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**Living together, but apart:
Material geographies of everyday sustainability in extended family households**

Abstract

In the Industrialized West, ageing populations and cultural diversity - combined with rising property prices and extensive years spent in education - have been recognized as diverse factors driving increases in extended family living. At the same time, there is growing awareness that household size is inversely related to per capita resource consumption patterns, and that urgent problems of environmental sustainability are negotiated, on a day-to-day basis (and often unconsciously) at the household level. This paper explores the sustainability implications of everyday decisions to fashion, consume and share resources around the home, through the lens of extended family households. Through interviews with extended family households in Australia, we explore the potential for these living arrangements to reduce resource use, and thus improve sustainability outcomes. In these households, a desire to care for and support family members in hard times (rather than an overt sustainability agenda) has promoted particular modes of extended family living, including unique forms of sharing and pooling material goods. But cultural values of privacy, space and independence – and the sanctity of the nuclear family – have led to duplication (and even multiplication) of household spaces, appliances and resources, under one roof. The potential environmental and economic benefits of resource-sharing within larger households are thus mediated by deep cultural values and exigencies of everyday life.

Keywords: sustainability, everyday life, extended family households, materiality, home, individualism, appliances, Australia

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Something we could all do tomorrow to make a big difference to our carbon footprint is have our elderly parents move in. You divide your carbon emissions...If you team up as a family, you will find a better way of living...There is no question that people will move to find these sorts of solutions to climate change...whether it would work socially is another matter.

(Peter Head, Director of ARUP; cited in May, 2007).

Introduction

This article explores a household-type that is prevalent throughout the Majority (developing) World, but is less frequently the subject of research in the Industrialized West: extended family households. Our interest in extended family households comes at a time when their prevalence is increasing (de Vaus, 2004; Keene and Batson, 2010) and when the size, makeup and activities of households have come under academic scrutiny because of the urgency of promoting environmental sustainability at this geographic scale (Hobson, 2006; Lane and Gorman-Murray, 2011; Reid et al, 2010). Here, we report on a qualitative, exploratory study of extended family households in Australia that sought to investigate how they function and what scope there is to realize sustainability gains in their rhythms of everyday life. More specifically, we ask: do extended family households function in ways that enable material improvements in household sustainability – or do obdurate ideals of individual privacy and independence, and the ‘sanctity’ of the nuclear family, inhibit greater interdependence and its attendant environmental benefits?

In this paper, we do not attempt to quantify the carbon emissions and cubic metres of water saved (or not) by our sample of extended family households. Instead, we seek to explore how extended family households function, what makes them tick, and how their internal dynamics – the assemblages of people, spaces and things of which they are comprised – advance or constrain the sustainability benefits of their living arrangements. We follow Reid et al (2010) and Blunt (2005) in defining a ‘household’ as a social unit occupying a single place or space of residence, notionally bounded by a physical structure, but constituted by the social, cultural and economic assemblages therein. While acknowledging that environmental sustainability is a contested, nuanced and dynamic concept (Davidson 2010), we restrict our analysis to the *material* dimensions of household sustainability, conceptualized by Lane and Gorman-Murray (2011) as the environmental ‘‘impacts’ of a household’s resource use, energy consumption [and] carbon emissions’ (page 1). Material household sustainability varies according to the size and nature of physical structures, number of occupants, their relationships to each other, and decisions made to consume, share, produce and dispose of resources (Lane and Gorman-Murray, 2011). Our aim here is thus to connect this material sustainability focus to the prosaic functioning of extended family households – an unusual, but potentially important household type. We utilize detailed qualitative data to explore the day-to-day intricacies of extended family living arrangements which both support and contest the sustainability potential of this particular (and under-explored) form of domesticity. In doing so, we apply Krueger and Agyeman’s (2005, pages 414-416) concept of ‘actually existing sustainabilities’ to the household scale, by identifying extant practices not conceived with sustainability in mind, but which nonetheless have the capacity to enact

sustainability from the ‘ground up’¹. In this process, it becomes possible to consider sustainability as it actually ‘exists’, rather than ‘through predetermined theoretical constructs of what it ought to be’ (Krueger and Agyeman, 2005, page 416).

The (re)emergence of extended family households

An *extended family household* consists of ‘one family’² plus at least one other relative such as a grandparent, aunt, uncle or cousin’ (de Vaus, 2004, page 68). The additional relatives may form a separate family unit. Complex questions arise when seeking to define extended families: is an extended family household formed when an adult child returns to the parental home? And does the number of people in a household matter in determining what ‘counts’ as an extended family? Such matters are debated in demography especially (de Vaus, 2004). We have deployed an expansive definition of extended family living, incorporating a range of household sizes - from three individuals upwards. Our definition includes adult children returning to the parental home (with or without their spouse and own children) and elderly parents living with an adult child. Each of these configurations brings together *related* individuals in a manner contrary to the ‘norms’ of nuclear (or single-parent) family living, and decreases the number of housing units required. We are cognizant that this approach collapses a range of family configurations under one label, and that it is possible to pull apart this internally diverse category and separately interrogate the sustainability implications of each configuration. For our exploratory purposes, a measure of definitional inclusivity felt warranted.

¹See also Hobson’s (2008, page 202) reference to ‘already existing sustainabilities’.

²A family is ‘two or more persons, one of whom is at least 15 years of age, who are related by blood, marriage (registered or de facto), adoption, step or fostering, and who are usually resident in the same household’ (de Vaus, 2004, page 68).

In Australia, like most other western countries, nuclear families remain the most common family type, although their dominance has declined in line with changing social norms (de Vaus, 2004). Within an overall pattern of declining household sizes, there are signs of shift (back) to extended family living, influenced by immigration from places where such arrangements are a cultural norm; as well as economic, social and demographic pressures (deVaus, 2004; Keene and Batson, 2010; Khoo, 2008). With an ageing population and limited capacity for aged-care in countries such as Australia, the need for family-based caring arrangements is expanding (ABS, 2010; de Vaus, 2004). Meanwhile, an increasing number of adult children have remained in (or returned to) the parental home (Cobb-Clark, 2008; Wyn and Woodman, 2006). With an undersupply of housing and rising property prices in Australian capital cities, combined with increasing years spent in education, this trend is also likely to continue (Beer et al, 2007; Flatau et al, 2007). Exactly how these households function in the context of material sustainability debates matters, given their growing prevalence.

Household sustainability: what's size got to do with it?

While human population growth has been a common focus of environmental impacts literature, Liu et al (2003) recommended a shift to household size – the number of people occupying each dwelling. The extended family households in our study contained an average of 4.3 occupants compared to a national average of 2.6 per household (ABS, 2006). As energy use and waste production per capita are inversely related to household size (Keilman, 2003; Lenzen et al, 2004; Liu et al, 2003), these larger-than-average households have an innate potential to foster economic savings and environmental benefits. *Direct* per capita energy consumption is curtailed when household members share appliances and tasks; and also by heating, cooling and

lighting one home (not two or three). *Indirect* energy consumption (stemming from the embodied energy contained in objects as a legacy of their extraction, production and transport) is also reduced. In large part these savings occur because, according to one study, each new two-storey, two-bedroom cottage produces 80 tonnes of carbon dioxide equivalent (CO₂e) emissions due to the embodied energy encapsulated in its building materials (Berners-Lee, 2010)³. By sharing and re-using material objects within the home, rather than purchasing separate items for discrete dwellings, additional embodied energy savings are achievable. To further understand the sustainability benefits (and limitations) of increasing household sizes, it is worth exploring the dynamics of already existing larger-than-average households.

Existing research on the sustainability of large, non-nuclear family living arrangements has focused on co-housing⁴ (Jarvis, 2011; Williams, 2008). Co-housing is arguably an environmentally sustainable alternative to individual family dwelling, but has thus far remained a restricted ‘niche’ in the Industrialized West (Jarvis, 2011; Williams, 2008). Other ways of living that go beyond the nuclear family such as flat/house-sharing, retirement communities and extended family living have not received similar scholarly attention, despite being more prevalent. Our research is limited to extended family households, a setting where familial relationships and responsibilities influence household dynamics. We acknowledge the need for research on other (non-family based) forms of living under-one-roof to unravel how family impacts the dynamics (and sustainability potential) of larger-than-average households.

³This calculation is based on a cottage of that size in Scotland. Similar calculations were not provided for the Australian context.

⁴Co-housing is a form of collective living characterized by collaborative lifestyles, extensive common (shared) facilities, a design that encourages social contact and ‘community’ and resident involvement in planning and operation (Williams, 2008).

Our qualitative exploration of the dynamics of extended family living responds to Lane and Gorman-Murray's (2011) assertion that an important next step in promoting household sustainability might involve 'unpack[ing] how relational processes inherent in different household compositions vary' (page 222). While larger quantitative studies (calculating water and energy use by household type) remain important, such analyses cannot detail the subtleties within households that inform resource use and divestment. The following section situates this paper within a growing body of literature that understands household sustainability as a dynamic product of interacting physical structures, domestic spaces, material objects, people, relationships, habits and value-sets.

Households, consumption and sustainability

The household 'now looms very large' as a key site of policy and scholarly debates about consumption and sustainability (Lane and Gorman-Murray, 2011, page 1). Policy-makers increasingly expect householders – as self-regulating, 'rational' consumers – to take responsibility for reducing their resource consumption, and waste production, often by purchasing and using 'green' domestic technologies (Gibson et al, 2011b; Hobson, 2006; Lane and Gorman-Murray 2011). Recent scholarship has criticized the limitations and contradictions inherent within this neo-liberal approach to household sustainability, for pitching elevated (albeit 'green') consumption as the solution for a wasteful western lifestyle, and for limiting understandings of household sustainability to explicitly 'green' practices (e.g. installing solar panels) (Dowling and Power, 2011; Gibson et al, 2011a; Hand et al, 2007; Hobson, 2006, 2011; Lane and Gorman-Murray, 2011; Shove 2003). There is also growing recognition that the current policy agenda has failed to reduce domestic resource consumption and waste

production because it has not been informed by a thorough understanding of ‘what happens inside the home’ (Horne et al, 2011, page 89; see also Gibson et al, 2011b; Hobson, 2008, 2011; Lane and Gorman-Murray, 2011). In many ways, environmental values and norms of domesticity do and do not intersect, thus closer analysis of prosaic activity at the household scale is vital.

In the remainder of this paper, we focus on the role of cultural variables in shaping extended family households’ ‘logics of materiality’ (Nansen et al, 2011, page 693). The environment is ‘just one line of responsibility’ being juggled by householders amidst financial imperatives, ‘domestic moralities’ and social norms (Gibson et al, 2011b, page 26; Hand et al, 2007; Shove, 2003). Cultural values relating to the ‘social, temporal, and spatial fabric of daily life’, along with social pressures to accomplish ‘normal’ ways of living and to perform certain identities within the home, impact sustainability (Hand et al, 2007, page 669, 672; Gibson et al, 2011b). Even the most ‘stable’ and persistent dimension of household materiality – the physical dwelling itself – is ‘inscribed with meanings, values and beliefs’ that reflect and reproduce ideas about family (Blunt, 2005, page 507). Yet few studies have explored how the organization and structure of domestic space impacts the performance of domestic life, and vice versa (Nansen et al, 2011). Home designs in Australia, as in much of the Industrialized West, reflect and encourage a belief in maximum privacy between the family and surrounding community, and also individual privacy *within* the home (Bird and Melville, 1994; Hand et al, 2007; Ozaki, 2002). These patterns of domestic living have been motivated by an individualist value system emphasizing privacy and personal autonomy (Berardo, 1998; Ozaki, 2002). But domestic structures, spaces and relationships are simultaneously acted upon by a competing

value-set based on an ethic of care within (but not limited to) family settings – as the state increasingly absolves itself of responsibility for providing such services and encourages care for relatives within the home (Lawson, 2007). In this paper, we document how extended family households’ strategies for inhabiting (and sometimes modifying) physical dwelling structures are informed by these seemingly contradictory value-sets, with implications for resource consumption and waste production, and hence for the sustainability gains enabled by larger household sizes.

Methods

We conducted a qualitative investigation into the dynamics of extended family households in Wollongong, a medium-sized coastal city in Australia. With a small sample size we do not claim to be statistically representative, nor did we seek to quantitatively audit impacts of extended family living on household resource consumption (via an examination of energy and water bills). Our purpose was to detail the contours of everyday life in extended family households, testing the basic assertion that larger households provide opportunities for more sustainable living, and responding to the increasingly pressing call in sustainability research for qualitative explorations of everyday actions, behaviours and values (Gibson et al, 2011a). We are cognizant of the need for larger-scale, quantitative and qualitative investigations into household sustainability in general, and extended family living in particular.

Two key methods were used: semi-structured in-depth interviews with extended family household members, and home tours. Interviews explored how decisions about material resources and household spaces were made, and the values upon which decisions were based. Interviewees were asked about the highlights and challenges of

extended family living, and what had motivated that arrangement. They were also asked how they shared and distributed space, appliances, consumables, transport and household tasks. Participants showed the interviewer around their homes as they discussed the rhythms of everyday life (Tolia-Kelly, 2004). Home tours provided an opportunity to tally household appliances and spaces but (more importantly) triggered new topics of discussion, offering deeper insights into participants' ways of living. Interviewees were then asked to reflect on the sustainability implications of extended family living.

Interviews were conducted with 17 participants from ten households (Table 1). An invitation was extended for all household members to participate in a group interview, via an initial contact person in each household. Only some family members opted in and it is unclear whether this was due to personal preference or communication failure. As we were unable to record all household members' perspectives, the information gathered is partial – and skewed towards female family members (13 of 17 participants were women). However, our interviewees were aged between 18 and 70 years and were thus able to offer a multi-generational perspective (Table 1). Our sample was by no means representative of Australia's socio-economic and cultural diversity – though some families were low-income and others comfortably middle-income, and four had migrant (Italian) backgrounds. All but one of the dwellings was owner-occupied and the households covered a range of extended family living arrangements (Table 1).

[INSERT TABLE 1 ABOUT HERE]

Interviewees were recruited variously: four households were volunteers from a prior quantitative survey conducted by researchers at the University of Wollongong's Australian Centre for Cultural Environmental Research (AUSCCER)⁵; one was recruited via a *facebook* group; and five via snow-balling. Two households living as extended families at the time of the aforementioned survey (Nathan; Neil and Anne), had disbanded those households prior to interviews (around one year later). We are not particularly concerned about including their retrospective accounts here, due to the short time-lag over which participants were recalling their experiences.

Furthermore, *all* interviews are a 'retrospective rewriting of history' – regardless of whether they take place in the immediate or more distant past (Silverman, 2006, page 39). 'Past' and 'present' accounts of any situation are equally constructed - neither are reproductive of 'real' events or have a monopoly on 'truth' (McAdams, 2001). And, as discussed throughout this paper, many extended family households are not intended to be permanent – fragmentation is part of their lifecycle.

The average size of the households studied was 4.3 individuals - but sizes varied from three to six occupants. Even our 'smaller' extended family households exceeded the national average (2.6 persons per dwelling). Of course, many nuclear families contain similar (or greater) numbers of people. The difference here is that – by bringing related adults together in a non-nuclear family living arrangement – the need for an additional housing unit was negated. The implications of the different household sizes in our sample, for household dynamics, are drawn out in the discussion.

⁵The '*Tough Times? Green Times?*' survey was conducted by researchers at AUSCCER in 2009. A sample of 1443 responses was obtained via a random postal survey. Further details of that survey, and its findings, are presented in Gibson et al (2011b).

Motives, challenges and benefits of extended family living

Parallel to observations made by Keene and Batson (2010) in the United States, our participants cited two key motives for extended family living: financial imperatives and caring requirements, whether for elderly parents or young children. When asked to describe what they enjoyed about their living arrangements, interviewees cited financial benefits and opportunities to build supportive familial relationships.

Environmental sustainability was neither a motive, nor volunteered as a positive outcome of the arrangement. Interviewees also spoke of the challenges posed by extended family living – especially a lack of physical space. Emphasis was placed on individualism and privacy *within* the home, as well as the perceived sanctity of the nuclear family – values that shaped interactions with household spaces and objects, with sustainability implications.

Modes of extended family living

An existing literature documents the reasons *why* extended family households form, and the emotional and financial implications of doing so (Bengston, 2001; Keene and Batson, 2010). But, with the exception of some (mostly dated) studies of granny flats and elder care within the home, there is a dearth of literature documenting how extended families actually occupy material space and negotiate resources in shared dwellings (Lazarowich, 1990; Pruchno et al, 1993; Tinker, 1991). The configuration of domestic space is ‘not a neutral backdrop for the performance of daily life’, but an active participant in that performance (Nansen et al, 2011, page 711). We sought to investigate how the structure of domestic space and the daily lives of extended families are co-constituted – with implications for sustainability.

We identified two broad modes of extended family living based on the use of material household spaces. Some families lived in the same house but, in a practical sense, were *living apart*. They were adamant that the different family ‘units’ should occupy self-contained areas and live quite independently. We refer to them as *living together but apart*. Members of these households regularly (and without prompting) referred to themselves as ‘neighbours’ – indicative of the extent of separation. Other families *lived together* in a more complete sense, sharing communal household spaces. We refer to them as *living together*. Five of the participating households fell into each mode (Table 2).

[INSERT TABLE 2 ABOUT HERE]

The mode of extended family living adopted was related to dwelling structure: those *living together but apart* were more likely to inhabit detached two-storey houses. The number of people present did not exert much influence over the mode of living adopted – those *living together but apart* averaged 4.6 individuals per dwelling, compared to 4.0 for those *living together*. More influential was the anticipated duration of the arrangement. Where extended family households were constituted over the short-term (e.g. an adult child ‘getting back on their feet’ financially, or following travel or a relationship breakdown), they tended to *live together*. Where the arrangement was longer-term (e.g. elderly parents moving in with adult children), family members carefully created and maintained their own spaces – *living together but apart*. This mode of living was powerfully influenced by a culturally-driven predilection for ‘space’.

Valuing space...reducing conflict and maintaining harmony

Personal space (or lack thereof) was significant for all participating households. Those who *lived together* (sharing space) noted that conflict was common. Conflicts were often triggered by different perceptions of child-rearing (as in Michael's and Alex's households), but also because the different family 'units' simply had different perspectives and ways of doing things. These families developed acute negotiation skills but were clear that the compromises required to (peacefully) *live together* would not be palatable over the long-term. Anne, whose adult son recently moved out, said she would only contemplate a permanent extended family arrangement if they lived in a house that could be split into self-contained units, 'so we would have our own space'. Adult sisters, Theresa and Marissa, lived with their mother in a separate part of the house to their grandparents. When asked if they could imagine *living together* with their grandparents, Theresa commented: 'Oh, *no way*...I don't think I would live here then'.

Pauline and Melissa (a mother and daughter) were one of the few families with experience of both modes of extended family living. After *living together* for a time, they rented a larger home with a self-contained area downstairs for Melissa and her young daughter. The extra space enabled them to live separate lives and reduced conflict: '[H]ere it is a lot calmer...Over at the other place...it was just bedlam' (Pauline). Other families renovated existing spaces to facilitate *living together but apart* and minimize household tensions. Wendy and Wes created a self-contained living space for her elderly mother. Wendy did not think they would cope if forced to *live together*: 'it just wouldn't work...we need to have our separate space. It's a personality thing.' Marion's extended family household also *lived together but apart*,

a decision which she noted was about maintaining 'harmony'. Adequate physical space also generated a sense of independence.

Valuing space...maintaining independence and avoiding interference

Material space facilitated individual independence and privacy, but also maintained the (cherished) separation of nuclear and extended family components. These values were fundamental in driving longer-term extended families to *live together but apart*.

Gail, who lived with her daughter's family considered it important to avoid interfering: 'as soon as James [son-in-law] gets home I go down to my space as I think they need their space as well'. Gail enjoyed regularly spending time with her daughter and granddaughter but felt that time together should be a matter of choice, not forced by confined living quarters. Space also minimized grandparental interference in grandchildren's upbringing: 'We try to not live in each other's pockets. I certainly try not to interfere too much about how they live or what they do or how they raise their children' (Marion). But young children posed particular challenges because they did not recognize 'boundaries' between the different family units: 'Sometimes privacy is an issue, because the little boy [grandson] will come upstairs, without thinking to knock...[he thinks] the whole thing is his house' (Marion). Space was also important for elderly parents living with their adult children. Wendy and Wes purchased a home with a separate living space for Wendy's mother. Independent space was essential for Wendy's mum to maintain independence and dignity as she aged: 'Mum wanted to have her independence, but still have a place that was kind of next door...she has always been independent' (Wendy).

For those families that *lived together*, interference went beyond an occasional frustration, and was tolerable only because the arrangement was temporary. Although Nathan's parents 'have a comment for everything', he and his wife were able to 'bite [their] tongues.' Michael found a lack of privacy 'challenging' because his personal space was restricted to his bedroom. A sense of independence forgone infused his reflections on 'the continual battles you have with your parents because they always know the 'best' ways'. For Michael, if it were not for privacy infringements, extended family living would be ideal: 'not having to go through the emotions, independence and all that, on paper you could do it [live together] forever, seriously... On paper it seems like a great plan.'

Conflict minimization, privacy and independence were key values held by the interviewees – fulfilled (or obstructed) by the adequacy of available personal space. These values prompted some families to *live together but apart*, allowing them to combine a genuine desire to provide support and care, with other more individualistic priorities. But those families that *lived together* also had strategies for maintaining privacy and independence. The strategies employed by both household types impacted their demand for, and use of, household spaces and resources – with implications for household sustainability.

Sharing and separating: the spaces, objects and activities of extended family households

The (un)availability of separate spaces for each family 'unit' fundamentally affected households' daily lives, and how they negotiated the 'ideals and practicalities of entangled and mutual dwelling' (Nansen et al, 2011, page 712). Extended family households that *lived together* did not substantially modify their dwellings because

the arrangement was short-term and there was often insufficient space. Instead, these households adjusted their ways of occupying space to fulfil desires for privacy and independence. This involved spending more time in personal spaces (e.g. bedrooms) and minimizing time in communal areas. Those *living together but apart* purchased or rented homes with self-contained units or modified their existing (large) houses to meet their needs. There were key differences in the organization of household spaces between the two household types (Table 3). Most obviously, extended family households that *lived together but apart* duplicated ‘communal’ areas (e.g. kitchens, living rooms), which were shared in households that *lived together*.

[INSERT TABLE 3 AROUND HERE]

The existence of multiple communal spaces in households that *lived together but apart* impacted the dynamics of daily life and consumption of material objects – with implications for sustainability. To better understand these implications, we compared how material objects were used, and household activities performed, across both modes of living. The existence of multiple household spaces was not straightforwardly related to the consumption of material objects (i.e. to the amount of ‘stuff’ filling those spaces, see Table 4). However, the mode of living adopted had clear implications for the conduct of household tasks. Below, we explore how kitchens, living-rooms, bedrooms, bathrooms and laundries were valued, filled and utilized across the two household types; and how extended family living impacted car use.

[INSERT TABLE 4 AROUND HERE].

Kitchens, cooking and eating

Households that *lived together but apart* duplicated spaces critical to achieving their values of harmony, privacy and independence – such as kitchens (Figures 1 and 2). For Marion, separate kitchens maintained harmony: ‘there’s that old Chinese proverb, ‘two women living under the same roof is disharmony’ ... separate the kitchens...then you’re right.’ Gail, who had a kitchenette in her daughter’s house, noted that being able to cook for herself made her granny flat feel ‘much more like home’. These observations reflect the more-than-functional significance of contemporary western kitchens to identity and self-expression, and as spaces for leisure and ‘living’ (Cieraad, 2002; Hand and Shove, 2004; Hand et al, 2007). Kitchen spaces are co-constituted with the norms, rhythms, habits and expectations of domestic life, with implications for resource consumption within the home.

Although households that *lived together but apart* had more kitchens, this did not equate to more fridges: those *living together* often had multiple fridges for bulk storage. But, having more kitchens did mean more ovens/stoves. All but one of the households that *lived together but apart* had a separate oven/stove in each kitchen (Gail only had a microwave in her kitchenette). The replication (rather than sharing) of material objects such as stoves and fridges has immediate implications for indirect energy consumption; how objects are subsequently used is significant for direct energy consumption. Households that *lived together, but apart* (and thus had separate kitchens) usually shopped, cooked and ate separately. Those with one shared kitchen shopped and cooked for the whole group, although family members sometimes ate at different times. In Michael’s household, one meal was prepared for the whole family

(by his mother), but individuals ate at separate times to maintain personal space: 'it's like a cafeteria because all the food is ready to go and you just go in there and grab stuff and take it to your space and eat' (Michael). By shopping and cooking for the entire household, families that *lived together* likely saved on transport costs and fuel consumption, as well as the energy consumed by cooking - up to 800g CO₂e to boil one kilogram of potatoes (Berners-Lee, 2010). Notwithstanding these potential sustainability gains, gender inequity in the distribution of household labour is a major sticking point when chores are performed for the whole group, but often by one (female) household member.

In contrast, leftovers were shared across both household modes, reducing food waste. Leftover food was passed within and across family 'units' because: 'It just makes sense to share it around rather than throwing it out. Food is too expensive to throw out' (Marion). Living in close proximity also enabled extended family members to share small kitchen appliances (e.g. sandwich toasters and pasta cookers) and some ingredients (e.g. sauces and spices) rather than purchasing them separately. All of these (seemingly minor) acts of sharing, made possible when individuals live under one roof, cumulatively contribute to reduced material consumption.

Bathrooms, laundries and washing

Bathrooms are hyper-laden with expectations of 'normal' ways of life and are multiplying in western households to accommodate shifting visions of cleanliness, comfort and convenience, as well as privacy within the home (Hand et al, 2007; Ozaki, 2002; Shove, 2003). This was apparent among the extended family households in our study, irrespective of their mode of living. Both household types contained an

average of two bathrooms. Several interviewees noted that difficulties would arise if bathrooms were shared across nuclear and extended families – due to conflicting schedules and divergent cleanliness standards.

The same households did not duplicate spaces that garnered less emotional attachment and that were less pivotal to individual privacy and nuclear families' independence. Laundry rooms and washing machines were universally shared. However, households that *lived together* usually washed all members' clothing together (creating an additional burden for some – usually female - household members); whilst those that *lived together but apart* generally ran separate washes with the same machine. As noted by Kaufmann (1998) – albeit for couple households – the act of washing laundry together is emotionally significant and linked to an ethic of care. From a sustainability perspective, embodied energy is saved by purchasing just one washing machine, and direct energy use is curtailed by running full-loads of combined washing (Berners-Lee, 2010, estimated 0.7kg CO₂e per 40 degree Celsius wash). Minimizing half-loads is also significant for water use – a crucial issue where we write from, in south-east Australia. Here, chronic water shortages have led to domestic water-use restrictions and the construction of water desalination plants, raising the attendant issue of increased carbon emissions per cubic metre of water consumed. Shared laundry practices in houses that *lived together* were thus a notable sustainability benefit.

Living rooms, bedrooms and televisions

Multiple bedrooms were non-negotiable – most houses had one bedroom per household member (including children). However, the mode of living did affect living

spaces. Households that *lived together* shared one communal living space, whilst those that lived *together but apart* usually had two. Whether living rooms were shared or separated did not impact the number of televisions: there was universal reluctance to share this appliance. Television viewing was atomized across both household modes, with an average of one television per adult household member. The shift from collective television viewing to fragmented and individualized ‘multiple-screen households’ has been documented elsewhere and appears common within nuclear households as well (Nansen et al, 2011, page 695). In our case, televisions were spread across living spaces, bedrooms and kitchens (Figure 3). For those who *lived together*, personal televisions functioned as a retreat from ‘crowded’ communal areas and maintained privacy: ‘I think that is a crucial thing when it comes to your personal space, is having that thing you can watch where you can switch your mind off from everything that’s happening’ (Michael). Personal televisions created private ‘space’ and accommodated diverse viewing habits, whilst (additional) televisions in communal areas created opportunities to come together as a family around common viewing interests – but only when desired.

The television is a domestic technology that perhaps more than any other influences how we ‘design our spaces, habits and even emotions’ (Lanvin, 1990, page 85). For our interviewees, televisions were much more than a source of entertainment: this simple appliance fulfilled deeply held cultural values for both privacy and family bonding, which trumped the economic and energy savings made possible by purchasing and viewing fewer televisions⁶. The television is not only consumed for its functional purposes, but for its symbolic meanings, with profound implications for

⁶Although televisions vary greatly, Berners-Lee (2010) estimated that manufacture of a 42-inch plasma screen produces 220kg CO₂e, and watching television for one hour per day contributes 80kg CO₂e annually.

uses and layouts of domestic space (Morley, 2003; Nansen et al, 2011; Silverstone and Hirsch, 1992) and hence for sustainability.

Other material objects that populate domestic living spaces were also mentioned by interviewees. Irrespective of the mode of living adopted, close proximity of family members enabled households to re-use items of furniture that were no longer needed – such as bookcases, shelves and tables (Figure 4). Householders also shared clothing, books and DVDs, passed between family members as needed (Figure 5). Leanne previously bought clothes regularly, but now shared her daughter's: 'I'll come and try Jodi's on and then I'll go back to the shop after that if I can't find anything'. Clothing was also shared in Pauline's house: 'Melissa and I would often share clothes. Megan and Patricia [sisters] share. So it does the rounds...The girls can't see the point in buying something that they will only wear once or twice'. Re-use and sharing of objects implies that fewer purchases are being made, reducing waste and overall consumption (Horne et al, 2011; Lane et al, 2009). Re-use is more likely to occur through familial and social networks, over short distances and via convenient, readily accessible channels (Lane et al, 2009). While also possible when family members live in separate homes, extended family living provides a particularly fertile setting for such exchanges.

Cars, independence and caring

Previous studies have drawn attention to the more-than-material significance of cars (Maxwell, 2001; Miller, 2001; Sheller, 2004). In our study, cars were closely aligned to interviewees' independence and were rarely shared, with approximately one car per adult (Figure 6). Diverse routines and responsibilities made sharing difficult across

both household types. As Marion noted: ‘It is too impossible to share cars. Even just sitting down and thinking about how you would work it out. I just can’t see it happening’. The value placed on independent movement was at the forefront of decisions to own and use multiple cars and overrode potential economic savings and environmental benefits that could have flowed from sharing cars and splitting costs across household members.

But, the meanings of car use do not neatly follow a model of the purely individualistic consumer. Cars are embedded in social relations of daily life, and the multiple ethics surrounding sociability, familial needs, personal identity and work (Maxwell, 2001; Miller, 2001; Sheller, 2004). Our study points towards the potential for extended family living to disrupt the deep integration of cars into ‘affective networks of familial life’ (Sheller, 2004, page 230), by reducing the need to drive to visit or care for family members who are now living under one roof. Wendy (who cared for her elderly mother) made this link: ‘before we moved in together...I spent a big chunk of time driving up and down...that doesn’t happen now’. The stretching of space facilitated by independent car use (Urry, 2004) can (to a certain extent) be unsettled when the diverse responsibilities embedded in familial relationships are not split geographically.

Our results suggest that the mode of extended family living adopted influences domestic management of material spaces, objects and activities – but in complex ways. Although *living together but apart* is intuitively a less environmentally sustainable and economical alternative to *living together*, we found that consumption of material objects was not straightforwardly connected to households’ mode of

living. Some objects (such as televisions and fridges) were multiplied across both household types, whilst others were universally shared, gifted and re-used (such as washing machines, books and small kitchen appliances). Households that *lived together* usually combined some household activities (such as shopping, cooking and washing), but both types atomized other activities (like driving and watching television). In both cases, sustainability gains were undeniably made (if only through the embodied energy savings of occupying one dwelling rather than two). But, prevalent cultural norms and proclivities (including individualism and protectiveness of the sanctity of the nuclear family unit) prevented participating households from realizing the full suite of economic and environmental savings enabled by their living arrangements. Some household members were cognizant of this ‘lost’ potential.

Did extended family households consider themselves more ‘sustainable’?

Participants were asked whether extended family living presented them with more opportunities to be environmentally sustainable than living separately. Many had not given the issue any prior thought. Notably, some of the ‘younger’ adult participants insisted that they would be more environmentally sustainable living without their parents because they would pursue explicitly pro-environmental behaviours:

Michael: If I was living on my own then it would be much more environmentally sustainable...I would have much more control...I’m slowly converting my father to the fact that climate change is human induced. Even though he is wary of it and he takes steps to recycle and re-use stuff and not use much water, he and mum don’t go to the limits...if I had my own place...I

would have the veggie garden, the compost, the worm farm, [be] using grey water.

Nathan made similar observations, interpreting ‘sustainability’ as intentionally-practiced, pro-environmental behaviours – assisted by ‘green’ domestic technologies. Both Michael and Nathan felt that explicitly ‘green’ practices were inhibited by their parents’ ‘old-fashioned’ values (including climate change scepticism). They overlooked how their parents’ other values (such as thrift and an opposition to wastefulness) deliver other, unheralded environmental benefits above and beyond those facilitated by green technologies (Gibson et al, 2011a; Hobson, 2006). But Nathan (whose extended family household was recently disbanded) recognized some environmental benefits of living under ‘one roof’:

[W]e are using more energy in separate houses than when we were in one house... If we were still living at my parents’ house, that’s one less T.V. that’s one less light that’s on, that’s one less heater that’s on because we’d be sharing theirs.

Gabrielle recognized similar benefits, and felt that extended family living was an environmentally sustainable alternative:

Just because there is not a whole other house operating...if you’re running your own whole house, it’s a lot less sustainable than living in part of someone else’s house. And we’ll quite often do stuff together. If mum was in a house on her own, she would quite often take her car to go to the beach...whereas we

go together now. Even your garden, if you were looking after your [own] garden you would be watering that...we just have the one garden ...[also] with the heating and electricity and the lights. You've got to do your washing...you would be doing half loads...it just seems intuitive...

Picking up on Gabrielle's comments, the suburban garden is loaded with cultural significance, bound up in the desire to achieve the Australian 'dream' (of a free-standing house on a quarter acre block). But, it is also responsible for around 50 per cent of domestic water use (Askew and McGuirk, 2004). Fewer housing units undeniably equates to fewer 'thirsty' lawns.

Wendy no longer travelled to care for her mother and felt that fuel savings were 'probably the biggest thing'. However, she also acknowledged that their mode of *living together but apart* inhibited further environmental benefits:

If she [Wendy's mother] lived *in* the same house, rather than in the granny flat...I think that [energy consumption] would be significantly different...[but] because she is set up quite independently down there, I don't think that it makes that much difference.

Although cultural values prevented the participating households from realizing the full suite of environmental benefits enabled by extended family living, several important benefits were attainable. What is clear is that extended family households can reap some benefits without even attempting to be 'green'. Even in cases where extended family households *lived together but apart*, actively heating or cooling one

part of the house passively heated or cooled another. Beyond the enormous embodied energy savings of fewer dwellings, having only one garden presented water savings and fuel was saved when familial care and sociability occurred without using the car. Building upon our exploratory study, these elements of extended family living require quantitative verification and comparisons across extended and non-extended family households, as well as the different types of extended family households identified.

Conclusions

In light of climate change and broader agendas to better integrate human settlements with non-human biophysical systems, strategies for increasing household size and communal living need to be drawn into planning agendas. Larger household sizes palpably reduce embodied energy use and, as observed here, facilitate material resource-sharing behaviours that deliver direct and indirect energy savings. Extended family living also reduces pressure on an undersupplied housing market and minimizes (sub)urban sprawl. The latter point is particularly pertinent in Australia given that in Sydney alone, government plans predict 770,000 more homes added over the next 25 years to match population growth (Munro and Moore, 2010)⁷. Following current trends in living arrangements, the number of households in Australia will grow from 7.8 million in 2006, to 11.4 million in 2031 (ABS, 2010). Any chance of mitigating the cumulative environmental impacts of this, in terms of both carbon emissions and loss of habitat, will have to factor in the possibility of larger household sizes.

⁷Based on Berners-Lee's (2010) calculations for a simple two-bedroom, two-storey cottage, these additional dwellings in Sydney would produce around 62 million tonnes of embodied (CO₂e) emissions.

This paper has accordingly drawn attention to extended family households as a context within which environmental sustainability is negotiated (often unconsciously) on a day-to-day basis. We explored how values held by participants affected everyday decisions and actions in extended family households, especially concerning material spaces, objects and daily activities – with implications for environmental sustainability. Two modes of extended family living were identified – one where people *lived together* on a temporary basis, sharing space and workloads within the household; and another where families more permanently *lived together but apart* and inhabited self-contained living spaces within one property. The behaviours and decisions of both household types were informed by competing desires to care for and support relatives, to maintain a sense of nuclear family, and an individualist predilection for privacy and space. The achievement of independence was to a certain extent prioritized over the potential (economic and environmental) benefits of interdependence. Arguably, wanting privacy and ‘one’s own space’ is a universal feature of contemporary western households (extended or not), where material resources allow it.

But what emerged most clearly from our study – and hence why qualitative research within households matters – was the complexity of day-to-day life in larger-than-average households. The story that surfaced was not one of straightforward sustainability gains, but of a mixture of values, norms, habits and practices that both advanced and hindered the possibility of reduced per capita consumption and waste production. The extended family households involved in our study did not make full use of opportunities to save money and reduce their environmental impacts – particularly those who were *living together but apart*. Household resources,

appliances and spaces were not shared to the fullest hypothetical extent. Yet, we documented communal dynamics within extended family households, a capacity to share, combine and re-use spaces, objects and tasks. These actually existing (and largely unintentional) sustainabilities reduced resource consumption in myriad ways above and beyond the overarching embodied energy savings of fewer housing units.

Although much of this paper considered whether extended families that *lived together but apart* were less environmentally sustainable than those that *lived together* – it is precisely their separated living arrangement that made it possible for them to negotiate cultural values and yet stay under-one-roof over the longer term. Most of the households that *lived together*, sharing spaces and treading on each others' toes, planned to shift to separate dwellings at some point. The sustainability gains made possible by their living arrangements were thus only temporary. Those made possible by *living together but apart* may (in some respects) have been smaller in magnitude, but will extend over many more years. Rather than rush to be hyper-critical of *living together but apart*, we wish to focus on how these extended family households made a more environmentally sustainable, communal form of living socially sustainable (tolerable) and hence durable. Their ways of negotiating domestic routines, spaces and objects provide some guidance for managing a possible future where dwellings are increasingly shared. Extended family households prosaically enact a range of already existing sustainabilities – through decisions, behaviours and values which do not 'fit neatly under a pro-environmental or ecological umbrella' (Hobson, 2008, page 202; Krueger and Agyeman, 2005), but which nonetheless have potential to disrupt consumer-oriented, individualist western lifestyles. Our small qualitative sample afforded us the opportunity to look beyond neo-liberal and (green) consumerist

understandings of what household sustainability ought to look like – and to instead consider what it *already* looks like, in practice. By exploring actual cases where extended families have made living under-one-roof possible, we hope to have gone some way towards opening up dialogues on the exigencies of everyday sustainability in more communal domestic settings.

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Table 1: Description of extended family households involved in this study

Interviewees (nameⁱ, age)	People in household	Extended family relationships	Date of interview
Gail (70s) Gabrielle (30s)	4	Grandmother (Gail) moved in with adult daughter (Gabrielle), son-in-law and granddaughter.	19.5.2010
Leanne (40s) Jodi (30) Brooke (23)	3	Adult daughter (Jodi), and partner (Brooke) moved in with Jodi's mother (Leanne).	1.6.2010
Nathan (40s)	5	Adult son (Nathan), his wife and young son moved in with mother and father.	2.6.2010
Neil (70s) Anne (70s)	3	Adult son moved in with mother (Anne) and father (Neil).	8.6.2010
Wendy (40s) Wes (40s)	3	Mother moved in with adult daughter (Wendy) and son-in-law (Wes).	21.6.2010
Pauline (50s) Melissa (23)	5	Adult daughter (Melissa) with young child, moved in with mother (Pauline) and two adult sisters.	27.6.2010
Marion (60s)	6	Adult daughter, her husband and two young children moved in with mother (Marion) and father.	14.7.2010
Michael (20s)	6	Adult son (Michael) moved in with mother and father, plus sister, her husband and their young child.	6.8.2010
Alex (18)	3	Adult granddaughter (Alex) continued living with grandfather and grandmother after her own mother moved out.	7.8.2010
Theresa (23) Marissa (20)	5	Two adult daughters (Theresa and Marissa) lived with mother and grandparents.	29.8.2010

ⁱPseudonyms have been adopted where requested. Names of all additional family members (not interviewed but referred to in interviews) have been changed.

Table 2: Living together or apart?

‘Living together’	Anticipated duration	Housing tenure	Dwelling structure
Leanne, Jodie, Brooke	Short-term	Owner occupied (Leanne)	Two-storey, detached house, shared entrance
Nathan	Short-term	Owner occupied (Nathan’s parents)	Two-storey, townhouse
Neil, Anne	Short-term	Owner occupied (Neil & Anne)	One-storey, detached house, shared entrance
Alex	Long-term ⁱ	Owner occupied (Alex’s grandparents)	One-storey, detached house, shared entrance
Michael	Short-term	Owner occupied (Michael’s parents)	1.5 storey, detached house, shared entrance
‘Living together but apart’	Anticipated duration	Housing tenure	Dwelling structure
Gail, Gabrielle	Long-term	Owner occupied (Gabrielle & husband)	1.5 storey, detached house, shared entrance
Wendy, Wes	Long-term	Owner occupied (Wendy & Wes)	2.5 storey, detached house, shared entrance
Pauline, Melissa	Long-term	Renting	Two-storey, detached house, shared entrance
Marion	Long-term	Owner occupied (Marion & husband)	Two-storey, detached house, shared entrance
Theresa, Marissa	Long-term	Owner occupied (grandparents)	Two-storey, detached house, separate entrances

ⁱAlex’s household was an exception. Alex spent her whole life living with her mother and grandparents. When her mother moved out a few years ago, Alex remained with her grandparents. The arrangement was long-term (spanning Alex’s entire childhood), but Alex intimated that she planned to leave soon.

Table 3: Duplication and multiplication of household spaces

<i>Households living together but apart</i>						
Interviewees	People	Kitchens	Bathrooms	Bedrooms	Living rooms	Laundries
Gail, Gabrielle ¹	4	1.5	1.5	4	1.5	1
Wendy, Wes	3	2	3	6	2	1
Pauline, Melissa	5	2	2	7	2	1
Marion	6	2	2	5	2	1
Theresa, Marissa	5	2	2	4	2	2
<i>Average per house</i>	<i>4.6</i>	<i>1.9</i>	<i>2.1</i>	<i>5.2</i>	<i>1.9</i>	<i>1.2</i>
<i>Households living together</i>						
Interviewees	People	Kitchens	Bathrooms	Bedrooms	Living rooms	Laundries
Leanne, Jodi, Brooke	3	1	2.5	4	1	1
Nathan	5	1	1	2	1	1
Neil, Anne	3	1	2	3	1	1
Alex	3	1	2	3	2	1
Michael	6	1	2	5	1	1
<i>Average per house</i>	<i>4.0</i>	<i>1.0</i>	<i>1.9</i>	<i>3.4</i>	<i>1.2</i>	<i>1.0</i>

¹Gail and Gabrielle were planning a renovation that would result in three bathrooms and a full second living room and kitchen to further facilitate their desire to *live together but apart*.

Table 4: Duplication and multiplication of material objects

<i>Households living together but apart</i>						
	People	Fridges	Ovens/stoves	TVs	Washing machines	Cars
Gail, Gabrielle	4	2	1	2	1	3
Wendy, Wes	3	2	2	2	1	2
Pauline, Melissa	5	2	2	5	1	4
Marion	6	2	2	5	1	4
Theresa, Marissa	5	3	2	2	1	3
<i>Average per house</i>	<i>4.6</i>	<i>2.2</i>	<i>1.8</i>	<i>3.2</i>	<i>1.0</i>	<i>3.2</i>
<i>Households living together</i>						
	People	Fridges	Ovens/stoves	TVs	Washing machines	Cars
Leanne, Jodi, Brooke	3	2	1	3	1	3
Nathan	5	2	1	3	1	2
Neil, Anne	3	2	1	3	1	2
Alex	3	1	1	3	1	2
Michael	6	3	1	4	1	4
<i>Average per house</i>	<i>4.0</i>	<i>2.0</i>	<i>1.0</i>	<i>3.2</i>	<i>1.0</i>	<i>2.6</i>

FIGURES



Figure 1: Wendy and Wes modified their house by knocking down a wall and installing this kitchen for Wendy's mother in a room that was formerly a bedroom (Source: Erin Borger)

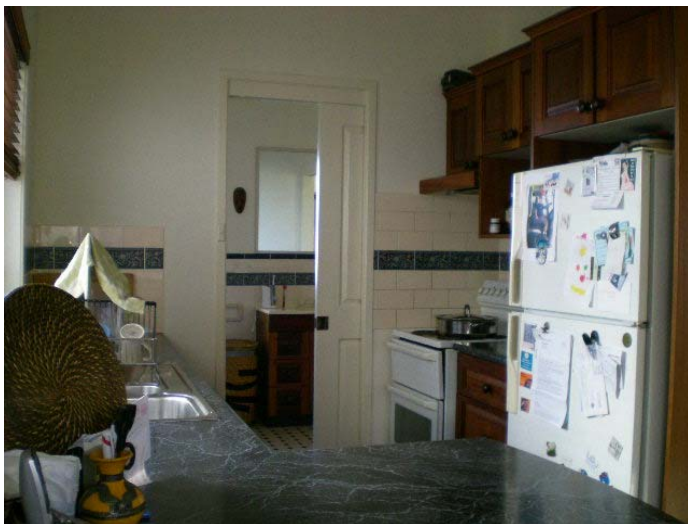


Figure 2: This second kitchen in Marion's house was used by her adult daughter, son-in-law and grandchildren (Source: Erin Borger)



Figure 3: Some of the multiple televisions in Michael's house (Source: Erin Borger)

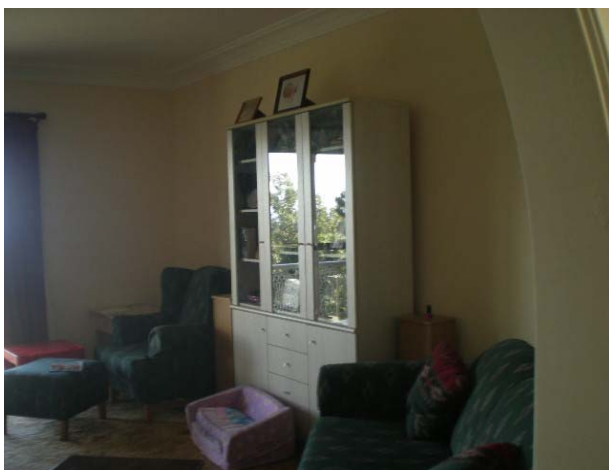


Figure 4: This cabinet belonged to Melissa, but was re-used by her mother (Pauline) when Melissa ran out of space (Source: Erin Borger)



Figure 5: A shared library (left) and DVD collection (right) in Marion's house (Source: Erin Borger)



Figure 6: Too many cars to fit in the garage at Michael's house (Source: Erin Borger)