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2015

# Young adult households and domestic sustainabilities

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## Publication Details

Stanes, E., Klocker, N. & Gibson, C. (2015). Young adult households and domestic sustainabilities. *Geoforum*, 65 46-58.

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## **Abstract**

Young adults in the Global North occupy a contradictory environmental identity: they are purportedly more environmentally concerned than older generations, but are also labelled hedonistic consumers. Most studies have focused on young adults still residing in parental homes, neglecting that Generation Y (born between 1975 and 1991) has 'grown up'. The consumption patterns and environmental implications of their newly established households demand scholarly attention. Through a large-scale household sustainability survey, conducted in Australia, we have uncovered important inter-generational differences in environmental attitudes and everyday domestic practices. We found that generational cohorts hold distinct environmental attitudes. Younger households were most concerned with climate change, and least optimistic about future mitigation. However, generational differences influenced everyday domestic practices in more complex ways. All households engaged extensively with those 'pro-environmental' practices that reflected established cultural norms, government regulations and residential urban form. For other pro-environmental practices there were clear differences, with Generation Y households being the least engaged. A widening 'value-action gap' was apparent across our sample population, from oldest to youngest. However, rather than reflecting Generation Y's supposed hedonism, we argue that this gap reflects generational geographies: how lifecourse intersects with housing and labour markets and norms of cleanliness to shape everyday domestic practices. Our research illuminates the shortcomings of a one-size-fits-all approach to household sustainability. The young adult stage is a time of transition during which homes and independent lifestyles are established, and practices are altered or become entrenched, for better or worse.

## **Keywords**

adult, young, households, sustainabilities, domestic

## **Disciplines**

Education | Social and Behavioral Sciences

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Stanes, E., Klocker, N. & Gibson, C. (2015). Young adult households and domestic sustainabilities. *Geoforum*, 65 46-58.

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Young adults in the Global North occupy a contradictory environmental identity: they are purportedly more environmentally concerned than older generations, but are also labelled hedonistic consumers. Most studies have focused on young adults still residing in parental homes, neglecting that Generation Y (born between 1975 and 1991) has ‘grown up’. The consumption patterns and environmental implications of their newly established households demand scholarly attention. Through a large-scale household sustainability survey, conducted in Australia, we have uncovered important inter-generational differences in environmental attitudes and everyday domestic practices. We found that generational cohorts hold distinct environmental attitudes. Younger households were most concerned with climate change, and least optimistic about future mitigation. However, generational differences influenced everyday domestic practices in more complex ways. All households engaged extensively with those ‘pro-environmental’ practices that reflected established cultural norms, government regulations and residential urban form. For other pro-environmental practices there were clear differences, with Generation Y households being the least engaged. A widening ‘value-action gap’ was apparent across our sample population, from oldest to youngest. However, rather than reflecting Generation Y’s supposed hedonism, we argue that this gap reflects generational geographies: how lifecourse intersects with housing and labour markets and norms of cleanliness to shape everyday domestic practices. Our research illuminates the shortcomings of a one-size-fits-all approach to household sustainability. The young adult stage is a time of transition during which homes and independent lifestyles are established, and practices are altered or become entrenched, for better or worse.

**Keywords: consumption; value-action gap; Generation Y; pro-environmental practices; lifecourse; Generational geographies**

### **Highlights**

- Survey data traced inter-generational differences in household sustainability.
- Generation Y households (18-34) expressed high levels of environmental concern.
- But Generation Y engagement with pro-environmental practices were mixed and complex.
- Analysis exposed a widening value-action gap across generations, from oldest to youngest.
- Lifecourse intersects with housing and labour markets and socio-cultural norms to shape practices.

## 1. Introduction

Over the last decade, households in the Global North have become a focus of government and non-government sustainability initiatives aiming to reduce environmental impacts of everyday patterns of resource consumption (Lane and Gorman-Murray, 2011; Reid et al., 2010; Waite et al., 2012). In Australia, depending on the calculation methods used households are responsible for up to 45 per cent of greenhouse gas emissions through direct and indirect emission pathways (Australian Bureau of Statistics (ABS), 2013). Yet, awareness-raising campaigns around domestic energy and water use, the proliferation of low-tech ‘solutions’ (energy-saving lightbulbs and water-saving showerheads), as well as federal and state government subsidies to install domestic infrastructures (rainwater tanks, solar panels and home insulation) have not reduced consumption and waste in a linear or reliable way (Hobson, 2008; Moy, 2012). Progress towards reduced household resource consumption has been far from straightforward.

A clear challenge, as evidenced through proliferating research, is that households in the Global North cannot be understood as a homogenous mass (Moy, 2012; Waite et al., 2012). There is not a singular ‘household sustainability’ experience or agenda, but rather multiple *domestic sustainabilities* that reflect complex relationships between families and homes, attitudes and practices, households and wider cultural, regulatory and political-economic forces (Head et al., 2013). Drawing on conceptual approaches developed in Head et al. (2013); Lane and Gorman-Murray (2011) and Waite et al. (2012), we refer to ‘everyday’ or ‘domestic sustainabilities’ as attempts by people to reduce resource use within daily household life. These attempts involve complex trade-offs and manipulations to everyday routines, purchasing practices, the use of building, garden and domestic technologies and wider connections to socio-economic and political networks.

Much of this complexity is becoming better understood. Geographers and other social scientists have begun to tease apart households and their sustainability attitudes and practices according to attributes such as socio-economic status (Druckman and Jackson, 2008; Kennedy et al., 2014; Sevoyan et al., 2013; Waitt et al., 2012), gender (Buckingham-Hatfield, 2000; Gibson et al., 2013; Organo et al., 2013), ethnicity and migration status (Bradley, 2009; Klocker and Head, 2013; Maller, 2011), household composition and size (Keilman, 2003; Klocker et al., 2012) and dwelling type (Dowling and Power, 2011; Moriarty, 2002). Most recently, research has also begun to document the significance of lifecycle for pro-environmental values, practices and concerns (Burningham et al., 2014a, b; Hitchings et al., 2015; Hitchings and Day, 2011; Royston, 2014; Shirani et al., 2013). Such research has opened up fresh conversations addressing the generational distinctiveness of household sustainability practices. Emerging insights suggests that lifecycle transitions are not ‘moments’ of change, but rather processes – inviting opportunities for interventions (Burningham et al., 2014 a, b; Hards, 2012). Sustainability improvements may ensue from lifecycle transition processes inadvertently, without conscious performance of ‘green’ identities (Evans, 2011). They may arise, for instance as an outcome of juggling competing priorities and moralities during times of transition such as having a baby, retiring or downsizing the home (Gibson et al., 2011). A particular focus throughout has been on older households at the time of retirement (Burningham et al., 2014b; Day and Hitchings, 2011; Guy et al., 2015; Hitchings and Day, 2011). Young people have also been acknowledged in this emerging literature via investigations of parent-child relationships (Ballantyne et al., 2001; Collins 2015; Gram-Hanssen, 2007; Klocker et al., 2012) and, importantly, explorations into the ways that pro-environmental values and practices can be compared across households of different generations (Hitchings et al., 2015). Yet, the young people

involved in these studies have typically still lived in the parental home. Young adults' newly independent households have seldom featured.

This article responds to this gap and directs its focus to a generational cohort – Generation Y– whose transition to becoming new householders has been overlooked in research on households and sustainability. We focus especially on young adults also because of a conflicting view of that age cohort expressed in media and popular culture (Collins and Hitchings, 2012). Generation Y is often assumed to espouse stronger environmental commitments, particularly when compared to older generations (Bentley et al., 2004; Elkington, 2011; Heist, 2014; Hersch and Viscusi, 2006; Rayapura, 2014). Somewhat contradictorily, this generation has also been subject to negative media attention for its alleged excessive consumption practices (Han, 2015; Hoey, 2008; Hume, 2010; Twenge, 2014). These contentions, and the absence of research on the domestic sustainabilities of Generation Y as independent householders, frame the present study. We report on generation-specific attitudes and practices from a large-scale, quantitative household sustainability survey undertaken in the Illawarra, a coastal region approximately 80 kilometres south of Sydney, Australia. The survey data were disaggregated by generational-cohort to explore whether (and how) everyday domestic practices differed between generational householders, with a specific focus on Generation Y (aged between 18 and 34 at the time of survey). Our results indicate that all households, irrespective of generational cohort, engaged with certain 'pro-environmental' practices with similar frequencies when influenced by established cultural norms, government regulation and constraints that stem from residential urban form. For other pro-environmental practices, there were distinct generational differences. These differences gave rise to a widening 'value-action gap' (Blake, 1999) across generations, from oldest to youngest. Rather than rush to conclude that this evident gap confirms Generation

Y's purported hedonistic culture, we argue that it is a function of how lifecourse intersects with housing and labour markets and norms of cleanliness to shape everyday material practices.

## **2. Talkin' 'bout my generation<sup>1</sup>: the explanatory power of generational cohorts**

Generations 'represent a distinct, temporally located cultural field' characterised by taste, values and dispositions shaped by popular culture, social norms and the socio-economic and political circumstances of individuals' formative years (Jones et al., 2009: 101; Mannheim, 1952; Vanderbeck, 2007)<sup>2</sup>. Individuals born within the same time period tend to share a range of experiences 'in their maturation and socialization' (Büttner and Grübler, 1995: 116). Several generational labels have become established within the popular lexicon, including The Millennials/Generation Y, Generation X, Baby Boomers and the Silent Generation (Holroyd, 2011; Wyn and Woodman, 2006, 2011). Each comes with its accompanying clichés and stereotypes overlaid by subcultural/media constructions (Ulrich, 2003). For instance, having grown up through the Great Depression and the rationing and communal provisioning of World War II, the Silent Generation is known for living by a mantra of thrift and frugality. The Baby Boomers are considered the generation to 'have it all' (Holroyd, 2011), often typecast as competitive free agents with a strong interest in self-fulfilment. Generation X – a name popularised by Douglas Coupland's 1991 novel, *Generation X: Tales for an Accelerated Culture* – is associated with living under the shadow of Baby Boomers. Generation X is said to be politically disenfranchised, possessing a 'fabled refusenik

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<sup>1</sup>A pop culture reference to the 1965 song 'My Generation' by The Who.

<sup>2</sup>While we acknowledge multiple uses of 'generation' in geography and more broadly in the social sciences, we apply this term to the investigation of extra-familial intergenerational relations. This usage refers to groupings of people based on their time of birth rather than from within a family lineage (Vanderbeck, 2007). This interpretation is more closely aligned to the demographic descriptions of generational 'cohort' (Vanderbeck, 2007).

mentality' resistant to 'the selling of our self-image in a consumer culture bent on commodifying our attitudes and entertainment interests' (Curnutt, 2003: 164).

Often cited as 'the world's first digital generation', Generation Y is commonly typecast as being 'materially-endowed' (Browne, 2012; Han, 2015; Holroyd, 2011; Hume, 2010; McCrindle, 2009:3). Traditional markers of adulthood, such as full-time employment, marriage, or buying a first home, are supposedly being pushed back later in life for Generation Y (Wyn and Woodman, 2011). Recent media coverage has ridiculed Generation Y as a 'stay-at-home' generation (Browne, 2012; Ireland, 2010; McCrindle, 2009), struggling to break free of the parental nest. In Australia, members of Generation Y have been referred to as KIPPERS ('kids in parents' pockets eroding retirement savings'), who purportedly delay moving out to facilitate their own predilection for consumer luxuries (Ireland, 2010). Supporting such media constructions has been recent scholarly research revealing that young adults in the Global North are indeed taking longer to establish independent households (Cobb-Clark, 2008; Keene and Batson, 2010). While an upward trend in the age of home-leaving is evident, the resultant caricatures compel critical scrutiny. Simplistic depictions of Generation Y as never leaving home (or as 'boomerangs' returning home) overlook the effects of housing undersupply and rising property prices, combined with increasing years spent in education (and poor employment prospects post-higher education) (McKee, 2012; Berrington and Stone, 2014; Stone, et al., 2011, 2014). Also overlooked is that many members of Generation Y have indeed formed their own households – contra the aforementioned caricature. At the 2011 Australian Census, nearly two-thirds of all adults in the 18-34 year age bracket lived in independent households (ABS, 2011). Yet we still know very little about how this majority of young adults – who live independently of their parents – organise their lives within domestic spaces (Berrington, et al., 2009, 2014; Gorman-Murray,

2014; McNamara and Connell, 2007). Young adults as independent householders have also garnered little attention in existing research linking age and sustainability, arguably amplifying misguided depictions of this generation as lacking independence.

### **3. Linking generation and environmental sustainability**

When generations are positioned as homogenous groups – according to the generalised labels outlined above – their complex, multiple and shifting identities and priorities are easily overlooked or misinterpreted (Collins and Hitchings, 2012; Hopkins, 2010). Nevertheless, a number of studies have found that generational membership is a more important determinant of environmental attitudes and practices than chronological age (Büttner and Grübler, 1995; Hume, 2010; Menz and Welsch, 2012; O’Neill and Chen, 2002; Wyn and Woodman, 2006). Those who grew up during periods of hardship (the ‘Silent Generation’) may conserve resources more carefully than those who grew up during periods of relative affluence (Carlsson-Kanyama et al., 2005; Menz and Welsch, 2012). Accordingly, today’s young adults may not display the frugal practices of their grandparents when they reach old age. In this article, we take seriously the possibility that generational membership may indeed prove a significant variable underpinning diverse household sustainabilities. We revisit a large survey dataset on household practices previously analysed without a specific generational focus (Waitt et al., 2012) to retrieve key insights on young adult householders.

Recent scholarly and media attention directed towards Generation Y in the Global North has often been framed around two paradoxical assertions; the ‘hedonistic consumer’ or ‘environmental hero’ (Collins and Hitchings, 2012). The spending power and ensuing consumption patterns of Generation Y have been singled out as especially problematic (Han, 2015; Hoey, 2008; Twenge, 2014). Growing up in an era characterised by an ever-expanding

range of personal consumer products, such as clothing and electronics, Generation Y has been criticised for being caught up in rapid trend cycles and fast fashion (Griffin et al., 2005; Han, 2015). In this context of relatively cheap and constantly updated consumables, accusations of extravagance and throwaway consumerism are common (Griffin et al., 2005; Han, 2015; Hoey, 2008). Existing research on youth consumption, some of which has challenged these stereotypes, has focused on material possessions (Collins, 2015; Griffin et al., 2005), rather than the mundane domestic practices foregrounded in our study.

Counterbalancing discourses of Generation Y as hedonistic consumers are assertions that young adults in the Global North are important ‘agents of change’ (Bentley et al., 2004:1) for more environmentally sustainable lifestyles. Generation Y has been applauded for its environmental concern (Bentley et al., 2004; Rayapura, 2011), climate change awareness (Carbon Trust, 2012; Ojala, 2012) and engagement with pro-environmental practices (Autio et al., 2009; Heist, 2014). Our own quantitative analysis sheds further light on such assertions. Our results suggest that there are indeed generational patterns in attitudes, and to some degree also for practices, amidst complexity and contradiction. Generation Y households do articulate concern for environmental issues such as climate change, though accompanying pro-environmental practices are not always forthcoming – for a range of complex reasons.

Where age and/or generation have been linked to sustainability at the household scale, studies have explored the sharing practices and inter-generational transmission of environmental values and skills in multi-generational and family households (Ballantyne et al., 2001; Collins, 2015; Klocker et al., 2012; Payne, 2005). So too, the conflicts arising between parents and co-resident teenagers around expectations of cleanliness and water use have

garnered attention (Gram-Hanssen, 2007). In light of recent scholarship focused on the social and environmental outcomes of older households (Burningham et al., 2014b; Day and Hitchings, 2011; Guy et al., 2015; Hitchings and Day, 2011) research on young adults as *independent householders* is needed. When young adults leave the parental home they have an opportunity to enact domestic sustainabilities with greater independence. Responding to Collins and Hitchings' (2012) call to involve young people in investigations of routine household consumption, this paper takes a fresh look inside households *led* by young adults. The present study offers an opportunity to test assertions about generational distinctiveness by investigating whether, and how, the attitudes, consumption decisions, practices and domestic routines of young adult households differ from those led by older age cohorts. We ask: what happens when young adults' domestic sustainabilities become proximally disconnected from the practices and priorities of their parents and/or grandparents? We are therefore focused here on what happens to domestic sustainabilities when Generation Y is in charge.

#### **4. Methodology**

In 2009, a major survey on climate change, sustainability practices and perspectives on economic and environmental futures was distributed to 11,555 households across the Illawarra region, Australia<sup>3</sup> (Gibson et al., 2009). The Illawarra is the third most populous coastal region in New South Wales with a population of 275,000 (ABS, 2011). Traditionally known for its coal and steel industries, decline in demand and employment in recent years has seen shifts to higher education, tourism and health, most of which are centrally located in the City of Wollongong. Nonetheless, regional identity remains deeply embedded in the historical culture of the steelworks and collieries. National and regional debates about the

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<sup>3</sup>The survey was designed and distributed by a research team at the University of Wollongong's Australian Centre for Cultural Environmental Research (AUSCCER), which included two of the authors of this paper.

environment and climate change are often tied to the legacy of heavy industrial employment in the region (Waite et al., 2012). Escalating costs of living in Sydney, together with the Wollongong's role as a university city, have contributed to demographic change with high rates of in-migration by young adults (ABS, 2011). At the 2011 Census, 18-32 year olds made up 35.7 per cent of incoming residents to the Illawarra (SA4), more than any other age group.

The survey was designed as part of a larger study with two central aims. The first was to undertake a baseline study of current knowledge of climate change in a regional community. The study also aimed to identify existing cultural resources for, and constraints to, more environmentally sustainable practices at the household scale. While large-scale surveys are useful for identifying trends across a population (Barr, 2008; Browne et al., 2013), the research team was mindful of the limitations of adopting a quantitative framework to investigate attitudes and practices, particularly in light of the value-action gap (Blake, 1999; Shove, 2010). Asking questions about concern for the environment is not the same thing as documenting practices actually undertaken within domestic life. To counter this, the survey design included questions regarding attitudes alongside novel sequences of closed and open-response questions aimed at documenting everyday material practices of domestic sustainabilities – practices that may have positive outcomes for resource use, but which may not be undertaken in an explicit effort to be 'green'. These included 'switching appliances on and off', 'going out' and 'moving around'. These questions allowed for evidence of inadvertent or coincidental sustainabilities to emerge (Evans, 2011; Hitchings et al., 2015; Klocker et al., 2012). In order to provide 'rigorous comparative frameworks' (Liverman 2008:6), several questions were adapted from a number of national and international surveys

which has provided an archival base for longitudinal studies over the coming decades, comparable both in Australia and overseas<sup>4</sup>.

A questionnaire was posted to every registered household address across eight selected suburbs in the Illawarra region. Suburbs were stratified into income-quintiles to account for socio-economic diversity, and a range of dwelling types and neighbourhood densities. An adult familiar with the daily running of the household was invited to complete the survey. In total 1,465 completed surveys were returned, a response rate of 12.7 per cent<sup>5</sup>. The survey asked respondents to indicate their age using the standard ABS age-cohorts, which limited the flexibility of the data for our subsequent generational analysis. Analysis was further complicated by the absence of uniform generational boundaries in the literature.

Nevertheless, it was possible to statistically analyse the large dataset for generational differences, and data categories did align with some definitions in scholarly literature (see Table 1 and Jones and Fox, 2009).

For this analysis, survey data were disaggregated according to householder<sup>6</sup> age rather than respondent age. This allowed for a comparison of household practices according to which generation was 'in charge' of household decision-making. In the vast majority of cases, the respondent was the householder – this was determined on the basis of household composition and familial relationships. However, some young adults completed the survey on behalf of their co-resident adult parents. Such examples were excluded from the sample, as were cases where respondents (of any age) lived in multi-generational or extended family households

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<sup>4</sup>Further details of the survey design and its broader findings are presented in Waitt et al. (2012).

<sup>5</sup>The response rate was statistically representative of the population surveyed and thus returned surveys were not weighted (Waitt et al., 2012).

<sup>6</sup>In this study, a 'householder' is defined as a person who occupies and manages a home either alone or as part of a multi-member household. Where a home is occupied by a couple or joint persons the 'householder' may be interchangeable. In this study 'householder' does not indicate ownership.

where it was impossible to reliably ascertain ‘householder’ status. After these exclusion criteria were applied, the sample was comprised of 1,328 households split across four generations (Table 1).

**Table 1: Distribution of householders according to generational groups (N=1328)**

	<b>Birth years</b>	<b>Age at time of survey (2009)</b>	<b>Number of householders</b>
Generation Y	1975-1991	18-34	158 (11.9%)
Generation X	1965-1974	35-44	228 (17.2%)
Baby Boomers	1945-1965	45-64	604 (45.5%)
Silent Generation	1944 and earlier	65+	338 (25.5%)
<b>Total</b>			<b>1328</b>

Note: Jones and Fox (2009) used the following birth years: The Millennials or Generation Y (1977-1992); Generation X (1965-1976); Baby Boomers (1946-1964) and Silent Generation (1937-1945).

Statistical analyses were conducted using SPSS version 20. Descriptive analyses generated cross-tabulations to account for generational differences in household practices and environmental attitudes. These were tested for statistical significance using Pearson’s chi-squared test at the 5% and 1% level of significance. Ordinal regression was employed to control for effects that were likely to influence the relationship between generation and the dependent variables tested, specifically gender and household income. Logistic regression was used in the case of binary questions or where there was a lack of compliance with the prerequisites of ordinal regression.

Generation Y householders who completed our survey had diverse living arrangements, as is characteristic of this group (Berrington and Stone, 2014), although most lived as part of a couple, with or without children (Table 2). Generation Y householders who responded to the survey were more likely to be female (75.8% compared to 58.5% for all other groups); had a

higher level of formal education (56.0% had a Bachelors or postgraduate degree, compared to 31.8% for all other groups); and were more likely to be employed (71.5% compared to 50.3% for all other groups); or students (8.0% compared to 0.6% for all other groups). Their households were also more likely to fall into the middle-income bracket<sup>7</sup> (72.6% compared to 48.2% for other groups). Few Generation Y households were low-income (5.4% compared to 63.8% of Silent Generation households), but Baby Boomer households were most likely to earn high incomes (28.0% compared to 22.0% of Generation Y households).

**Table 2: Living arrangements of Generation Y householders (N=1328)**

<b>Household type</b>	<b>Respondents</b>
Single-person	24 (15.2%)
Share	10 (6.3%)
Couple family (no children)	54 (34.2%)
Couple family (with children)	63 (39.9%)
Single parent family	7 (4.4%)
<b>Total</b>	158

Generation Y households in this study rarely contained just one person, and most frequently contained three or more people (Table 3). The presence of fewer people in a dwelling has been empirically linked to increased per capita energy and water consumption, as well as waste production and suburban sprawl (Keilman, 2003; Liu et al., 2003; Yu and Liu, 2007). Dwelling type also differed substantially across generational groups, with Generation Y households displaying the highest propensity for apartment living, a trend also evident in Australian Census data (Table 3)<sup>8</sup>. This is significant because, as we shall see below, household size and dwelling type intersect with generational cohort in shaping domestic sustainabilities.

<sup>7</sup>Low-income households were those with a combined income of less than AU\$500 per week; middle-income were between AU\$500 and AU\$1699 per week; and high-income were AU\$1700+ per week (after tax).

<sup>8</sup>In 2011, 28.0% of those aged 18-24; and 20.1% of those aged 25-34 lived in apartments. This was well-above the next highest rate of apartment-living: 9.7% for 35-44 year olds and 75+ respectively (ABS, 2011).

**Table 3: Household size and dwelling type across generations (N=1328)**

<b>Household size<sup>b</sup></b>	<b>Gen Y %</b>	<b>Gen X%</b>	<b>Baby Boomers%</b>	<b>Silent Generation%</b>	<b>All excl. Gen Y%<sup>c</sup></b>
1 person	14.8	8.4	19.3	40.6	23.3
2 people	38.7	14.2	39.2	53.4	38.4
3+ people	46.5	77.4	41.5	6.0	38.2
<b>Dwelling type<sup>a</sup></b>	<b>Gen Y%</b>	<b>Gen X%</b>	<b>Baby Boomers%</b>	<b>Silent Generation%</b>	<b>All excl. Gen Y%<sup>d</sup></b>
Detached house	57.8	77.9	79.0	74.7	77.6
Semi-detached	11.7	7.1	4.0	4.3	4.7
Apartment	29.9	12.8	15.7	18.3	15.9
Other	0.6	2.2	1.3	2.7	1.9

Note: <sup>a</sup> p < 0.05 across all four generations; <sup>b</sup> p < 0.01 across all four generations; <sup>c</sup> p < 0.05 between Generation Y and all other generations combined; <sup>d</sup> p < 0.01 between Generation Y and all other generations combined.

## 5. Results

Results are presented in two subsections. The first compares environmental attitudes, beliefs and concerns based on generational categories. Twenty attitudinal variables were used in the questionnaire over three themes: general environmental attitudes, climate change attitudes and sense of environmental optimism (Tables 4 and 5). To measure ‘pro-environmental’ responses, we combined variables into an aggregate attitudinal score for each section across all four generations (Table 4). The second results section compares everyday practices and domestic sustainabilities of households across generations based on 59 variables, distributed across five key themes: cleanliness, appliance use, purchasing, divesting, and mobility (Tables 6 to 10). A mean score across practices was also calculated for the five domains specified above. A discussion, centred on evidence of a widening value-action gap across our sample, from oldest to youngest, follows our results section.

### 5.1 Inter-generational differences in environmental attitudes

Our results did not neatly mirror previous findings that young people are more environmentally concerned and aware than older generations (DECC, 2012; Hersch and

Viscusi, 2006; Menz and Welsch, 2012). In our survey, Generation X householders expressed pro-environmental attitudes at a higher frequency than any other generation. Complexities emerged at the thematic level (Table 4): Generation X householders, closely followed by Generation Y, were most likely to express general environmental concern (A1-A6) and climate change belief and concern (A11-A17). This trend was reversed in relation to transport: Silent Generation householders expressed pro-environmental transport-related attitudes more frequently than other generations, particularly in relation to the environmental impacts of air travel (A8, A10). Inter-generational differences in attitudes towards recycling were small, with all groups expressing strong commitment (A7). Employing ordinal regression to adjust for gender and income had minimal effects on the statistical relationships between environmental attitudes and householder generation (Table 4). All existing significant differences remained and a small number of additional significant differences emerged (A9, A10, A16 and A17) and these are shown in Table 4.

Significantly, Generation Y householders were most likely to feel that environmental disaster is imminent, a sentiment weakest amongst Silent Generation householders (A2). The latter were also most likely to feel that environmental problems have been exaggerated (A3). Generation Y householders were among the least likely to be concerned whether their environmental values were reflected in the broader community (A5; 86.1% compared to 69.6% of Silent Generation householders). Despite common perceptions that young people are more likely to be influenced by their peers than older generations (Autio and Heinonen, 2004; Bentley et al., 2004), Generation Y were the least likely to be concerned if their peers thought their lifestyle was environmentally conscious (A6).

**Table 4: Proportion of respondents expressing pro-environmental attitudes (N=1328)**

	<b>Gen Y%</b>	<b>Gen X%</b>	<b>Baby Boomers %</b>	<b>Silent Gen. %</b>	<b>All excl. Gen Y %</b>
<b>General environmental attitudes</b>					
A1: The Earth has very limited room and resources (agree) <sup>1)be</sup>	77.6	80.1	78.1	70.8	76.3 <sup>e</sup>
A2: If things continue on their current course, we will soon experience a major environmental disaster (agree) <sup>be</sup>	77.8	75.6	72.9	62.9	70.5 <sup>de</sup>
A3: The so-called environmental crisis has been greatly exaggerated (disagree) <sup>2)be</sup>	55.1	57.8	56.0	43.8	52.5 <sup>ce</sup>
A4: It's only worth doing environmentally friendly things if they save you money (disagree) <sup>ae</sup>	77.9	83.1	78.3	73.1	78.1 <sup>ce</sup>
A5: It's not worth doing things to help the environment if others don't do the same (disagree) <sup>be</sup>	86.1	89.7	79.8	69.6	79.7 <sup>ce</sup>
A6: It would embarrass me if my friends thought my lifestyle was purposefully environmentally friendly (disagree) <sup>be</sup>	95.6	93.3	90.2	82.1	88.5 <sup>de</sup>
A7: People have a duty to recycle (agree)	90.5	91.6	88.7	88.7	89.7
A8: People who fly should bear the costs of the environmental damage that air travel causes (agree)	32.9	33.4	35.3	39.9	36.2
A9: For the sake of the environment, car users should pay higher taxes (agree) <sup>e</sup>	16.4	16.7	14.9	15.0	15.3 <sup>e</sup>
A10: I am concerned about the environmental impact of air travel (agree) <sup>e</sup>	26.6	31.4	36.9	40.0	36.1 <sup>ce</sup>
<b>Mean</b>	63.7	65.3	63.1	58.6	62.3
<b>Climate change belief and concern</b>					
A11: Climate change is an important issue for Australia (agree) <sup>be</sup>	89.8	91.5	86.8	81.3	86.5 <sup>e</sup>
A12: The effects of climate change are too far in the future to worry me (disagree) <sup>be</sup>	87.2	87.0	80.5	60.3	75.9 <sup>de</sup>
A13: It's not worth the Illawarra trying to combat climate change because other regions will just cancel out what we do (disagree) <sup>be</sup>	86.7	85.8	72.1	60.9	72.9 <sup>de</sup>
A14: My household is uninterested in climate change (disagree) <sup>be</sup>	72.6	81.9	71.4	62.7	72.0 <sup>e</sup>
A15: My household would be prepared to change behaviours to help limit climate change (agree) <sup>ae</sup>	82.7	84.0	79.5	72.8	78.8 <sup>e</sup>
A16: Bushfire threats will increase in the Illawarra by 2030 (agree) <sup>e</sup>	53.5	55.2	58.8	60.0	58.0 <sup>e</sup>
A17: Sea-level rise will have changed the coastline of the Illawarra by 2030 (agree) <sup>e</sup>	59.4	58.8	56.9	53.4	56.4 <sup>e</sup>
<b>Mean</b>	76.0	77.7	72.3	64.5	71.5

Note: <sup>1</sup>Values for these variables were calculated based on the percentage of respondents who answered strongly agree or agree to each statement. <sup>2</sup>Values for these variables were calculated based on the percentage of respondents who answered strongly disagree or disagree to each statement. Notes on statistical significance: <sup>a</sup> p < 0.05 across all four generations; <sup>b</sup> p < 0.01 across all four generations; <sup>c</sup> p < 0.05 between Generation Y and all other generations combined; <sup>d</sup> p < 0.01 between Generation Y and all other generations combined; <sup>e</sup> p < 0.05 after controlling for gender and income.

Acceptance of the importance of climate change as a national policy issue was strong irrespective of generation – although most pronounced among Generation X and Y householders (A11). Generationally, this mirrors wider national trends (ABS, 2012), although the overall rates of climate change concern expressed in our survey were markedly higher<sup>9</sup>. Generation X and Y householders in our sample were also most likely to indicate that their households would be prepared to change their behaviours to help limit climate change (A15). Distinct and significant inter-generational differences emerged around the immediacy of climate change. Generation Y householders were almost 30 per cent more likely than Silent Generation householders to disagree that the effects of climate change were too far in the future to be of concern (A12). Such results were in line with quantitative studies conducted with young adults in the UK and Europe (Forum for the Future, 2008, Hersch and Viscusi, 2006) and in the United States (Carbon Trust, 2012). Such studies have found that significant numbers of young people are apprehensive about immediate climate change impacts. For all age cohorts, the propensity to agree that climate change would impact upon their region (the Illawarra) through bushfires and/or sea-level rise by 2030 (A16, A17) was markedly lower than willingness to abstractly identify climate change as an important issue for Australia (A11). Such results are in contrast to findings from the Intergovernmental Panel on Climate Change (IPCC) (2007) identifying the Illawarra as a climate change ‘hotspot’ where sea-level rise and increased flooding and bushfires are predicted to exacerbate population vulnerability (Organo et al., 2012).

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<sup>9</sup>According to the ABS (2012) only 39.9% of 75+ year olds were concerned about climate change, compared to 60.9% of those aged 18 to 34.

Generation Y householders' concerns over the immediacy of climate change (A12; 87.2% compared to 60.3% of Silent Generation households) were matched by a sense of pessimism about society's ability to address the issue (Table 5; see also Fielding and Head, 2012). Less than one-third of Generation Y respondents thought a decrease in greenhouse gas emissions by 2030 was likely to occur (A18), compared to 54 per cent of the remaining respondents. Pro-environmental values also appeared to cut across spatial locations, indicating the existence of 'generational geographies' – whereby generational cohort and place distinctively intersect (Vanderbeck, 2007). Generation Y respondents were the most pessimistic about the Illawarra region's capacity to adapt to the economic challenges posed by climate change (A20). Such feelings are likely related to manufacturing and mining job losses in the Illawarra in recent years, as well as a pessimistic outlook on the region's ability to shift towards 'greener' industries. Indeed, when asked whether the Illawarra region would be known for clean and renewable industries by 2030, only 12 per cent of Generation Y respondents considered such an outcome likely, a significant difference when compared to the remaining survey respondents (A19). The images that young people have of futures under increased environmental pressure can be negative, fragmented and bleak (Ojala, 2007). Elsewhere, research with young people has found a strong association between future scenarios and negative emotions such as worry, sadness, anger and pessimism amongst young people (Ojala, 2007, 2008). The risk is that young people may become disengaged with issues that pertain to the environment and climate change over both the short and longer-term.

**Table 5: Sense of optimism about ability to meet climate change challenges (N=1328)**

		<b>Very likely/ likely (%)</b>	<b>Neutral (%)</b>	<b>Unlikely/ very unlikely (%)</b>
A18: Greenhouse gas emissions will be lowered by 2030 <sup>bc</sup>	Generation Y	31.2	26.0	42.9
	Generation X	44.4	23.3	32.3
	Baby Boomers	53.6	19.7	26.7
	Silent Generation	61.5	20.6	17.9
	All excl. Gen Y <sup>de</sup>	53.9	20.7	25.4
A19: The Illawarra will be known for its clean and renewable industries by 2030 <sup>bc</sup>	Generation Y	11.8	32.2	55.9
	Generation X	24.7	27.4	48.0
	Baby Boomers	29.1	30.0	40.8
	Silent Generation	37.1	29.1	33.8
	All excl. Gen Y <sup>de</sup>	30.4	29.2	40.4
A20: The economy of the Illawarra will adapt to the challenges of climate change by 2030 <sup>bc</sup>	Generation Y	46.1	28.6	25.3
	Generation X	52.3	26.6	21.2
	Baby Boomers	63.1	21.1	15.8
	Silent Generation	66.5	21.3	12.2
	All excl. Gen Y <sup>de</sup>	61.9	22	15.8

Notes on significance: <sup>a</sup> p < 0.05 across all four generations; <sup>b</sup> p < 0.01 across all four generations; <sup>c</sup> p < 0.05 between Generation Y and all other generations combined; <sup>d</sup> p < 0.01 between Generation Y and all other generations combined; <sup>e</sup> p < 0.05 after controlling for gender and income.

### 5.2 Inter-generational differences in everyday domestic sustainabilities

Survey respondents were asked about levels of engagement with a number of ‘pro-environmental’ practices that align with the rhythms of daily domestic life: cleanliness, turning appliances on and off, purchasing, divesting and reusing, and modes of moving around. Although we have adopted the label ‘pro-environmental’ practices here, questions were not labelled as such in the survey itself. Many of the practices listed allowed for evidence of unintentional sustainabilities to emerge. For instance, householders may be frugal with the air-conditioner in an effort to save money, not to reduce energy use; they may buy local produce to support local farmers, rather than to reduce transport emissions. Our findings highlight the complexity of inter-generational comparisons, but also point towards a clear pattern in pro-environmental practices across generations, declining from oldest to youngest (Tables 6-10, see also Figure 1). In most cases, statistical significance for these differences persisted after controlling for gender and income – where changes did occur, they are

outlined in Tables 6-10. Our findings suggest that householder generation does shape everyday household sustainabilities, albeit in complex ways.

Twelve variables were used to compare generational differences in household water use and cleanliness practices, with implications for domestic water consumption (Browne et al., 2013). Overall, Generation Y householders were least careful to limit water consumption while Silent Generation householders reported the most frugal practices (Table 6). Generation Y householders were also most likely to concede that they do not pay much attention to domestic water use (B2), despite the fact that they grew up during periods of extensive drought and water restrictions in south-east Australia.

**Table 6: Household pro-environmental practices relating to cleanliness (N=1328)**

	<b>Gen Y%</b>	<b>Gen X%</b>	<b>Baby Boomers%</b>	<b>Silent Gen.%</b>	<b>All excl. Gen Y%</b>
B2: I don't pay much attention to the amount of water I use at home (never/rarely <sup>1</sup> ) <sup>be</sup>	70.9	84.5	88.3	88.1	87.0 <sup>de</sup>
B4: I turn off the tap whilst cleaning my teeth (always/usually <sup>2</sup> ) <sup>be</sup>	90.4	88.5	83.4	81.5	84.5 <sup>de</sup>
B5: I avoid keeping the tap running when washing dishes (always/usually)	86.7	88.6	91.2	89.9	89.9 <sup>ce</sup>
B6: I save water in the bathroom by taking shorter showers (always/usually) <sup>be</sup>	34.6	64.1	64.0	75.7	67.9 <sup>de</sup>
B7: I try and reduce the number of times I take showers in a day (always/usually) <sup>be</sup>	57.3	67.8	67.1	76.9	70.6 <sup>de</sup>
B8: I try and reduce the number of times I flush the toilet (always/usually) <sup>e</sup>	53.2	56.7	60.1	69.2	62.0 <sup>e</sup>
B9: I wait until I have a full load before I put on the washing machine (always/usually) <sup>e</sup>	90.5	93.3	87.9	89.5	90.2 <sup>e</sup>
B10: Frequency of washing machine use (weekly/rarely/never) <sup>be</sup>	46.1	34.5	45.7	73.2	51.1 <sup>de</sup>
B15: I reduce the hot water temperature whenever I can (always/usually) <sup>ae</sup>	17.9	26.0	30.0	34.0	30.0 <sup>ce</sup>
B43: I use a grey water system (yes) <sup>*</sup>	7.8	8.6	8.7	11.5	9.6
B44: I have a water saving device fitted on my shower (yes) <sup>be*</sup>	49.7	62.1	68.0	78.0	69.4 <sup>de</sup>
B46: I have a rainwater tank (yes) <sup>be*</sup>	14.6	27.1	33.3	33.9	31.4 <sup>de</sup>
<b>Mean</b>	<b>51.6</b>	<b>58.5</b>	<b>60.6</b>	<b>66.8</b>	<b>62.0</b>

Note:<sup>1</sup>Values were calculated based on the percentage of respondents who answered 'rarely' or 'never' to each statement. <sup>2</sup>Values were calculated based on the percentage of respondents who answered 'always' or 'usually' to each statement. Notes on significance: <sup>a</sup>  $p < 0.05$  across all four generations; <sup>b</sup>  $p < 0.01$  across all four generations; <sup>c</sup>  $p < 0.05$  between Generation Y and all other generations combined; <sup>d</sup>  $p < 0.01$  between Generation Y and all other generations combined; <sup>e</sup>  $p < 0.05$  after controlling for gender and income.

\* indicates where logistic regression was used for analysis.

Across specific questions, the data revealed a mixed, and somewhat contradictory, picture:

Generation Y householders saved water in some aspects of their daily lives, but not others.

They were more likely to report turning off the tap whilst brushing their teeth (B4), and were amongst the most likely to indicate that they always or usually wait until they have a full load before running the washing machine (B9). However 53.9 per cent reported using their washing machines once or more per day, and Generation Y were around half as likely to report taking short showers (B6). Generation Y householders were also markedly less likely to reduce showering frequency (B7) and the least likely to have installed water tanks (B44), reuse grey water (B43) or have water saving devices fitted on showers (B44). They were also the least likely to save water by reducing the number of times they flush toilets (B8).

Reflecting important divergent showering practices and preferences across generations (Gram-Hanssen, 2007) and potential limitations of dwelling type, Silent Generation householders were almost twice as likely as Generation Y to report reducing the hot water temperature (B15).

Household practices around thermal comfort, appliance use, and energy provision/use were explored via thirteen variables (Table 7). Consistent with previous finding from Sweden (Carlsson-Kanyama et al., 2005), the Netherlands (Gatersleben, 2001) and Australia (ABS, 2012) Silent Generation householders reported the most frugal energy-use patterns and Generation Y the least. However, on aggregate, inter-generational differences were not stark. Generation Y households were least likely to indicate that they actively seek to reduce energy consumption in the home, while Generation X respondents were most likely (B3).

**Table 7: Household pro-environmental practices relating to appliance use (N=1328)**

	<b>Gen Y%</b>	<b>Gen X%</b>	<b>Baby Boomers%</b>	<b>Silent Gen.%</b>	<b>All excl. Gen Y%</b>
B3: I don't really give much thought to saving energy at home (never/rarely)	82.1	90.2	88.3	84.4	87.6
B11: Frequency of clothes dryer use (rarely/never) <sup>be</sup>	73.9	77.0	80.0	86.8	81.3 <sup>e</sup>
B12: Frequency of air-conditioner use (rarely/never) <sup>e</sup>	78.8	78.3	75.6	72.8	75.6 <sup>ce</sup>
B13: Frequency of heater use (rarely/never) <sup>ae</sup>	24.4	22.0	27.6	26.0	25.2 <sup>e</sup>
B14: I put on an extra layer of clothing before turning up the heating (always/usually) <sup>e</sup>	79.7	80.2	84.7	77.8	80.9 <sup>e</sup>
B16: I switch off lights in unoccupied rooms (always/usually) <sup>ae</sup>	93.7	96.9	96.2	95.9	96.3 <sup>e</sup>
B37: Frequency of computer use (rarely/never) <sup>be</sup>	14.7	11.0	11.7	43.3	22.0 <sup>de</sup>
B38: Frequency of plasma TV use (rarely/never) <sup>ae</sup>	77.8	78.0	71.4	85.9	78.4 <sup>e</sup>
B41: Frequency of separate freezer use (rarely/never) <sup>ae</sup>	78.3	69.3	64.0	54.3	62.5 <sup>e</sup>
B52: Number of operating fridges (one only) <sup>e</sup>	63.9	58.2	50.8	59.9	56.3 <sup>e</sup>
B17: Household energy use has decreased over the last 12 months (yes) <sup>be</sup>	69.5	72.8	82.5	84.5	79.9 <sup>de</sup>
B45: I use solar power (yes) <sup>*</sup>	4.6	8.5	6.7	10.6	8.6
B65: I use an air-conditioner to cool rooms that are too hot in summer (rarely/never) <sup>e</sup>	69.0	68.6	65.4	64.1	66.0 <sup>e</sup>
<b>Mean</b>	62.3	62.4	61.9	65.1	60.8

**Note:** Refer to supplementary notes at Table 6.

Again, results pertaining to specific practices around energy and appliance use were mixed and somewhat contradictory. While air-conditioning has become a normal part of everyday life in large parts of the industrialised west (Shove, 2003), this was not borne out in our findings from temperate east coast Australia. Air conditioner ownership and use was relatively low across all generations, and lowest among Generation Y householders (B12, B65). Generation Y were most likely to own and use a clothes dryer (B11), signalling a generational shift in domestic laundry practices influenced by higher rates of apartment-living. Meanwhile, use of high-energy demand domestic appliances associated with food storage was lowest for Generation Y, even with comparably larger household sizes than older

generations. Generation Y householders were less likely to report owning and using a separate freezer, and were least likely to have more than one operating fridge (B41, B52).

Results also indicate that domestic energy consumption is closely related to stage of lifecycle. When asked about recent changes in energy consumption in the prior 12 months (B17), Generation Y householders were most like to report an *increase* in energy use, citing reasons such as having a baby (39%) or an increase in the number of people in the household (39%). Older households were most likely to report that their energy use had decreased, largely due to a decline in household size. Notably, amongst the 23 per cent of Generation Y householders whose energy use had decreased over the 12 months preceding the survey, almost one quarter (23.5%) stated that climate change concern was an influential factor. Generation Y was the only generation for whom climate change ranked in the top three reasons given for a decrease in energy use, compared with only seven per cent of Silent Generation householders and nine per cent of Baby Boomer householders. Uptake of higher cost green technologies such as solar panels was low across all generations, and lowest among Generation Y householders (B45).

Household purchasing decisions (Table 8) are driven by a number of factors including price, brand, perceived product quality, environmental and other ethical concerns such as labour standards (Bentley et al., 2004). Sixteen variables assessed household purchasing practices. Generation Y householders were least likely to report that they purchase and use environmentally friendly detergents (B18), or avoid products in aerosol containers (B19). They were also the least likely to have energy efficient appliances (B23), or buy local produce (B22), recycled toilet paper (B24), fair trade items or (B25) products with minimal packaging (B21). They were also least likely to use their own bags when shopping (B28).

Demonstrating that such patterns are not simply a function of low income, Silent Generation householders were *most* likely to make green purchasing decisions despite reporting the lowest incomes of any generation. Generation Y were also the least likely to grow their own fruit and vegetables (B49), although among those who did grow plants, they were the generation least likely to use pesticides in the garden (B50).

**Table 8: Household pro-environmental practices relating to purchasing decisions (N=1328)**

	Gen Y%	Gen X%	Baby Boomers%	Silent Gen.%	All excl. Gen Y%
B18: I use environmentally friendly detergents whenever possible (always/usually) <sup>be</sup>	48.4	56.5	64.9	77.5	66.3 <sup>d</sup>
B19: I avoid products in aerosol containers (always/usually) <sup>be</sup>	35.7	52.0	53.0	41.3	49.8 <sup>de</sup>
B20: I buy organic produce whenever possible (always/usually) <sup>e</sup>	19.1	17.8	23.8	26.0	22.5 <sup>e</sup>
B21: I buy products with as little packaging as possible (always/usually) <sup>be</sup>	41.1	47.6	55.3	56.3	53.1 <sup>de</sup>
B22: I buy local produce whenever possible (always/usually) <sup>be</sup>	27.6	37.5	42.6	54.3	44.8 <sup>ce</sup>
B23: I try to buy energy efficient household appliances (always/usually) <sup>be</sup>	68.2	78.4	85.0	83.8	82.4 <sup>de</sup>
B24: I buy toilet paper made from recycled paper (always/usually) <sup>e</sup>	28.4	34.5	32.8	37.3	34.8 <sup>e</sup>
B25: I buy fair trade whenever possible (always/usually) <sup>be</sup>	20.9	23.2	32.5	44.7	33.5 <sup>de</sup>
B28: I use my own bags when shopping (always/usually) <sup>be</sup>	55.7	56.2	61.0	68.0	61.7 <sup>e</sup>
B47: I buy plants that require less water (always/usually) <sup>be</sup>	50.4	57.9	57.2	54.2	56.4 <sup>de</sup>
B49: I grow my own fruit and vegetables (always/usually) <sup>be</sup>	20.5	20.7	23.5	27.7	24.0
B50: I use pesticides (rarely/never) <sup>be</sup>	86.0	79.8	69.8	61.1	70.2 <sup>de</sup>
B51: I/household members check fridge before grocery shopping (always/usually) <sup>e</sup>	77.2	76.2	72.2	79.0	75.8 <sup>e</sup>
B53: Household meat consumption has decreased over last 12 months (yes) <sup>be</sup>	84.4	84.3	96.4	98.5	93.1 <sup>de</sup>
B56: My household consumes kangaroo meat (yes) <sup>be*</sup>	9.6	11.0	9.1	3.0	7.7 <sup>e</sup>
B57: My household does not eat meat (yes) <sup>*</sup>	3.2	2.2	1.8	2.4	2.1
<b>Mean</b>	42.3	46.0	48.8	50.9	48.6

**Note:** Refer to supplementary notes at Table 6.

Nine variables were used to assess reported household waste and reuse practices. Generation Y householders reported undertaking household waste minimisation practices less frequently than other generations (Table 9), although this was mostly a result of different practices around reuse and composting, rather than recycling. Recycling of post-consumer waste is connected with a number of structural conditions, such as sorting and collection times that, in Australia, are strongly regulated by local government (Lane et al., 2009; Waitt et al., 2012). Recycling stands in contrast to other aspects of household sustainability, such as purchasing practices and appliance use within the home, which may be more directly shaped by individual inclination than regulation (Barr and Gilg, 2006). In Australia, Generation Y grew up – and were socialised – within a society with very established conditions for recycling materials. We thus expected their practices to reflect the mainstreaming of ‘green’ ideals around waste sorting and recycling (Autio et al., 2009). It thus transpired that recycling of glass, plastic, bottles, cans and newspaper (B26) was ubiquitous across all generations, as was the practice of donating ‘old’ (used, unwanted) clothing to charity shops (B32) (Gregson et al., 2007). Re-use practices were less thoroughly entrenched and showed greater generational fluctuation. Generation Y householders were least likely to reuse glass bottles and jars (B29), reflecting distance in age from a pre-recycling era where bottle and jar reuse was the norm, but they did reuse scrap paper at a considerably higher frequency (B30). Generation Y householders were least likely to report composting both kitchen and garden waste (B31, B48). The survey also asked respondents whether they repair clothing, with the bar set low: stitching a button onto a shirt as a repair practice. Generation Y householders were markedly less likely than all other generations to indicate that they usually or always repair clothing in this way (B34).

**Table 9: Household pro-environmental practices relating to divesting and re-using (N=1328)**

	<b>Gen Y%</b>	<b>Gen X%</b>	<b>Baby Boomers%</b>	<b>Silent Gen.%</b>	<b>All excl. Gen Y%</b>
B26: I recycle glass, plastic, bottles and cans (always/usually)	96.2	96.0	96.6	97.9	96.8 <sup>e</sup>
B27: I recycle newspaper (always/usually) <sup>e</sup>	96.8	96.1	96.8	98.4	97.1 <sup>e</sup>
B29: I reuse glass bottles and jars (always/usually) <sup>e</sup>	44.6	55.2	57.3	58.9	57.1 <sup>de</sup>
B30: I reuse scrap paper (always/usually) <sup>e</sup>	61.4	62.2	59.2	54.7	58.7 <sup>e</sup>
B31: I compost my kitchen waste (always/usually) <sup>be</sup>	29.1	40.4	43.4	49.1	44.3 <sup>de</sup>
B32: I take old clothes to charity shops (always/usually) <sup>e</sup>	83.5	87.1	88.6	82.7	86.1 <sup>e</sup>
B33: I donate old household items to charity (always/usually) <sup>e</sup>	72.0	80.6	80.8	77.2	79.5 <sup>ce</sup>
B34: I repair clothing (always/usually) <sup>be</sup>	68.8	82.4	85.9	83.3	83.9 <sup>de</sup>
B48: I compost my garden waste (always/usually) <sup>be</sup>	33.1	44.8	53.9	61.5	53.4 <sup>de</sup>
<b>Mean</b>	65.1	71.6	73.6	73.7	72.0

**Note:** Refer to supplementary notes at Table 6.

Nine variables were used to assess how mobility practices differed across generations (Table 10). Whether inter-generational patterns were evident for mobility practices was inconclusive. There was limited evidence of the changing car use practices among Generation Y that have been reported in other Australian studies (Dowling and Simpson 2013; Elkington 2011), though it must be said that the Illawarra lacks an established car-sharing scheme as is present in nearby Sydney. Some sustainable transport practices were rare across all households, for instance, travelling by bus (B35) or buying food from a store to which householders walk (B36). While all groups were highly dependent upon cars, rates of car dependence were lowest for Silent Generation householders across all four categories of car use (work/study<sup>10</sup>, grocery shopping, recreation and social activities). Generation X householders, followed by Generation Y were the least likely to report having less than one car per adult household member (B54). More than 50 per cent of Silent Generation

<sup>10</sup>The percentages listed for B61 only relate to respondents who indicated they were employed or enrolled in study. Thus results were not affected by the higher proportion of retired persons in the Silent Generation cohort.

householders did not have a car, or shared a car between household members. Generation Y were the most frequent flyers of any generation and the Silent Generation the least. Despite this, only 20 per cent of Generation Y householders had taken more than two return flights over the 12 months preceding the survey (B42).

**Table 10: Household pro-environmental practices relating to mobility (N=1328)**

	Gen Y%	Gen X%	Baby Boomers%	Silent Gen.%	All excl. Gen Y%
B35: I would only travel by bus if I had no other choice (disagree)	31.2	35.1	33.5	32.2	33.6
B36: I buy food from a store I walk to (always/usually) <sup>e</sup>	14.6	14.3	11.9	12.9	13.0 <sup>e</sup>
B42: Number of return flights taken over last 12 months (2 flights or less) <sup>bc</sup>	78.9	79.6	80.6	90.5	83.6 <sup>e</sup>
B54: Number of cars per adult household member (<1) <sup>bc</sup>	32.6	23.8	36.2	51.0	37.0
B55: My personal car use has decreased (yes) <sup>bc</sup>	75.5	83.8	90.3	97.0	90.3 <sup>de</sup>
B61: Use public/active transport only to get to work/study (always/usually)	22.7	25.4	19.9	30.3	25.2
B62: Use public/active transport only for grocery shopping (always/usually) <sup>e</sup>	15.9	11.0	13.0	17.5	13.8 <sup>e</sup>
B63: Use public/active transport only for recreation (always/usually) <sup>e</sup>	41.0	33.9	39.8	46.2	40.0 <sup>e</sup>
B64: Use public/active transport only for social activities (always/usually) <sup>e</sup>	14.1	19.4	15.7	21.2	18.8 <sup>e</sup>
<b>Mean</b>	36.3	36.3	37.9	44.3	39.5

**Note:** Refer to supplementary notes at Table 6.

## 6. Discussion: The value-action gap of Generation Y

Our survey identified clear generational differences in pro-environmental attitudes.

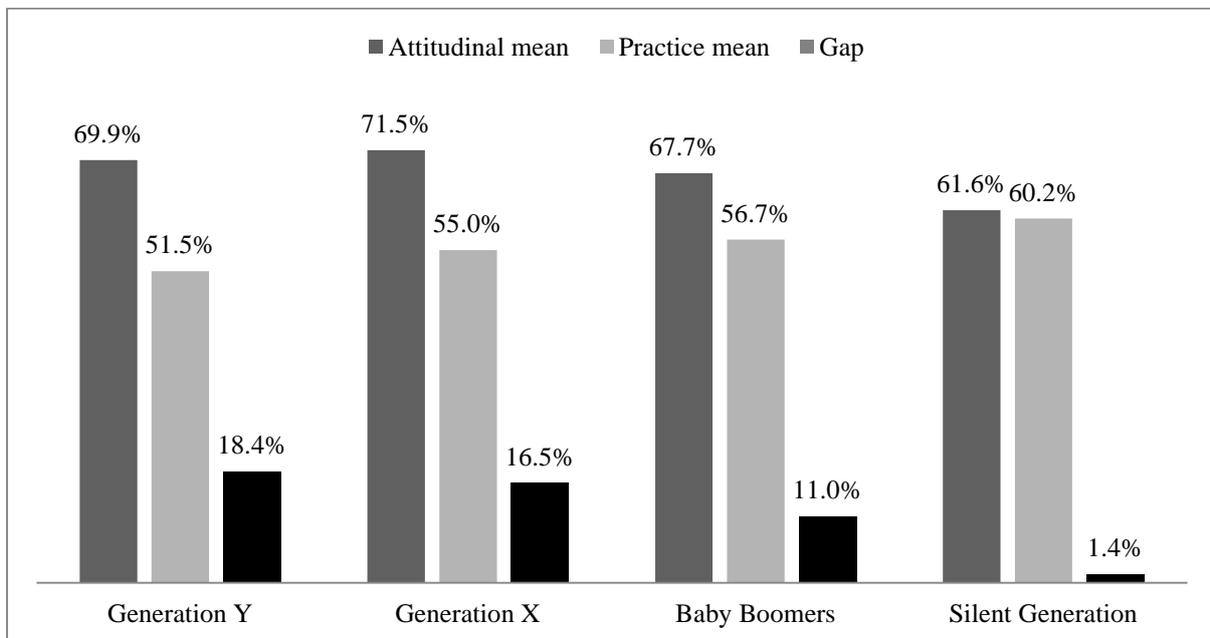
Generation Y householders expressed high rates of climate change belief and concern and were significantly more concerned about environmental futures when compared to generations at the other end of the aging spectrum (Table 4). While Generation Y ranked slightly behind Generation X on pro-environmental values, our findings mirror numerous studies that have applauded young people in the Global North for their environmental

awareness, concern and knowledge (Bentley et al., 2004; Carbon Trust, 2012; Forum for the Future, 2010; Fielding and Head, 2012; Ojala, 2012). Environmental values appear to intersect with place-specific cultural, historical and economic factors to shape generational geographies. The co-existence of environmental concern and pessimism amongst young adults also resonates with previous studies (Bentley et al., 2004; Ojala, 2007, 2008). Pessimism about the ability of the self, and society, to ‘make a difference’ to environmental problems may diminish the potential for environmental concern to translate into action – and may instead foster a tendency towards despondency (O’Neill and Nicholson-Cole, 2009) (Table 5). While a degree of worry about the environment can be important in shaping young people’s environmental practices, a lack of hope can lead to disengagement (Ojala, 2008, 2012). Hope appeared to be particularly scarce amongst our young adult respondents. The extent to which generations can act on their apparent values may also be constrained by the specifics of place itself, as noted for instance in our discussion of the Illawarra as a historically carbon-intensive industrial region that also lacks the car-sharing opportunities popular among young people in Sydney.

Results were not so clear-cut for material practices of domestic sustainabilities. On aggregate, across all practices Generation Y lagged behind other generations in their mean levels of engagement with practices considered ‘pro-environmental’ (Table 6 – 10). Existing research on domestic sustainabilities has paid considerable attention to the difficulties that householders have in translating pro-environmental attitudes into environmentally beneficial practices: the oft cited value-action gap (Blake, 1999; Hitchings et al., 2015; Kollmuss and Agyeman, 2002). The scales developed in this study allowed us to compare the mean frequency with which householders from different generations reported pro-environmental attitudes and practices, across generations (Table 4 compared with Tables 6-10). Our data

suggest that the value-action gap is becoming more pronounced with generational change (Figure 1). While Silent Generation householders reported pro-environmental attitudes and engagement with practices at an almost equivalent frequency; the gap between attitudes and practices grew larger with each subsequent generation, and peaked with Generation Y householders. This evidence of a broad and more sizeable value-action gap for Generation Y seems to confirm that generation's 'double identity' as both environmentally concerned and environmentally indifferent consumers.

**Figure 1: Value-action gap across household generations**



However, these interpretations become more complex when types of practices and the factors influencing them are teased out from the aggregate trends. For some practices, all generational cohorts were engaged at very similar rates – in other words, generational households undertook some domestic sustainabilities at similar levels irrespective of stated disposition towards environmental issues. Some pro-environmental practices were an outcome of shared cultural norms across the population. For example all generations reported

giving regular thought to how to save energy within the home. Amidst escalating energy prices, this disposition has become ‘common sense’ to all but probably the most affluent in Australian society (B3). Likewise, all generations reported similar rates of donating old clothing to charity shops (B32). High rates of engagement were also recorded across generations for practices influenced by well-established government regulation – for instance around recycling (B26 & B27) (Lane et al., 2009; Waitt et al., 2012). Where levels of engagement with pro-environmental practices were less ubiquitous across all generations, they tended to reflect urban environmental and socio-cultural constraints within which the whole population lives. For instance, all generations reported low levels of public or active transport use (B61, 62), reflecting the Illawarra’s low-density design and urban morphology un conducive to cycling and walking. Socio-cultural affordances of cars including comfort, safety, privacy and reduced commuting time also influence transport decisions (Waitt and Harada, 2012). In some cases, generations shared concerns over cost and the environment in ways that informed similar resource conservation practices: turning off the tap when brushing teeth (B4), filling up the washing machine with clothing (B9), planting drought resistant plants (B47) or reusing scrap paper (B30). Such commonalities of practice are easily overlooked in media hyperbole about generational difference, and are not readily apparent from the broadest level of analysis of the value-action gap (Figure 1).

Where more noticeable variations in practices contribute to the impression of a widening value-action gap across Generation Y-led households, it is important to tease out types of practices and the factors influencing them. For some practices, Generation Y seem especially behind: they appear careless or constrained in their everyday shopping decisions with products such as environmentally-friendly detergents (B18) and organic food (B20), and they shower (B7) and wash clothes (B10) more often. For a limited number of practices,

Generation Y conversely leads the way: limiting use of pesticides in the garden (B50); the number of fridges (B52) and freezers owned and shared within the household (B41); and not using air-conditioning (B65). Where energy use had reduced in the previous 12 months, Generation Y was the most likely to cite climate change as a factor contributing to their decision. These latter practices tangibly point to environmental concern translating into shifting everyday domestic practices. Across another set of practices, the majority of Generation Y households engaged positively, although at rates lower than for all other generations – thus contributing to the overall impression of a value-action gap via calculation of mean scores, even though the majority of Generation Y in the sample ‘did the right thing’. Such practices included purchasing energy efficient appliances (B23); decreasing their energy (B17) and car use over the previous 12 months (B55); using their own bags when shopping (B28); and never using clothes dryers (B11). Rates of clothing repair were much lower for Generation Y than for others (B34), possibly reflecting inter-generational differences in domestic science school curriculum. But even then, the majority of Generation Y did report repairing clothing rather than not.

How ought we make sense of such complexities and apparent contradictions? The overall mean scores suggest a wider value-action gap for Generation Y and there appears to be mixed evidence of hedonistic or overly consumerist lifestyles shaping mundane material practices. Our findings certainly do not indicate the presence of a generation pioneering ‘green consumerism’, in contrast to previous studies that have argued that young people are at the forefront of sustainable consumption trends as an alternative to ‘mainstream lifestyles’ (Fien et al., 2008: 51). Indeed, while Collins and Hitchings (2012) have argued that the importance of everyday consumption to young people could provide a context for more sustainable consumption choices, and Gabriel and Lang (2006 [1995]) advocated for sustainable

consumption patterns that involve making a political statement, our Generation Y respondents neither acted especially frugally, nor appeared engaged with conspicuous acts of sustainability. This was apparent both at the scale of everyday purchases, such as environmentally friendly detergents and recycled toilet paper, and larger-scale purchases including energy efficient appliances and solar power. These findings position Generation Y householders as somewhat careless shoppers. While there are some important explanations for these trends, as discussed below, such findings nonetheless provide cause for concern.

The apparent ‘value-action gap’ across our sample appears a function of how bundles of mundane everyday material practices intersect via ‘zones of friction and traction’ (Head et al. 2013) with housing and labour markets, with lifecourse, and with cultural and historical specifics of the local area. Generation Y households are characterised by diverse family types (Berrington, et al., 2009) including students, share households, new couple households (perhaps living with a partner for the first time) and young parents with new children. While few of our Generation Y householders were on low-incomes, theirs is a lifecourse stage in which many competing demands can nonetheless produce financial strains. The expenses of setting up ‘home’ for the first time and (in some instances) caring for young children, exist parallel to new mortgages or high rental payments.

Generation Y were also the most likely to live in apartments. Reflecting previous research on the environmental benefits and constraints of apartment living (Blundell, 2010; Dodson, 2011; Moriarty, 2002; Nelson, 2013) it is no surprise that they reported much lower rates of a range of practices – such as food growing, composting or avoiding clothes dryer use. Recent research in Australia suggests that Generation Y are the least likely to own their own home (Daley et al., 2014) and rental tenants face important barriers to the installation of sustainable

technologies – for instance they lack direct control over installing water tanks or solar technology (Instone et al., 2013). Even those Generation Y householders who are apartment owners face complexities in the governance of daily life via strata boards, and substantive procurement and technical hurdles (McGuirk and Dowling, 2011). The aforementioned limitations of Generation Y households further intersect with the transience of many young adult households, particularly shared households (McNamara and Connell, 2007). Such transience inhibits investment in longer-term practices and technologies, such as growing fruit and vegetables, kitchen and garden composting or installing solar panels and water tanks. That Generation Y households performed poorly on certain domestic sustainability practices is likely a simple function of their different engagements with the housing market.

Other bundles of practices reflected generation-specific anxieties over personal cleanliness. Generation Y shower more often and for longer, and wash their clothes more frequently than other generations - confirming previous research on sweat, clothing and affective relations of sustainability (Gram-Hanssen, 2007; Shove, 2003; Waitt, 2014; Waitt and Stanes, 2015). Expectations of personal cleanliness have shifted across generations (Gram-Hanssen, 2007). While our Generation Y householders reported waiting until they had a full load to wash, their washing machines appeared to be ‘filling up’ faster than those of older generations. This may reflect their stage in lifecourse (more frequent washing may be required when young children are in the home); but also shifting expectations of how regularly items of clothing need to be washed to be perceived as hygienic (Carlsson-Kanyama et al., 2005; Gram-Hanssen, 2007). Generation Y’s showering practices may reflect notions of showering as an indulgent activity (Gram-Hanssen, 2007), or a heightened sense of needing to rid the body of sweat and other odours, projecting norms of an ideal ‘clean’ body to their peers (Waitt and Stanes, 2015). Bodily concerns may also reflect living arrangements in this stage of

lifecourse: for instance people may feel more compelled to flush toilets compulsively or shower more frequently if they live in a share house, or have a comparatively new partner. Ingrained body-centred norms are often deemed as ‘taboo’ and thus difficult to shift through environmental awareness-raising campaigns (Gram-Hanssen, 2007; Jack, 2013; Waitt, 2014).

Observed inter-generational differences in mundane material practices reflect the challenge of juggling domestic sustainabilities alongside competing priorities in everyday life. Complex trade-offs shape the calculus of household and urban sustainability (Gibson et al., 2013; Klocker et al., 2012). While young adult householders expressed high levels of commitment to tackling environmental issues, there are still moments where responsibilities and values of environmental citizenship intersect with situational pressures (like personal ideas of cleanliness and hygiene) and commitments to family, safety and community belonging (Autio and Heinonen, 2004; Collins and Hitchings, 2012; Gram-Hanssen, 2007; Hitchings et al., 2015; Shove, 2003).

## **7. Conclusion**

The time period that a generation grows up in shapes thinking and action across a lifecourse (Büttner and Grübler, 1995; Wyn and Woodman, 2011). With the household remaining a key site for the promotion of sustainability there is still a great deal to understand about how different generational cohorts interact with everyday domestic sustainabilities. By focusing on the everyday attitudes and practices of Generation Y householders, this paper has responded to recent calls to ‘bring young people into investigations of routine consumption in the home’ (Collins and Hitchings, 2012:197). Generation Y householders are at a key point of transition – establishing their own households and (in some cases) purchasing their own homes for the first time. The household-formation stage is a ‘critical’ time period in relation

to environmental practices (Büttner and Grübler, 1995), not least because it is often the first time that many young people are exposed to the workload of domestic sustainabilities.

Practices that reduce or increase environmental burden can potentially be incorporated as part of the fabric of everyday life in this phase (Collins and Hitchings, 2012; Ojala 2008). Young people acquire ‘stuff’ and organise their lives in a specific ‘social and spatial-temporal context’, but the decisions made ‘early in the biography of a particular age cohort or generation’ may become locked-in (Büttner and Grübler, 1995:119). Our results suggest that there are important inter-generational differences in attitudes and in certain bundles of practices, even after controlling for gender and household income. A growing value-action gap was evident across generations, from oldest to youngest (Blake, 1999; Kollmuss and Agyman, 2002; Lorenzoni et al., 2007). On the surface of things, we can anticipate that household resource consumption in the Global North will increase over time (Carlsson-Kanyama et al., 2005; Menz and Welsch, 2012).

Nevertheless, calculation of mean scores for everyday practices across generations belies the complexity of intersecting factors and processes, generalising how different modes of living and accompanying material entanglements produce detrimental environmental outcomes (especially housing tenure and urban environmental context – such as available public transport, urban morphology) (Head et al., 2013). The likelihood of Generation Y householders enacting sustainable practices is a function of the particular practices at hand, and the ways in which they intersect with generational geographies: housing tenure, labour markets, place and the specific cultural norms that pertain to living arrangements among Generation Y. In our sample, all generations engaged with certain pro-environmental practices with similar frequencies, when influenced by cultural norms, state regulation and constraints of the urban environment. For other bundles of practices, there were clear

differences, with Generation Y households either leading the way or on average the least engaged. Patterns of disengagement with certain practices (water tanks, solar, composting, growing food) align closely with acknowledged constraints in the housing sector, associated with high rates of apartment dwelling, renting, and household transience (Berrington et al., 2009; McKee, 2012). Expensive and/or time-intensive practices can be difficult to contemplate when households lack permanence of tenure, as is the case for renters. Rushing to conclude that a growing value-action gap reflects Generation Y's supposed hyper-consumerism ignores how everyday material practices intersect with housing and labour markets, specifics of spatial location and living arrangements that shift with lifecourse transition. Trade-offs in consumption are driven by generational-specific lifecourse transitions such as new parenthood or sharehouse living, and anxieties that perennially accompany youth, especially personal cleanliness. On balance, where Generation Y are able to influence things in line with a stronger degree of environmental concern – for example domestic electricity use through refusing to turn on air-conditioning or turning off lights, reusing scrap paper or minimising pesticide use – they evidently will do it. Where practices are expensive, are constrained by the urban environment, housing stock and tenure, invite contemplation of permanence, or transgress boundaries of personal self and comfort, they evidently will not.

Our findings illuminate the shortcomings of a one-size-fits-all approach to household sustainability (Head et al., 2013). In Australia, subsidies to support the uptake of sustainable household technologies (such as solar power and rainwater tanks) have been targeted at established owner-occupiers of detached houses, to the exclusion of younger generations of transient apartment-dwellers and renters. Our findings also point toward an important gap in government efforts to promote household sustainability. Sustainability initiatives may

achieve more success if they acknowledge the diverse priorities and living arrangements of younger households, and their intersections with structural constraints and generation-specific concerns. Rather than lamenting the disappearance of ‘old-fashioned’ values, future research might also consider how thrift and frugality is being practised in ‘modern’ and innovative ways – particularly through the transformation of habits and practices learnt from generations before them. Young people may also be practising ‘alternative ethic[s] of care’ (Vivoni, 2013: 340) that are poorly accounted for by existing survey measures and broader social science methodologies. Generation Y has its own quirks, a function of the socio-technical arrangements in which they have grown up. Nevertheless, they share in common with all the generations preceding them the thrills and challenges of leaving home and becoming independent, a process in life’s journey when practices are altered or become entrenched, for better or worse.

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