of population in these areas is projected to increase markedly due to the decline in the non-Aboriginal and Torres Strait Islander population (Taylor et al. 2006).

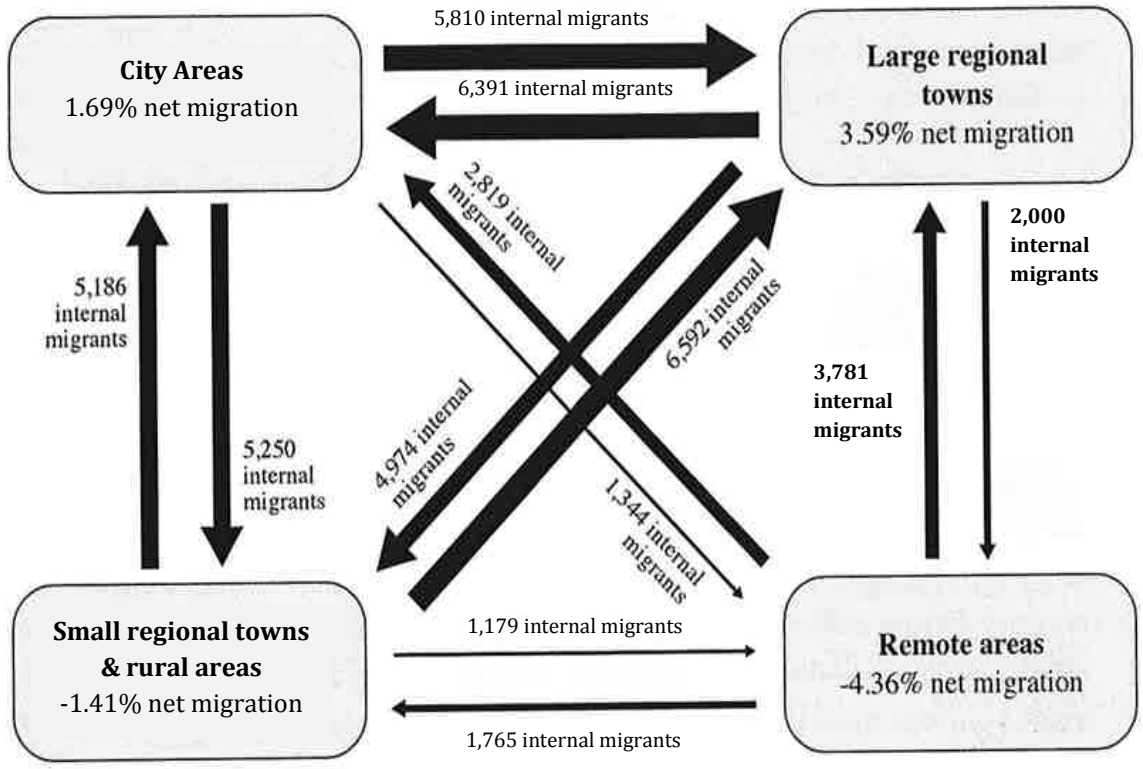

Figure 1.1: Internal migration for the Aboriginal and Torres Strait Islander population between four geographical areas

Source: Biddle 2009

Some of the limitations on this statistical data include the different interpretations of terms such as 'usual residence' and the impact of the undercount of Aboriginal and Torres Strait Islander people. While these problems could be minimised in future censuses (for example, by reducing the undercount), problems associated with limitation of information cannot be avoided because such details as duration of stay, seasonality or frequency of movement are highly unlikely to ever be collected though the Census (Biddle & Prout 2009a).

Mobility and provision of services to the Aboriginal and Torres Strait Islander population in remote areas

Mobility information is useful for determining the needs and planning for the service population (which comprises both residents and visitors) for shires, community councils, providers of housing and infrastructure and providers of health and education (Memmott et al. 2006). The collection of data such as power and water usage patterns, tenancy records or Aboriginal and Torres Strait Islander hostel usage could aid governments in determining the funding requirements of these key agencies so that they are adequately resourced to provide services to the service population (Prout 2008).

Housing

Long and Memmott (2007 p. 6) describe housing need as a product of mobility, rather than a trigger for mobility. Habibis et al. (2011 p. 35) nominate the design of housing, availability of short-term accommodation and tenancy management as just some of the aspects of housing services that need to accommodate temporary mobility patterns, and this requires predictions of the service population and knowledge of the relationships between different language groups. In remote areas, some Aboriginal and Torres Strait Islander households act as a key base for relatives. This leads to overcrowding, which may result in fighting and property damage, resulting in maintenance fees and the loss of tenancy, both of which make re-entering the public housing system difficult. As a result, accommodation with other relatives is sought, which leads to continued overcrowding (Prout 2008). The analysis of Aboriginal and Torres Strait Islander inhabitants of public housing properties in Alice Springs undertaken by the Centre for Remote Health and Tangentyere Council (2011) identified relatively few problems of overcrowding, but highlighted a declining public housing stock and long wait times for applicants – more than three years for three bedroom properties in 2003, 2004 and 2005.

Adequate government funding is crucial for community housing organisations and state and territory housing agencies to meet the housing supply needs and provide the necessary accommodation that suits visitation of relatives in a culturally appropriate manner. This may include well-designed wet areas, large and well-screened verandahs and more toilets and showers to allow for outside sleeping (Long & Memmott 2007). Despite the development of some targeted programs, Habibis et al. (2011 p. 42) argue that the impact of Aboriginal and Torres Strait Islander temporary mobility remains largely overlooked in housing policy, and responses are frustrated by responsibilities crossing multiple layers of government.

Health

Details regarding mobility patterns of Aboriginal and Torres Strait Islander people have important implications for the provision of health services according to Taylor and Bell (1996). It is important to understand, for example, who stays within local areas, what is the nature and extent of short-term regular movements within local areas, how regular are visits to regional centres, and what are the travel barriers that prevent people accessing health services. Local health clinics play a crucial role in provision of health services to short-and medium-term visitors (Memmott et al. 2006), and these can be as high in numbers as residents (Long & Memmott 2007). Constant movement can severely impact on the delivery of public health services, resulting in wasted resources, increased administrative workload, fragmented service delivery and follow-up, and poor health outcomes. Alternatively, for some Aboriginal and Torres Strait Islander people mobility may be closely associated with a holistic view of good health, achieved through connections to culture, self-governing control and relationships to family and community (Prout 2008).

Health services such as community clinics, in terms of Aboriginal and Torres Strait Islander mobility, need to be provided and maintained in remote areas and regional centres to meet peak requirements. Improvements in communication are necessary to ensure patients are adequately tracked. Finding a balance between having specialists deliver services in remote locations and providing transport for patients

to access specialists in regional centres is essential (Memmott et al. 2006). Accommodation in regional centres for visiting patients also needs to be made available (Long & Memmott 2007).

Education

Memmott et al. (2006 p. 101) suggest that 'mobility is the key to traditional enculturation of Aboriginal children; they learn about culture, places, people, history and the characteristics of plants and animal species by moving through the landscape with Elders, learning by instruction, observation and participation. These movements are recalled in the form of place-based narratives.' 'Enculturation' can be interpreted as a 'process by which individuals learn about and identify with their traditional ethnic culture' and 'an affirmation of one's heritage rather than a focus on fitting into the majority culture', as opposed to an 'acculturation' process 'by which an ethnic minority assimilates to the majority culture' (Zimmerman et al. 1994 pp. 199–201). Mainstream education regards the mobility of Aboriginal and Torres Strait Islander people as associated with high levels of truancy and absenteeism – which can disrupt the academic progress of students, increase the workloads of teachers and affect the efficient running of schools in remote areas – rather than as contributing to an enculturative educational experience (Prout 2008). Frequent movement between schools and its associated absenteeism can lead to the student not returning at all (Gray & Beresford 2001). Like health services in remote areas, educational services have been affected by declining numbers and rationalisation of services leading to poor educational outcomes for attending students. In response to this, Aboriginal and Torres Strait Islander parents have typically made one of three choices: (1) to send their children to boarding schools in regional centres, (2) to send their children to schools in urban areas with accommodation in Aboriginal and Torres Strait Islander hostels, which allow for familiar support networks, or (3) to permanently relocate to regional centres or cities. This final option can have the disadvantage of the loss of familiar social support (Prout 2008).

To improve the services that educational departments provide, one option is to use mobility as an education technique, hopefully leading to a greater chance of attendance (Memmott et al. 2006). Better communication between schools and agencies is crucial for mobile Aboriginal and Torres Strait Islander children and their parents (Prout 2008). The provision of transition programs (from primary school to high school) or more culturally appropriate services (such as tutors, transport services and accommodation for visiting families) for Aboriginal and Torres Strait Islander students attending boarding school are two additional options worth considering according to Long and Memmott (2007).

Social security services

Some research (e.g. Memmott & Moran 2001) has argued that access to welfare or social security curtailed or structured the mobility of Aboriginal and Torres Strait Islander people in remote areas. It is clear from Young and Doohan's detailed case studies (1989 pp. 145–157) that this was the case in the 1970s and the 1980s. While Memmott et al. (2006) found implied evidence of this in their research, they also suggested that improvements in access such as electronic banking and the regional expansion of Centrelink had allowed for greater flexibility and made increased mobility possible as people were less anchored to a specific location through the need to access social security. This flexibility is likely to facilitate movement

over longer distances and for longer durations, but also reduces the need for short-term trips every second Thursday to a service centre to access payments, trips which were often combined with shopping and other activities (Young & Doohan 1989).

Employment

Gregory (2005), among others, has raised the importance of mobility in relation to Aboriginal and Torres Strait Islander employment in remote areas. Mobility and Aboriginal and Torres Strait Islander employment in remote areas have co-existed since the beginning of the twentieth century through seasonal work in cattle stations. The majority of this type of work has now disappeared, and it has been replaced by employment in the mining, pastoral and transport sectors. This is often short-term contract work, which involves some movement between home and the job site. Temporary mobility has also been associated with the sale of Aboriginal and Torres Strait Islander art and goods (particularly in the Northern Territory) and roles on various boards and committees by senior Aboriginal and Torres Strait Islander men and women. Professional appointments have seen the migration of some Aboriginal and Torres Strait Islander people to urban centres (Prout 2008). The Community Development Employment Projects (CDEP) scheme has encouraged intra-regional mobility and has limited movements of greater distance. Until recently the CDEP, which became limited to remote areas, made up nearly one quarter of the total Aboriginal and Torres Strait Islander workforce. In 14 out of a total 37 regions across Australia, CDEP jobs made up 50% of the labour force (Biddle et al. 2008).

As mentioned, one sector in remote areas that has seen some progress in terms of jobs for Aboriginal and Torres Strait Islander workers has been the mining sector. Through Indigenous Land Use Agreements (ILUAs), negotiations between employers and local Aboriginal and Torres Strait Islander people have seen the development of employment opportunities and training (Tiplady & Barclay 2007, Johns 2009, Buultjens et al. 2010). This type of employment has allowed for circular mobility (Barker 2006). Operations in the Pilbara, for instance, have also seen movement become part of the job in the form of fly-in/fly-out or drive-in/drive-out employment arrangements (Taylor & Scambary 2005).

However, Biddle (2009) is cautious about encouraging a relationship between migration and employment policy. The migration of Aboriginal and Torres Strait Islander people from remote to urban areas or regional centres has often been met with limited employment opportunities (Biddle 2009). Aboriginal and Torres Strait Islander people are finding it hard to compete in the private labour market, and Biddle (2010a) suggests that they are missing out on jobs because they either lack the skills or because, given a choice, employers are hiring non-Aboriginal and Torres Strait Islander workers over Aboriginal and Torres Strait Islander workers with comparable skills. Because of the poor job prospects in all areas, migration decisions are made mainly on social and cultural grounds, rather than economic factors (Biddle & Hunter 2006). Biddle (2010a) argues that Aboriginal and Torres Strait Islander people who stay in remote areas may actually be better off in terms of labour market outcomes because of CDEP. However, this more favourable outlook in remote areas may not continue given the uncertain future of CDEP (Biddle 2010a). In Biddle's view, reforms that resulted in the loss of CDEP jobs could be expected to lead to the migration

of some Aboriginal people to urban markets where many would find it difficult, at least initially, to obtain jobs (2010a).

Morphy (2010a p. 375) likens the recent political discourse, which emphasises the individual as a 'worker', to a return to colonial notions of 'desirable' and 'undesirable' mobility, in which mobility based on country and kin is implicitly seen as undesirable. The loss of CDEP jobs as part of the Northern Territory Emergency Response provides an example where some Aboriginal and Torres Strait Islanders will now need to move into full-time jobs or to regions less compatible with maintaining their cultural obligations. Hunt argues that this 'top down' approach will weaken the existing structures that support Aboriginal and Torres Strait Islander livelihoods, including the kinship networks to which mobility is so fundamentally connected (Hunt 2010 pp. 421–423).

Retail

Changing retail services have had a marked effect on the mobility of Aboriginal and Torres Strait Islander people, causing declining movement onto country, and increased movement to regional and urban centres. As early as 1989, Young and Doohan noted that essentially all Aboriginal families in central Australia had become dependent upon retail services for the purchase of food and other consumer items, with a decline in proportion of sustenance provided through bushtucker and other goods produced in traditional ways. Shopping is also identified in other studies as a reason for trips to major service centres such as Alice Springs (Foster et al. 2005) and Mt Isa (Memmott et al. 2006).

Conclusion

Over 50 publications relating, in some way, to Aboriginal and Torres Strait Islander temporary mobility have been canvassed in this review. All but a few of those referenced have been published in the past 25 years, and still, our coverage of the literature remains far from exhaustive. This sizeable volume of existing and relatively recent works might well lead to the impression that the contemporary mobility patterns of Aboriginal and Torres Strait Islander Australians are well understood. Rather, the truth is that this literature rests upon just a handful of studies that are based on methodologies and data well suited to the analysis of Aboriginal and Torres Strait Islander temporary mobility. These are the ethnographic studies of Yuendumu by Musharbash (2008) and of the Yolngu people by Morphy (2010a); the case studies by Young and Doohan (1989), Memmott et al. (2006) and Habibis et al. (2011); and the surveys of the Alice Springs Town Camps by Foster et al. (2005). Many other studies are based on Census data, and some on the NATSISS and administrative data, all of which are very limited by inadequate measures of temporary mobility or, more importantly, by a lack of information on the motivation behind temporary movements. In reality, our knowledge about Aboriginal and Torres Strait Islander temporary mobility remains very segmented and incomplete, notwithstanding significant advancements since Taylor observed in 2006 that 'policy makers who contemplate the effects of temporary mobility on the spatial pattern of demand for services do so in an information vacuum' (2006 p. 13).

One finding that stands out is the remarkable persistence of Aboriginal and Torres Strait Islander mobility based on the desire to maintain kinship relationships and reciprocal obligations and connections to the land, especially given the many changes and events that may well have conspired to sever these traditions. In coining the term 'beats' back in 1965, Beckett noted that an Aboriginal person 'may go 200 miles to a place where he is known, rather than ten miles to a place where he is not. Usually, being known means having kin who will receive him and act as sponsors in the local community' (p. 119). Beckett's conclusion reverberates through the findings of contemporary research, such as Memmott et al. (2006 p. 107): 'Attachment to place and community prevail, irrespective of a history of changing government policies. There appears no reason to expect that these attachments will change in the foreseeable future.'

Clearly the maintenance of these social traditions is something of great value and meaning to Aboriginal and Torres Strait Islander Australians. However, there seems an inevitable tension between the benefits of mobility and its role in the continuity and maintenance of Aboriginal and Torres Strait Islander culture, and in turn, the wellbeing of Aboriginal and Torres Strait Islander people; and the growing integration of Aboriginal and Torres Strait Islander people with services provided in the mainstream economy. It is imperative that policy and models of service delivery accommodate both sets of opportunity for Aboriginal and Torres Strait Islander people. As Young and Doohan (1989) were compiling their detailed case studies, the contrasting pictures of mobility across a range of different types of communities clearly demonstrated that Aboriginal mobility was in a state of flux, a struggle between opposing forces and desires. While kinship ties seem to have stood the test of time, there are also signs that other reasons for mobility are growing in prevalence, such as accessing health services and education, or are often mentioned in conjunction with trips to visit family and friends, such as shopping. That is, there is a shift away from 'traditional' drivers of mobility towards 'non-traditional' drivers, to use Young's (1990) dichotomy. These changing mobility patterns highlight the need for ongoing research with broader geographical coverage than has been undertaken to date, for Australia's regular standard statistical collections are inadequate to provide an update on the picture.

There remain significant methodological challenges in building this knowledge base. Consistent with Aboriginal and Torres Strait Islander views of learning by doing as the key to gaining knowledge (Musharbash 2008 p. 12), it seems ethnographic studies are critical to a true understanding of temporary mobility. With kinship ties being the key to understanding patterns of temporary mobility in remote Australia, models such as Morphy's kin-based network model are perhaps best suited to further research into the changing patterns of temporary mobility, but parameterising such a model would be very data intensive. Of the other models of mobility, while all offer perspectives of some relevance, none can be said to be well suited to understanding and modelling Aboriginal and Torres Strait Islander temporary mobility.

However, a range of researchers have concluded that surveys, if they are well designed for this specific purpose and the right questions are asked, could be used to estimate service populations and to provide rich information on the meanings and drivers of the associated mobility (see Foster et al. 2005 p. 45, Prout 2008, pp. 23–24). The effectiveness of such surveys would be enhanced if, as proposed by Young and

Doohan (1989 p. 217) and more recently by Memmott et al. (2006 p. 86), Aboriginal and Torres Strait Islander 'mobility' or 'cultural' regions were mapped out more extensively. Research based on case studies typically selected study communities in a structured way, such as a combination of remote settlements along with their associated major service centres, or a categorisation of communities across which the extent and drivers of mobility are likely to vary (Young & Doohan 1989). Sampling for surveys would need to be similarly structured in order to comprehensively reflect the changes occurring in remote Australia.

Finally, although it has been noted before, it would be remiss not to reiterate the foregone opportunities in the form of information that is available, or could be collected relatively cheaply, through administrative records. Only one study, Prout (2010), substantially utilises administrative data to analyse Aboriginal and Torres Strait Islander mobility, although Habibis et al. (2011) use supplementary evidence from the administrative records of housing service providers. Memmott et al. (2006 p. 106) note: 'Given that mobility patterns have significant implications for services and policy, the researchers were surprised to find that very few service providers recorded data concerned with Aboriginal mobility.' There are few signs of heightened effort in this regard, and considerable potential remains to significantly expand the coverage of information on mobility – at least on the incidence of mobility – across a broader area and to monitor changes in mobility at relatively low cost through improved data collection, tracking and management of administrative systems.

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