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Wasteful Consumption in Australia

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All views and opinions remain those of the authors.

Summary

Wasteful consumption

Ostensibly, we go to the shops to buy the things we need – or, at least, we go to buy things we hope will make us more contented. Increasingly, though, Australians go shopping for the thrill of the purchase rather than the anticipated pleasure of owning or using something. Despite this, survey evidence suggests that most Australians believe that they do not have enough money to meet all of their needs, including half of those on the highest incomes.

Wasteful consumption can be thought of as consumer spending on goods and services that are not subsequently consumed. It can apply to goods that are bought but not used or to goods whose usefulness is only partly extracted. Skipping the actual consumption phase in the production-consumption-waste cycle brings into question the rationale of the whole process. Yet in rich societies, where most people consume in excess of any reasonable definition of need, this seems to be the actual trend.

When shopping is undertaken as a form of mood enhancement, landfill and wasted resources cannot be seen simply as troublesome by-products of what we consume. On the contrary, when people purchase products to meet purely psychological needs increased waste is unavoidable. In wealthy consumer societies such as Australia, dealing with the consequences of consumption is no longer just an engineering problem but psychological and social ones too.

This paper is the first to explore the phenomenon of wasteful consumption in Australia. It is based on a national survey of 1644 respondents carried out by Roy Morgan Research in November 2004. The survey was designed to assess the extent of behaviour that can be defined as wasteful consumption together with its prevalence among different types of households and individuals. It also set out to understand some of the attitudes associated with wasteful consumption.

Extent of wasteful consumption

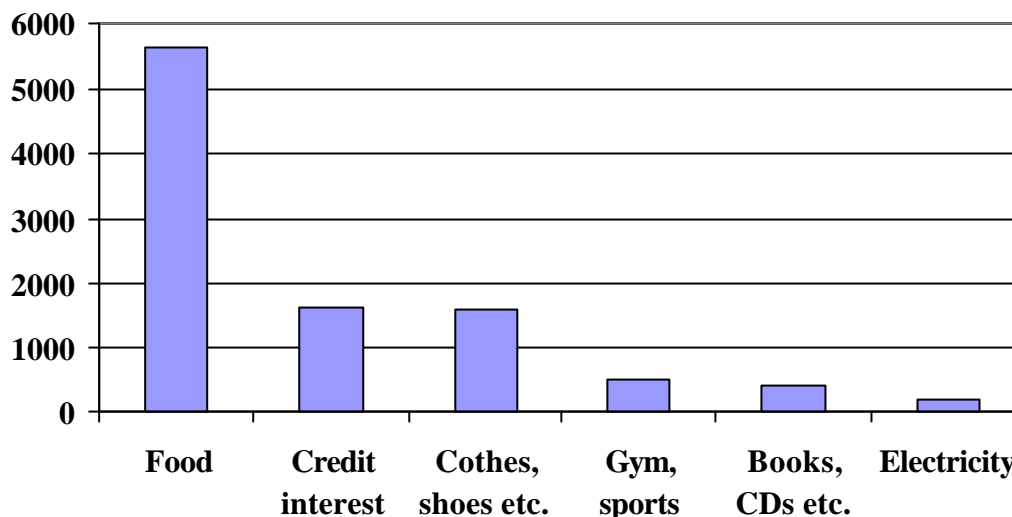
The survey asked respondents to estimate their expenditure on the goods and services they purchase but do not use and their attitudes to spending on things that go unused. When aggregated across all of the items included in the survey, on average each Australian household wasted \$1 226 on items purchased but unused in 2004. This is approximately equal to one month's repayments on an average Australian home mortgage. Total wasteful consumption amounts to over \$10.5 billion dollars annually spent on goods and services that are never or hardly ever used. By way of comparison, this amount exceeds spending by Australian governments on universities and roads.

This assessment of the extent of wasteful consumption is likely to be a significant underestimate, both because some major items were not included in the survey (excessively large houses, rarely used holiday homes and caravans and second cars), and because there is evidence that respondents appear to have understated the extent of their wasteful consumption.

Spending by Australian households on the main areas of waste surveyed is reported in Figure A1. Food accounts for most wasteful consumption. Overall Australians threw

away \$2.9 billion of fresh food, \$630 million of uneaten take-away food, \$876 million of leftovers, \$596 million of unfinished drinks and \$241 million of frozen food, a total of \$5.3 billion on all forms of food in 2004. This represents more than 13 times the \$386 million donated by Australian households to overseas aid agencies in 2003.

Figure A1 Wasteful consumption by type (\$ million)



Analysis of wasteful consumption by demographic characteristics reveals that:

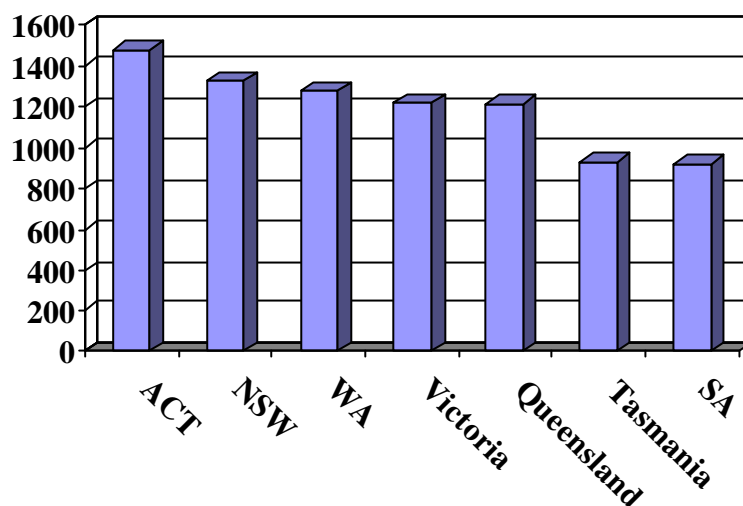
- Young people waste more than older people. Wasteful consumption of food, for instance, falls sharply as age increases. Among 18-24 year olds, 38 per cent admit to wasting more than \$30 on fresh food per fortnight, whereas only seven per cent of people aged 70 or over admit to similar levels of waste.
- Households with higher incomes waste more than those on lower incomes.
- Parents of young children throw out more fresh food than any other household type.

There are substantially different patterns of wasteful consumption by state and region (Figure A2). Residents of the ACT are the most wasteful in Australia, spending on average \$1 475 per year on unused goods, 20 per cent higher than the national average of \$1 226. NSW and Western Australia have the next highest levels of wasteful consumption, while it is lowest in South Australia and Tasmania, each 25 per cent lower than the national average (and nearly 40 per cent lower than the ACT).

The evidence suggests that, other things being equal, the richer we become the more we spend on goods and services that we do not use. As we become wealthier over the next decades, we can expect a more than proportionate increase in wasteful consumption. In addition, older Australians appear to be more careful in their spending than young Australians which prompts an important question: is the greater propensity to engage in wasteful consumption among young adults due to their particular stage of life or does it reflect a historical shift away from frugality towards profligacy? If it is the former then we would expect these young people to become more prudent as they age. If it is the latter then they will carry their profligacy through

their lives thus reinforcing the inclination to waste more as the nation becomes wealthier. These trends present a profound challenge to those responsible for reducing the amount of waste generated each year in Australia.

Figure A2 Household expenditure on wasteful consumption by state and territory (\$/annum)



Attitudes to waste

Australians seem to live with a contradiction. They express concern about the environment yet live materialistic lifestyles that result in high levels of waste. When questioned in this study's survey, 60 per cent of Australians say they feel some guilt when they buy items that do not get used while 40 per cent say they do not feel guilty. Only 14 per cent of respondents say they are not much bothered or not bothered at all when they spend money unnecessarily.

Households earning over \$100,000 per year are the least likely to report that they feel some guilt about buying things that are not used – 27 per cent compared with 45 per cent for the lowest income groups. The proportion of respondents who feel somewhat guilty about buying things that they do not use rises steadily with age; only 33 per cent of those aged 18 to 34 say they feel guilty compared to 53 per cent of those aged 65 or older.

When asked whether they think carefully or rarely think about how much use they will get out of the things they buy, 78 per cent of Australians say they always or usually think carefully, while only five per cent admit that they rarely think about it. The degree of thoughtfulness varies markedly with income, those on low incomes saying they think much more carefully.

In summary, it can be concluded that there is a disjunction between how people feel and think about wasteful consumption and how they actually behave. Although most people say they would feel guilty if they bought things they did not use, in fact most do precisely that. Either the majority of Australians are comfortable living with guilt or they do not admit to themselves that their behaviour is contradictory.

In order to shed more light on this contradiction, a third attitudinal question sought to determine the extent to which people believe that they do actually buy goods and services that are not subsequently used. A substantial majority of the Australian population (71 per cent) believe that they hardly ever or only occasionally buy things they do not use. The data suggest, however, that the opposite is true.

Australians can be divided broadly into four types according to the amount of wasteful consumption they engage in and their attitudes to spending on goods they do not use. The four types are as follows.

Guilty wasters: accounting for around 14 per cent of the population, these are people who say they feel guilty when they buy things they do not use but are wasters nevertheless.

Who cares wasters: also accounting for around 14 per cent of the population, these are people who say they are not bothered about spending money on goods and services they don't use. Whether big wasters or not, they are relaxed about buying things that are not subsequently used.

In-denial wasters: accounting for around 15 per cent of the population, in-denial wasters are those who waste a lot but say they hardly ever buy things that don't get used.

Saints: these are Australians who waste little, think carefully about how much use they are going to get out of the things they buy and feel guilty when they do waste things. Around 40 per cent of Australians fall into this category.

People who feel guilty about spending money on things they do not use may avoid the negative emotion by thinking carefully about their spending and avoiding wasteful consumption. These are the *saints*. For others, the 'pain' of guilt is not sufficient to outweigh the 'pleasure' of spending on things they don't need. This is a characteristic of compulsive behaviours in which people cannot stop themselves from engaging in behaviours they know they will regret. Another group of wasters manage their feelings of guilt simply by reinterpreting their behaviour through denying that they engage in wasteful consumption.

Table A1 shows some demographic characteristics of wasters. Generalising somewhat, it is immediately apparent that the 'problem wasters' tend to be young, rich or both. Anti-waste strategies need to accommodate the different types. *Guilty wasters* may be persuaded to waste less by pointing out the contradiction between their attitudes and behaviours, although this runs the risk of changing attitudes and leaving behaviour unconstrained by feelings of guilt. The best way to appeal to *in-denial wasters* would appear to be to change their belief that they are not responsible for much wasteful activity. The *who cares waster* is much more difficult to change and is only likely to respond to external pressures that penalise wasteful behaviour. This may take the form of social sanctions, such as friends and peer groups expressing criticism, or formal penalties.

Table A1 Characteristics of wasters, by type

Type of waster	Much more likely to be:	Much less likely to be:
Guilty	Young (18-34); especially young parents	Mid-life and older households without children
Who cares?	Rich (\$100k +) Young (18-34)	Low-income
In denial	Rich (\$100k +) Young, especially young parents	Older and mid-life households without children

Some implications

There are emerging signs of an environmental backlash in Australia in which some people express irritation at being pressured to change their behaviour to protect the environment and turn the entreaties into their opposite: ‘Screw the environment’, they say, ‘why shouldn’t I just do what I want?’

When asked whether they agree or disagree with the statement that ‘Most Australians buy and consume far more than they need: it’s wasteful’, 80 per cent agreed, with 25 per cent agreeing strongly with this proposition. The proportion agreeing is fairly uniform, whether individuals are high wasters or not. However, those who waste most are much more likely to agree *strongly* that we are a nation that buys and consumes far more than it needs. Around 35 per cent of those who waste a lot strongly agree while around 23 per cent of those who waste little or nothing strongly agree. This poses a serious problem: many Australians who engage in wasteful consumption actually believe that they are innocent while everyone else is guilty.

We have seen that as incomes rise, so too does the level of wasteful consumption, an effect suggesting that wasteful consumption is likely to increase faster than the rate of economic growth. Despite substantial efforts on the part of governments to educate the public about the need to protect the environment, young people are both more likely to engage in wasteful consumption and less likely to feel guilty about such behaviour. This is surprising because of the success of campaigns resulting in a high degree of acceptance of, and participation in, programs such as kerbside recycling. Yet in order to gain widespread community acceptance of the need to protect the environment, governments have been unwilling to make the link between growth in consumer expenditure and environmental degradation.

If government programs aimed at reducing waste are to achieve their stated goal then they cannot continue to avoid the nexus between growing waste generation and rising consumption expenditure. Although highlighting the need to reduce and reuse will be more contentious than exhortations to recycle, such a shift in strategy is unavoidable if targets for reduced waste are to be met.

1. Wants and waste

1.1 Why do we buy?

There is an unquestioned assumption that people buy things because they get a benefit from using them. Economists say that we derive 'utility' from goods in exchange for the money we give up. In recent times, psychologists have taken a closer look at our consumption behaviour and have argued that we need to draw a distinction between the act of shopping (going out to find the things we might buy), purchasing goods in a shop and consuming the goods after we have purchased them (Campbell 2000). It has become apparent that, for some, shopping and buying are the activities that give pleasure while actually consuming the goods bought is secondary and may not take place at all.

This idea is familiar to us in the term 'retail therapy'. For more and more consumers, the act of shopping rather than the fulfilling of needs has become an end in itself. In the words of one marketing strategist:

We are beyond satisfying basic demands and we have moved to a tertiary level where consumption becomes leisure. Even the stores that appear to be for basic needs are really about leisure (Honeywell 2004).

Psychologists have recently identified a pathological condition known as 'oniomania', or 'compulsive shopping', defined in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* as an obsessive-compulsive disorder. People with oniomania find their shopping is out of control; they buy more than they need, often setting out to buy one or two items but coming home with bags full of things they could not resist but which do not get opened (Benson 2000). They often spend more than they can afford and accumulate debts they cannot repay. After shopping binges they are visited by feelings of regret. Although debilitating for only a small proportion of the population (anywhere from one to six per cent in the US), shopping for things that don't get used is very common (Benson 2000, p. xxi). Some estimates suggest that non-pathological compulsive buying might affect a quarter of the population and perhaps most people could think of an array of things they have purchased that were a 'waste of money'.

The behaviour of individual consumers has social correlates which reinforce the tendency to wasteful consumption. While ostensibly we purchase goods and services to meet our needs, our social and economic systems now depend on growing levels of consumer spending unconnected with any needs. Consumer spending is everywhere praised as being 'good for the economy'; indeed, in the long term, it is only consumer spending that keeps the economy growing, and economic growth is almost universally believed to be the most important contributor to national and personal wellbeing (Hamilton 2003). As a consequence, economic growth has become a dominant objective in itself, irrespective of the extent to which it contributes to improving social wellbeing. In challenging times, shopping is increasingly characterised as a patriotic duty. In the aftermath of the terrorist attack on New York on September 11, 2001, the US Treasury Secretary Paul O'Neill urged Americans to spend in order to keep America strong: 'Each and every American should know that by continuing to work

and spend, they are doing their part to restore our nation and our economy in the wake of last week's attack' (O'Neill 2001).

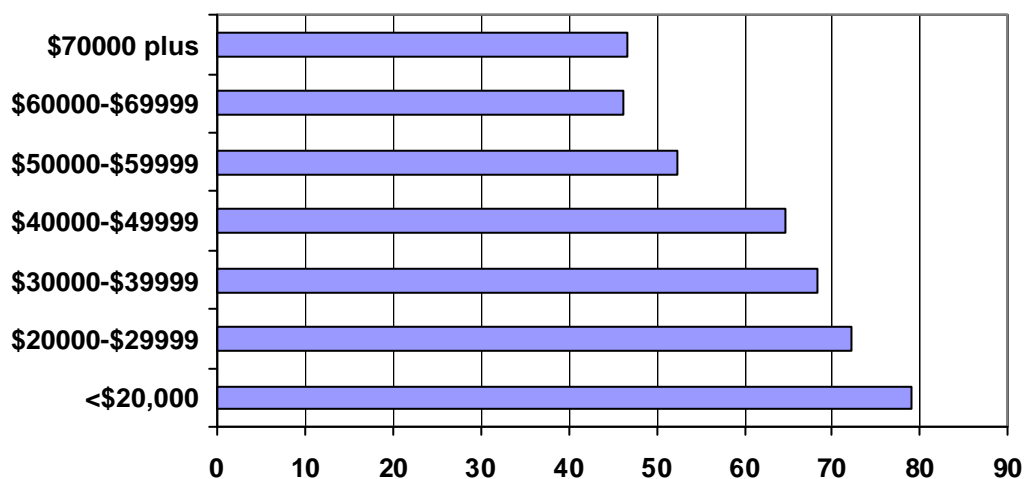
More recently, an article in the *Wall Street Journal* lamented both the unwillingness of Europeans to spend unnecessarily and their preference for electing governments that introduce laws to restrict retail hours and the use of credit cards.

Western Europe has only 0.27 credit cards per person, compared with 2.23 in the US. ... Moreover, many affluent Europeans just do not want to spend their free time shopping (Walker 2004).¹

Europeans appear to be disproving the assumption that human desire for material things is insatiable and have decided to devote more of their time to non-market activities. Whether or not a real trend in Europe, this certainly does not appear to be a problem that Australia has to deal with. Despite unprecedented levels of affluence most Australians feel that they are not consuming enough.

According to the results of a survey commissioned by The Australia Institute, 62 per cent of Australians believe that they cannot afford to buy everything they really need – see Figure 1. Nor is it just low income earners who feel this way, with 47 per cent of respondents in the richest 20 per cent of households believing their incomes are inadequate for their needs.

Figure 1 Proportions who agree that they cannot afford to buy everything they really need, by income group (%)



Source: Hamilton 2002

The emergence of shopping for shopping's sake prompts a number of questions. How big a problem is it; how much do Australians spend on goods and services that they do not actually use? How do they feel about this apparently pointless consumption? And what are the implications of wasteful consumption for the environment and, in particular, the need to reduce the volume of waste going to landfill and pollution

¹ On average, Australians have 0.75 credit cards each.

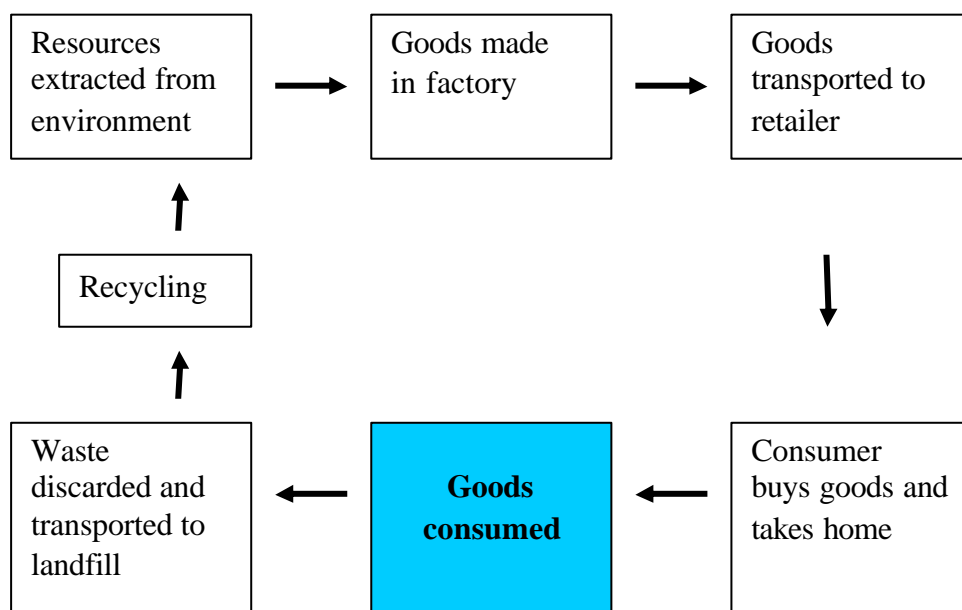
going into the atmosphere and oceans? Before addressing these questions we must first consider more closely what is meant by ‘wasteful consumption’.

1.2 Wasteful consumption

The usual path of material flows in production, consumption and waste is illustrated in Figure 2. Resources are extracted from the earth and transformed into useful objects in factories. They are then transported to retail outlets where consumers buy them, take them home (or wherever they are consumed) and consume them. The waste is discarded and transported to landfill sites. The consumption stage is the object of the whole exercise; it would have no purpose otherwise.

Recycling programs take some of the materials from the end of the process (waste discarded to landfill) which then substitute for some of the materials extracted from the environment in the first stage. There has been, and continues to be, a significant government push and community movement towards recycling behaviour and this has economic advantages. But recycling materials from goods either not used, partly used or fully used up can only partly offset the impact of growing consumption. The creation of more and more materials going around in ever-expanding resource cycles is not reducing the overall impact of our activities, and we have to address the total waste generation process.

Figure 2 Notional production-consumption-waste path



Wasteful consumption can be thought of as consumer spending on goods and services that are not subsequently consumed. It can apply to goods which are bought but not used (such as a pair of shoes) or to goods whose usefulness is only partly extracted (such as an exercise bicycle). In other words, the shaded stage of the production-consumption-waste path is wholly or partly skipped which brings into question the rationale of the whole process. Yet in rich societies where most people consume in excess of any reasonable definition of need, this seems to be the actual trend.

The wasteful consumption of services, although responsible for lower environmental impacts, is also socially and economically important. Renting videos that are not watched or joining gyms that are rarely visited also impose costs. As we have suggested, the purpose of the whole cycle is shifting from the 'goods consumed' stage to the previous 'buying' stage; the 'pleasure' consumers used to derive from their consumption behaviour is increasingly coming to be associated with the act of buying and having the goods rather than actually consuming their useful properties. Alternatively, consumers derive no real pleasure from buying but do it out of habit or to offset temporary feelings of inadequacy, anxiety or depression.

This has several far-reaching implications. Of most interest to this paper is what it means for the problem of waste – the ever-increasing demand for new things and the associated landfill and pollution. While government programs to reduce waste going to landfill through recycling have been effective, this paper calls into question the effectiveness and opportunity for government programs to address total waste generation as a whole. When shopping is undertaken as a form of mood enhancement, landfill and wasted resources cannot be seen simply as troublesome by-products of what we consume. On the contrary, when people purchase products to meet purely psychological needs, increased waste is unavoidable. In a wealthy consumer society such as Australia's, dealing with the consequences of consumption is no longer just an engineering problem but psychological and social ones too.

This paper is the first exploration in Australia of the phenomenon of wasteful consumption. It is based on a national survey that attempts to assess the extent of wasteful consumption and its prevalence among different types of households and individuals and to understand some of the attitudes associated with it. It concludes with some observations on the implications of the results of the study for waste policy in Australia.

The uniqueness of this study is that it deems waste not as an 'end-of-pipe' environmental problem – the leftovers after we have consumed – but as something inseparable from modern consumer society. The analysis suggests that waste should be considered not so much as an unfortunate by-product of the economy but as an essential aspect of the psychology of consumption. It suggests that when there is a conflict between our desire to help the environment by 'doing the right thing' and the desire to gratify our consumption, appeals to reason may fail. In that case, we must overcome the deep-seated need to create a sense of personal identity through consumption expenditure. Asking people not to consume so much may, in fact, be an invitation for people to destabilise their sense of self. Under such circumstances, the assumption that the path to sustainability lies in the provision of enough information and public education for people to understand that it is 'in their interests' to try to reduce waste may be ill-founded.

2. The extent of wasteful consumption

This section reports the results of a new survey on patterns of wasteful consumption in Australian households. Throughout this paper, the term wasteful consumption is used to describe the amount of money spent on goods and services that are never, or rarely, used.

2.1 Survey description

To determine the extent of wasteful consumption in Australian households, The Australia Institute commissioned Roy Morgan Research to undertake a national survey which sought to understand the nature and extent of waste in Australia as well as the behavioural and attitudinal patterns involved. The 1644 respondents were drawn from a panel of around 50000.² The survey was administered in November 2004 by email and post. Recipients of the postal survey were selected to ensure that the entire sample was representative of the Australian population across a range of demographic and household characteristics.

A summary version of the questionnaire is included in the Appendix.³ The survey asked respondents to estimate their expenditure on 17 different types of goods and services they purchase but do not use. The questions formed broad categories that included fortnightly, monthly or annual spending on:

- uneaten food, including fresh, frozen and take-away food;
- electricity, both unnecessary use and potential savings;
- books, magazines, CDs and DVDs that are not used;
- interest paid on credit cards with an interest-free period;
- unused clothes and other personal items including cosmetics, shoes and handbags; and
- unused gym memberships and exercise equipment.

Although extensive, this is not an exhaustive list of wasteful consumption. In particular, it excludes spending on some major items that are unused or little used. Houses are the most significant item here. In the mid-1950s the average size of a new house was around 115 square metres, half the size of today's new house. During a time when the average number of people in each household has been shrinking, the average size of new houses has been expanding from 40 square metres per person in 1970 to 85 square metres per person today (Hamilton 2002). Many houses have rooms that are largely unused, yet they must be furnished, carpeted, curtained and heated and cooled. In other words, a significant portion of spending on housing is wasteful in the sense that parts of the house, or features of it, confer no benefit for the vast majority of the time. Other major consumption goods that could not adequately be captured by

² Additional respondents were sought from ACT residents to ensure that ACT results were based on a sample large enough to draw reliable conclusions.

³ Copies of the survey form are available from the authors.

the survey include holiday houses, boats and caravans that are rarely used and second cars that are rarely taken out of the garage. Gifts are another form of spending that is often wasteful.

Respondents were also asked questions about their attitudes to spending on things that go unused – whether they feel guilty and whether they think carefully about how much use they expect to get out of items before they buy them. This allows a comparison of actual wasteful consumption, as revealed by the survey, with attitudes to waste.

2.2 Wasteful consumption in Australia

When aggregated across all of the items included in the survey, on average each Australian household wasted \$1 226 on items purchased but unused in 2004. The total for Australia amounts to over \$10.5 billion dollars spent annually on goods and services that are never or hardly ever used. By way of comparison, this amount exceeds spending by Australian governments on universities and roads. Average household waste of \$1 226 is also approximately equal to one month's repayments on an average Australian home mortgage.⁴ Put another way, cutting this wasteful consumption would be enough for the average mortgagee to protect themselves against a 0.75 per cent rise in interest rates. This assessment of the extent of wasteful consumption is likely to be a significant underestimate, both because some major items were not included in the survey, and because there is evidence, discussed later, that respondents appear to have understated the extent of their wasteful consumption.

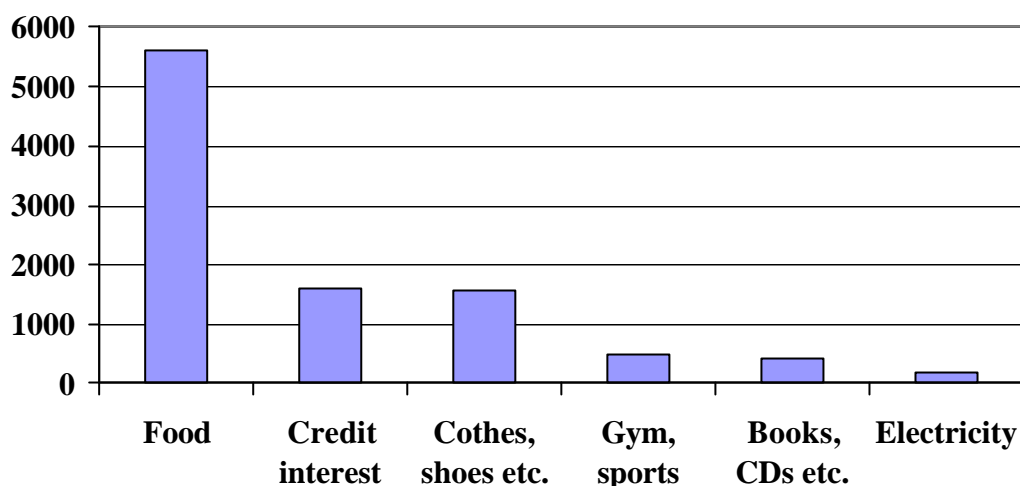
Spending by Australian households on the main areas of waste surveyed is reported in Figure 3. Food accounts for most wasteful consumption. Overall Australians threw away \$2.9 billion of fresh food, \$630 million of uneaten take-away food, \$876 million of leftovers, \$596 million of unfinished drinks and \$241 million of frozen food, a total of \$5.3 billion on all forms of food in 2004.⁵ This represents more than 13 times the \$386 million donated by Australian households to overseas aid agencies in 2003 (ACFID 2005).

After food, Australians wasted \$1.59 billion paying interest on interest free credit cards, \$1.56 billion on clothes, accessories and personal care items that are never used, \$412 million on books and CDs that are never read or listened to, \$501 million on gym memberships and exercise equipment and \$186 million on the wasteful use of electricity within the home.

⁴ The average Australian home loan was \$208000 in February 2005 with monthly repayments of around \$1370 (see Anderson 2005).

⁵ Food spoilage may be influenced by seasonal factors so the annual total may vary because of the timing of the survey.

Figure 3 Wasteful consumption by type (\$ million)



The survey found that almost all Australians admitted to wasting some money. Figures 4–6 show the extent of wasteful consumption for three categories of waste – fresh food, credit card interest and clothes – by three demographic characteristics – age, household income and family type. Note that the three categories cannot be added in each figure as they refer to different time periods (fortnightly, monthly and annual).

Figure 4 Wasteful consumption by category and by age (% individuals)

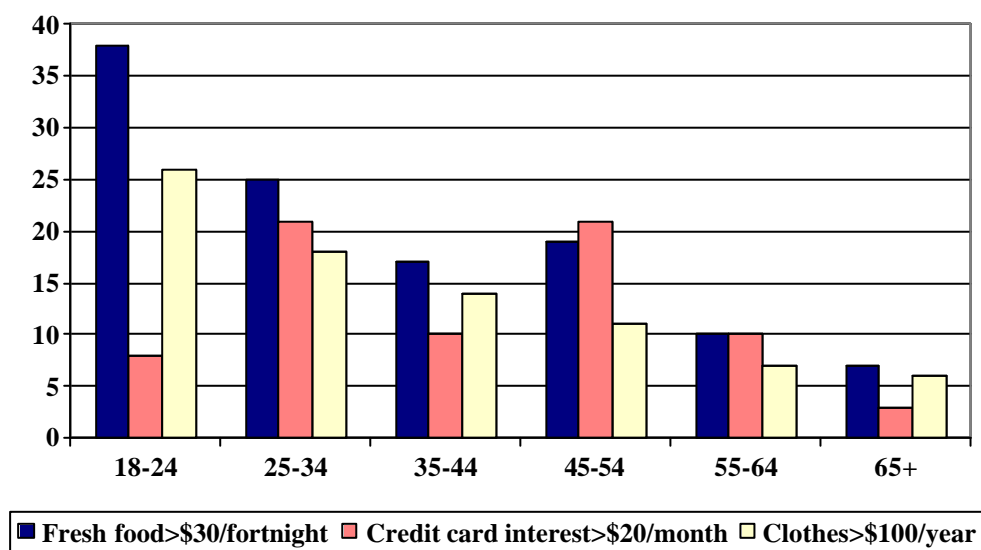


Figure 4 shows the survey result for wasteful consumption by age. Wasteful consumption of food falls sharply as age increases. Among 18-24 year olds, 38 per cent admit to wasting more than \$30 on fresh food per fortnight, whereas only seven per cent of people aged 65 or over admit to similar levels of waste. A comparable pattern emerges with respect to clothes, with 26 per cent of respondents aged 18 to 24 admitting to buying more than \$100 worth of clothes per year that they never or rarely wear compared to only six per cent of respondents aged over 65.

With regard to interest paid on credit cards with interest free periods, the picture is more complex as younger people are less likely to have credit cards and less likely to have high credit limits. Paying interest on credit card debts is low for young and old adults but higher for those in the middle.

The relationship between household income and wasteful consumption activities is shown in Figure 5. In general, households with higher incomes are likely to waste more. This is less clear-cut in the case of food – although the highest income group clearly wastes a great deal more than lower income households – but the connection between higher incomes and more waste is apparent in spending on clothes and, less so, in unnecessary payment of credit card interest.

Figure 5 Wasteful consumption by category and by household income (% households)

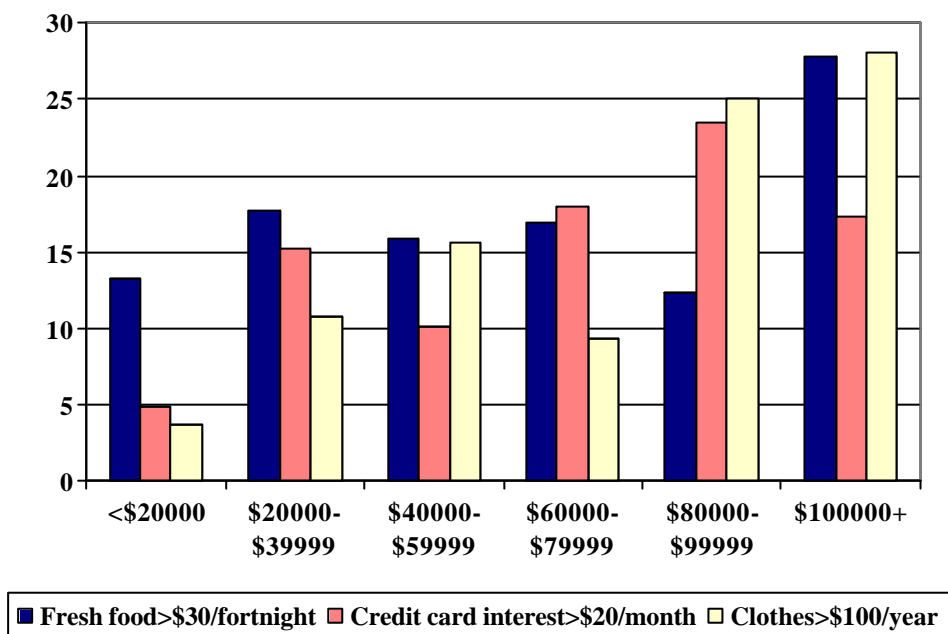
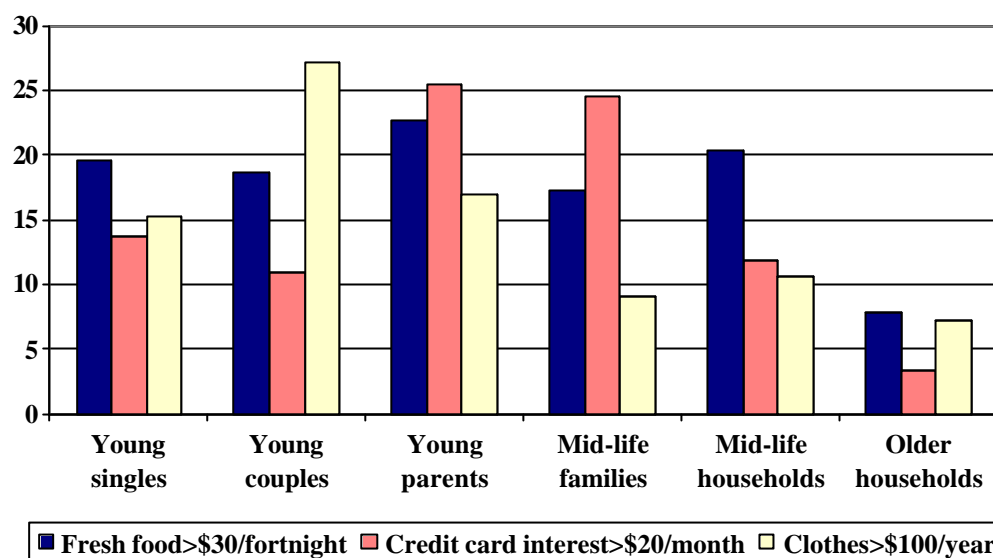


Figure 6 indicates that levels of wasteful consumption are influenced by stage of life. For example parents of young children throw out more fresh food than any other household type, suggesting that the presence of young children is as influential as income with regard to wasteful consumption of fresh food. Young parents also accrue the highest credit card interest with mid-life families a close second. Wastefulness where clothing is concerned is highest among young couples suggesting the influence of income, particularly the increased disposable income available to young couples living together.

Figure 6 Wasteful consumption by category and by stage of life (% households)

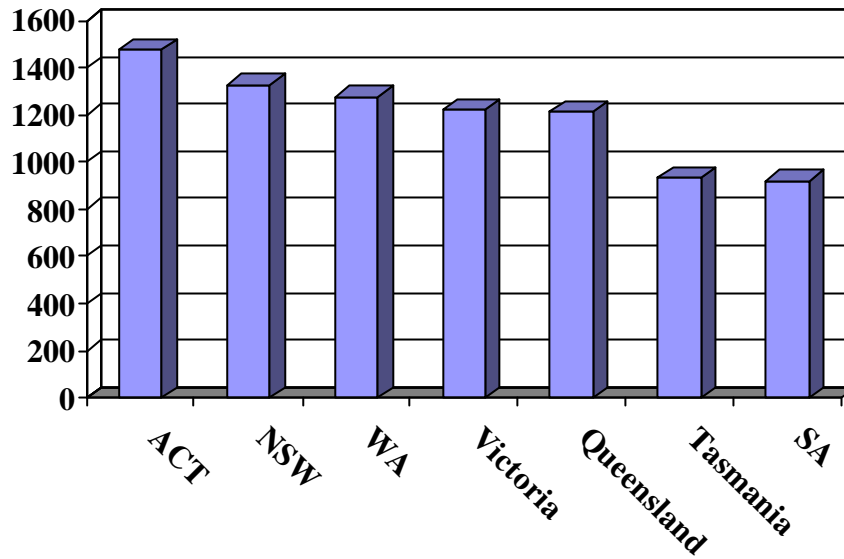
2.3 Regional and state differences

The results of the survey reveal some substantially different patterns of wasteful consumption by state and region. Average amounts wasted by households in Australian states and the ACT are shown in Figure 7.⁶ Residents of the ACT are the most wasteful in Australia, spending on average \$1 475 per year on unused goods, 20 per cent higher than the national average of \$1 226. NSW (\$1 326 per year) and Western Australia (\$1 277 per year) have the next highest levels of wasteful consumption while South Australia (\$921 per year) and Tasmania (\$934), have the lowest, each 25 per cent lower than the national average (and nearly 40 per cent lower than the ACT).

Table 1 provides a breakdown of the main components of wasteful consumption within each state. Compared to the rest of the country ACT residents have particularly high levels of wasteful spending on books and CDs as well as on credit card interest. Interestingly, while Queensland households waste less than the average in general, they throw away much more food than households in other states (\$638 each year or 15 per cent more than the national average). On the other hand, Queenslanders waste less than average on clothes, books and CDs.

⁶ Additional respondents from the ACT were included to provide a robust sample from that territory. Separate results for the Northern Territory have not been reported due to the small sample size.

Figure 7 Household expenditure on wasteful consumption by state and territory (\$/annum)



While Queenslanders waste the most on food overall, households in NSW throw away the most uneaten take-away food, a total of \$94 per household per year, the equivalent of more than 30 Big Macs. Perhaps in an effort to compensate for their predilection for take-away food, households in NSW spend one and a half times the national average on gym memberships they never, or rarely ever, use.

Victorian households spend around the national average on wasteful consumption. While they waste less than average on food per year (\$502 compared to \$545), they spend more than average on clothes and personal items that they do not use (\$206 compared to \$181). Only residents of Western Australia waste more money than Victorians on clothes, handbags and shoes (\$212 compared to \$206).

Table 1 Wasteful consumption by type and by state and territory (\$/annum)

	Food	Credit interest	Clothes, shoes etc.	Books, CDs etc.
ACT	635	333	192	76
NSW	521	196	199	59
WA	584	204	212	28
Victoria	502	194	206	51
Queensland	638	176	142	41
Tasmania	505	127	149	33
SA	497	130	105	36

Variations in income appear to be a major determinant of inter-state differences in wasteful consumption, although we will later report some substantial differences in attitudes to waste between the states. Figure 8 charts wasteful consumption by state

(left-hand scale) and average household incomes by state (right-hand scale).⁷ It is apparent that, to some extent, state differences in wasteful consumption reflect state differences in incomes. However, levels of wasteful consumption in the ACT and South Australia are lower than one might expect based on income alone, but higher than one might expect in NSW, Victoria and Queensland.

Figure 8 Wasteful consumption (\$/annum) and income (\$000 pa), by state

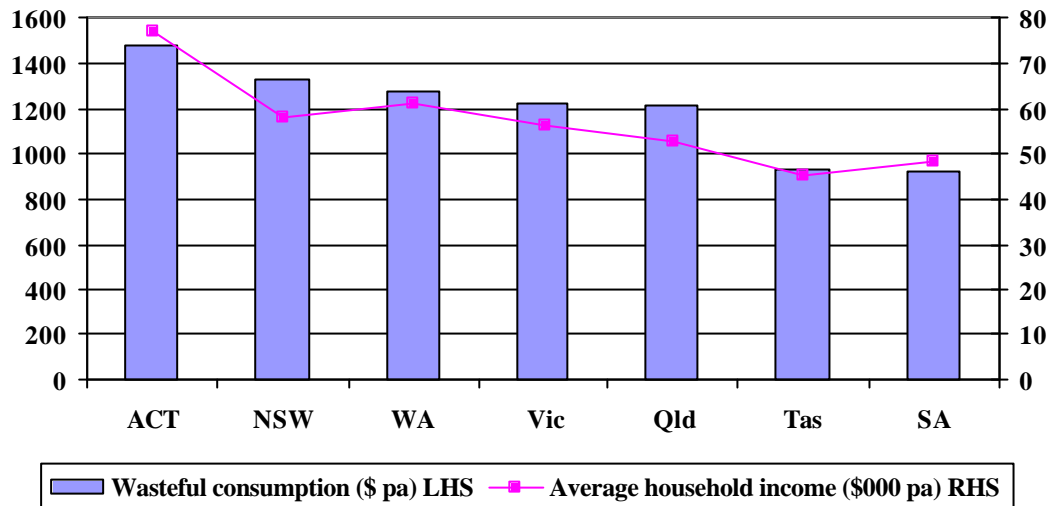
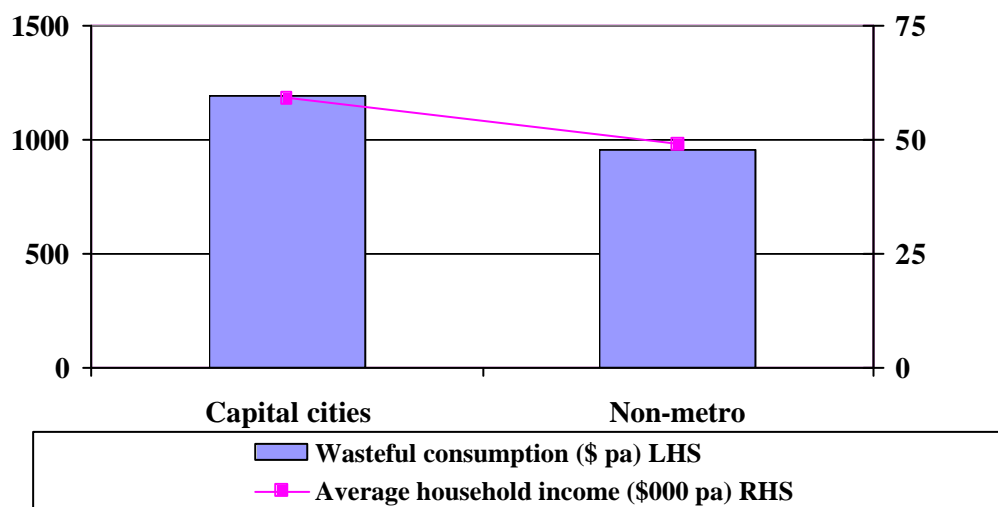


Figure 9 compares levels of wasteful consumption and income in metropolitan and non-metropolitan areas. On average, capital city residents waste \$236 or 25 per cent more per year than those living outside of these centres. On average metropolitan households each year spend \$209 on clothes, shoes, cosmetics and other personal effects that are then hardly ever used, compared with only \$130 in non-metropolitan households (38 per cent less). The ratio is similar for the wasteful consumption of books, magazines, CDs and DVDs annually - \$55 compared with \$34.

Figure 9 Wasteful household consumption (\$/annum) and household income (\$000/annum), by region



⁷ To allow more accurate comparison, the household income figures are derived from the survey rather than from official ABS statistics.

2.4 Some implications

The fact that Australians spend so much of their income on goods and services from which they derive no benefit stands in contrast to the widespread feeling that incomes are inadequate to meet their needs. That feeling of deprivation is itself hard to reconcile with the fact that Australia is an affluent society in which incomes have never been higher. Clearly, the attitudes of Australians to money and consumption are highly complex; we explore these attitudes in the next section.

While the survey results suggest that Australia is a wasteful society, there are good reasons for thinking that the amount of waste reported is much less than is actually the case. Some important items were omitted from the survey – for example the money we spend on toys, cars and, perhaps the biggest items, houses that have more space than we can reasonably use, and holiday houses that are rarely used. There is also reason to think that the survey respondents were reluctant to admit the full extent of their wasteful spending. We know, for example, that the average household could cut its electricity bill by at least ten to 15 per cent by adopting a few simple measures such as turning lights off, having shorter showers and not leaving the television in stand-by mode (Wilkenfeld 1996, Table 1), yet the survey results show that we think we could cut our bills by only 7.5 per cent. Households admit to throwing out \$4.6 billion worth of fresh food each year, yet audits of household garbage bins suggest that the true figure could be closer to \$8 billion.⁸

Some of the results of the study raise serious concerns for the future of policies designed to reduce total waste generation. The growth in consumption, together with the nature of that consumption, are outrunning the ability of existing recycling and waste avoidance policies to reduce waste. This suggests a need for much greater policy focus on two neglected areas: more far-reaching innovation in product service delivery systems and economic and social policies that encourage a shift to non-consumptive means of achieving wellbeing.

The evidence suggests that, other things being equal, the richer we become the more we spend on goods and services that we do not use. As the nation becomes wealthier over the next decades we can therefore expect a more than proportionate increase in wasteful consumption. In addition, older Australians appear to be more careful in their spending than young Australians which prompts an important question: is the greater propensity to engage in wasteful consumption among young adults due to their particular stage of life or does it reflect an historical shift away from frugality towards profligacy? If it is the former then we would expect these young people to become more prudent as they age. If it is the latter then they will exercise their profligacy throughout their lives and thus reinforce the inclination to waste more as the nation becomes wealthier. These trends present a profound challenge to those responsible for reducing the amount of waste generated each year in Australia.

⁸ Australian Food and Grocery Council (2003) found that households waste 13.1 per cent of the food they purchase. When this proportion is applied to the ABS estimate of household expenditure on food, the amount of money wasted is estimated at \$7.8 billion for 2004.

3. Attitudes to waste

3.1 Survey questions

Australians seem to live with a contradiction. They express concern about the environment yet live highly materialistic lifestyles that result in high levels of waste. They mostly feel that their incomes are inadequate for their needs yet they spend considerable sums buying goods and services they do not use. To investigate these contrasts, the survey for this study explored attitudes to wasteful consumption through a series of questions that generated some very revealing answers. Respondents were asked the following set of questions.

Which of the following statements describes you best? For example, if the statement on the left describes you closely, choose 1. If the statement on the right describes you closely, choose 5. If you are half way between the two statements choose 3.

When I buy items that don't get used I feel guilty	1	2	3	4	5	When I buy items that don't get used it doesn't bother me
When shopping, I think carefully about how much use I'm going to get out of the things I buy	1	2	3	4	5	When shopping I rarely think about how much use I'm going to get out of the things I buy
I often find that things I've bought don't get used often	1	2	3	4	5	I hardly ever buy things that don't get used often

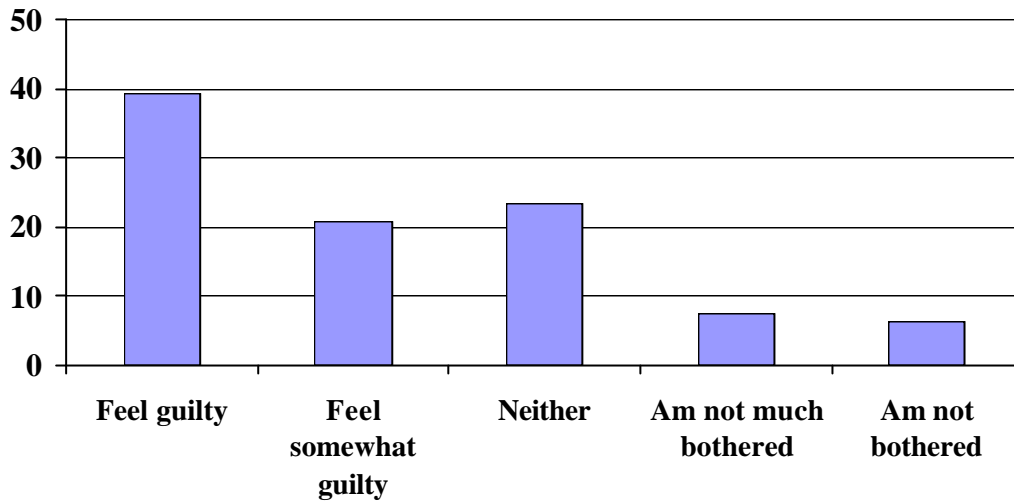
Section 3 analyses the responses to these questions by various demographic criteria. Section 4 compares respondents' stated attitudes with the levels of wasteful consumption they admit to in the survey.

3.2 Guilt

Guilt, the feeling of responsibility or remorse for an act of wrongdoing, is an uncomfortable sensation and the desire to avoid it can be an important determinant of behaviour. People may either change their behaviour to avoid feeling guilty, live with their feelings of guilt, or suppress their feelings by concealment and rationalisation. When contradictory behaviour and attitudes persist it is likely that self-deception is occurring.

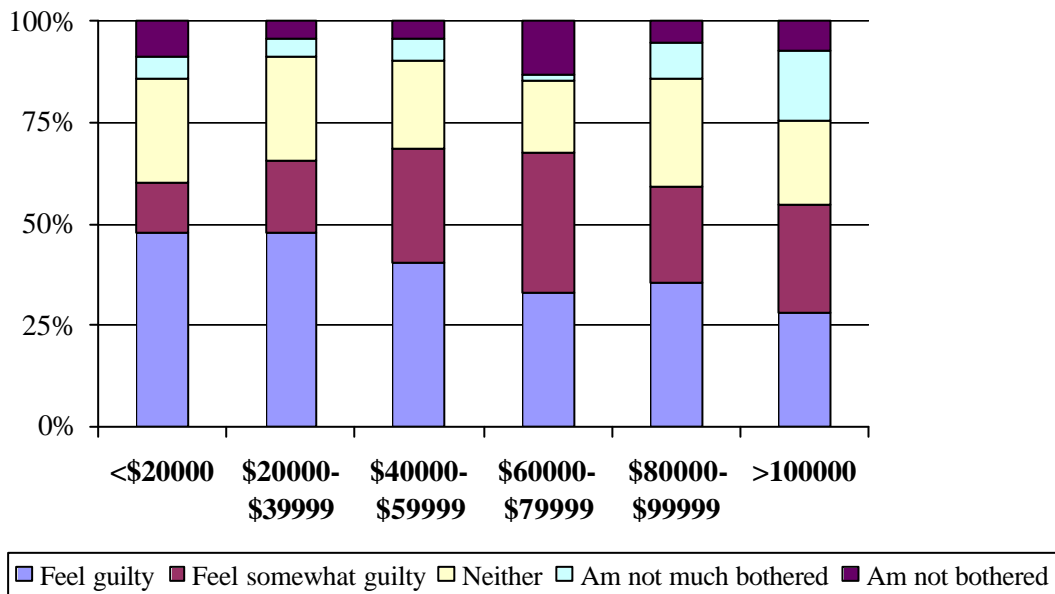
Figure 10 records the answers to the first question, where those who ticked the first box are described as 'Feel guilty', the second box 'Feel somewhat guilty' and so on. The figure shows that 60 per cent of Australians say they feel some guilt when they buy items that do not get used. Only 14 per cent of respondents say they are not much bothered or not bothered at all when they spend money unnecessarily.

Figure 10 Degree of guilt associated with wasteful consumption (%)



We have seen that high levels of wasteful consumption are more prevalent in high-income households. Figure 11 shows that high-income households are also substantially less likely to feel guilty about wasteful behaviour than lower income households. Households earning over \$100,000 per year are the least likely to report that they feel guilty about buying things that are not used – 27 per cent compared with 45 per cent for the lowest income groups.

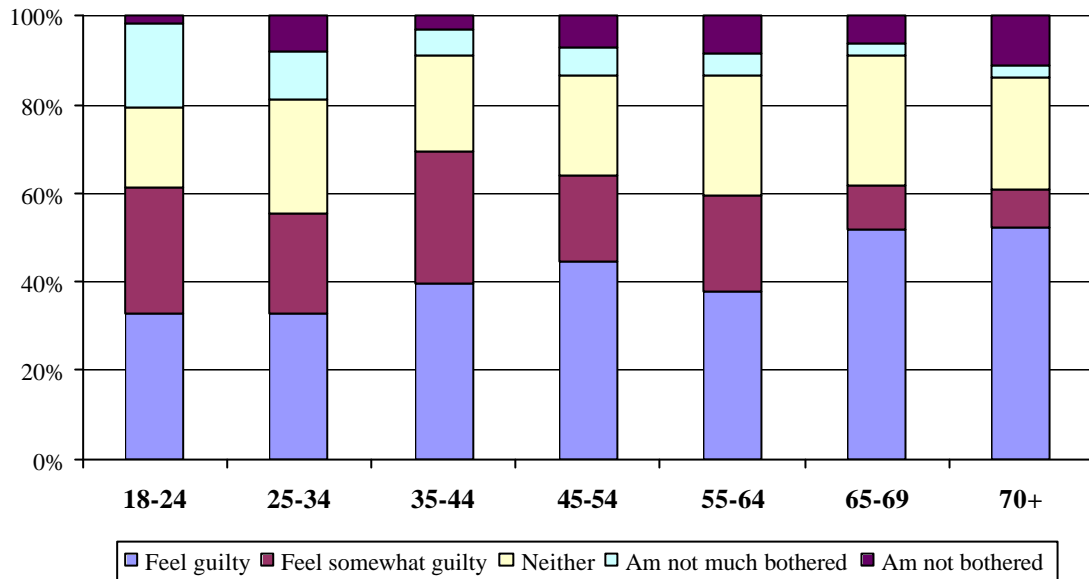
Figure 11 Feelings of guilt, by income (%)



Section 2 reported that young people are more likely to engage in wasteful consumption. As shown in Figure 12, the proportion of respondents who feel guilty about buying things that they do not use rises steadily with age; only 33 per cent of those aged 18 to 34 say they feel guilty compared to 53 per cent of those aged 65 or older. We suggested at the end of the last section that the tendency for younger people and richer households to engage in more wasteful consumption augurs badly for

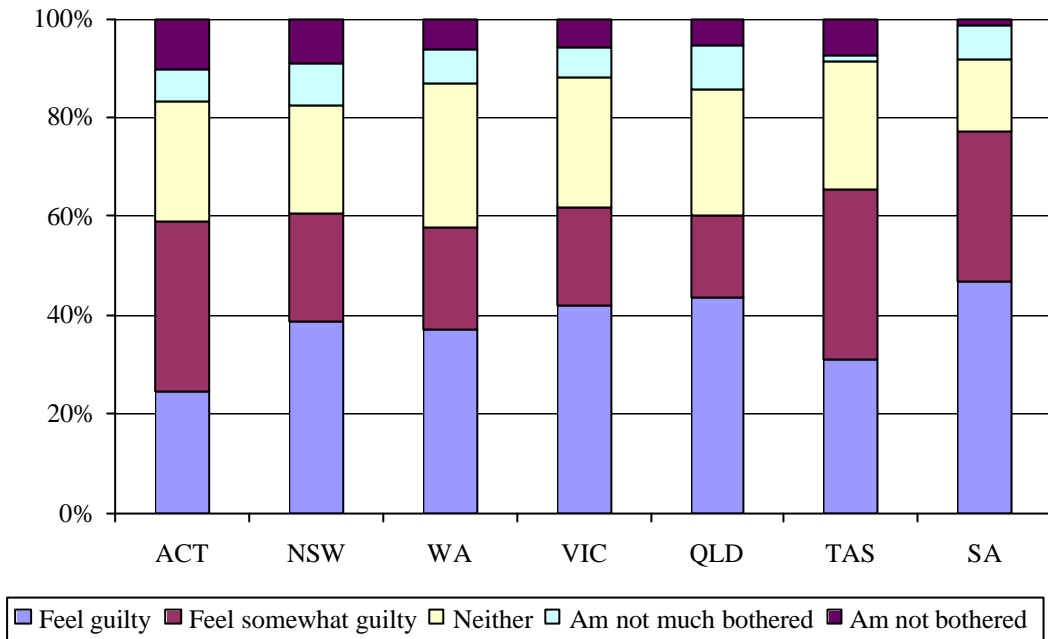
levels of waste in the future. The figures showing that younger people and richer people tend to feel less guilty about wasteful consumption reinforce this concern.

Figure 12 Feelings of guilt, by age (%)



Interesting attitudinal differences between the states also emerge from the survey. As with age and income, there is a strong association between wasteful consumption behaviour and feelings of guilt. In Section 2 we saw that South Australians are the least wasteful consumers when compared to other states and Figure 13 shows that South Australians are the most likely to feel guilty when they buy things that they do not need. In contrast, residents of the ACT who have the highest level of wasteful consumption, report the lowest feelings of guilt. They also have the highest proportion (ten per cent) who say they are not at all bothered about their wasteful consumption.

While there is no doubt that age, income and state of residence explain some of the variations in Australians' feelings of guilt in relation to wasteful consumption, only a very small percentage of each demographic group reports feeling not at all bothered about such behaviour. Why then, do Australians waste more than \$10 billion per year on unnecessary consumption? Some insight into this can be gained by examining responses to the second attitudinal question.

Figure 13 Feelings of guilt, by state and territory (%)

3.3 Thinking carefully

A vast advertising industry exists to persuade us to spend money, often on things we do not really need. Great effort is expended on getting us to buy on impulse and Australians are often characterised as being prone to pursue instant gratification. So how carefully do Australians think about the use they will get from items before they decide to buy them? Or rather, to what extent do Australians believe they think carefully? This is important because we know that many say they feel guilty about spending wastefully but nevertheless engage in wasteful consumption. One way to resolve the tension associated with this apparent contradiction is not to think about it. Being ‘in denial’ is a device used by individuals to avoid confronting the possibility that their behaviour leaves something to be desired.

In order to understand more clearly respondents’ perceptions of their decision making processes, the survey asked: ‘When shopping, **I think carefully/I rarely think** about how much use I’m going to get out of the things I buy’. The results suggest that 78 per cent of Australians say they always or usually think carefully about the use they will get from their purchases. On the other hand, five per cent admit that they think about it only rarely. The degree of thoughtfulness varies markedly with income. Figure 14 indicates that, while most respondents believe that they always think carefully about the amount of use they will get out of the things they buy, this holds much more strongly among those on low incomes. Sixty seven per cent of those in the lowest income groups say they always think carefully while only 44 per cent of those in the higher income groups say the same.

Figure 15 shows that the proportion of people who say that they always think carefully about their purchases increases greatly with age, a result consistent with reported levels of guilt. Australians aged 18 to 24 are only half as likely to claim that they put a lot of thought into their purchases as those aged 70 or over. While younger Australians are widely believed to be more concerned with the environment than older

Australians, it does not appear that these concerns are strongly linked to the need to moderate their own consumption in order to reduce their impact on the environment.

Figure 14 Thought given to usefulness of purchases, by income (%)

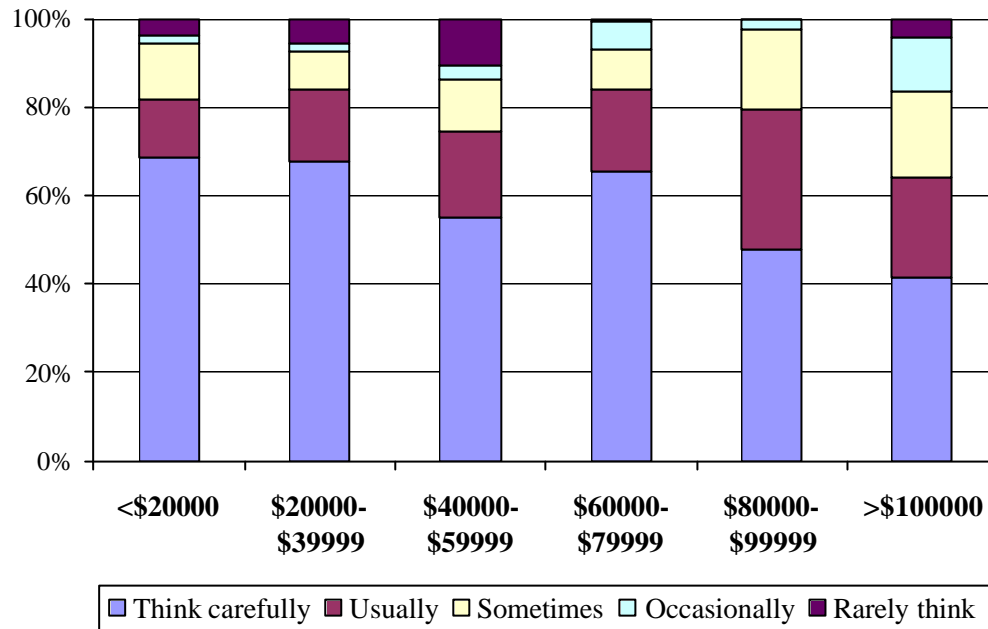
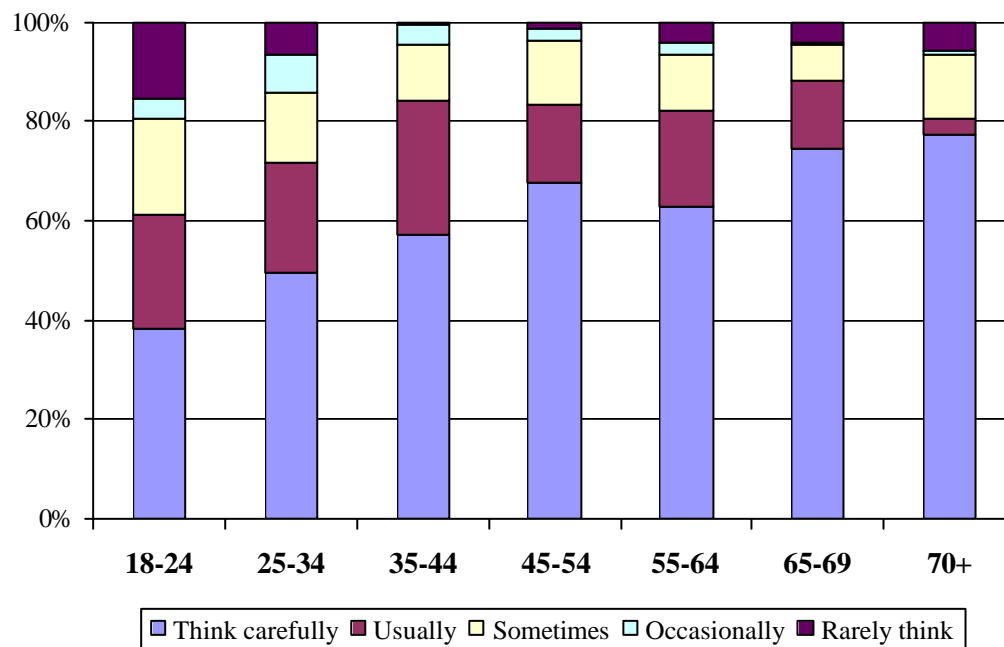


Figure 15 Thought given to usefulness of purchases, by age (%)



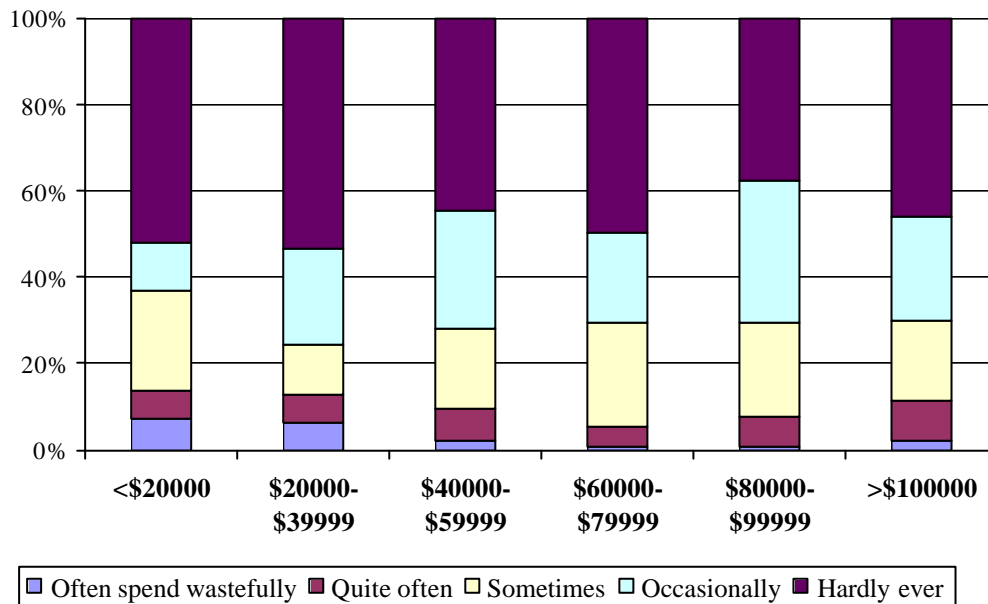
3.4 Fessing up

The previous two survey questions dealt with feelings of guilt and the amount of thought given to the usefulness of purchases. In summary, it can be concluded that there is a disjunction between how people feel and think about wasteful consumption

and how they actually behave. Although most say they would feel guilty if they bought things they did not use, in fact they do precisely that. Either the majority of Australians are comfortable living with guilt or they do not admit to themselves that their behaviour is contradictory.

In order to shed more light on this contradiction, a third attitudinal question sought to determine the extent to which people believe that they do actually buy goods and services that are not subsequently used. Substantial numbers of the Australian population (71 per cent) believe that they hardly ever, or only occasionally, buy things they do not use. The proportion declines slightly with income. When those who say they often consume wastefully are combined with those who do so quite often, it is the lowest income households that are most represented. As discussed below, the propensity to admit to wasteful consumption decreases with age so it is likely that the preponderance of young people in the lowest income groups is responsible for the apparent wastefulness of low income households.

Figure 16 Frequency of wasteful consumption, by income (%)

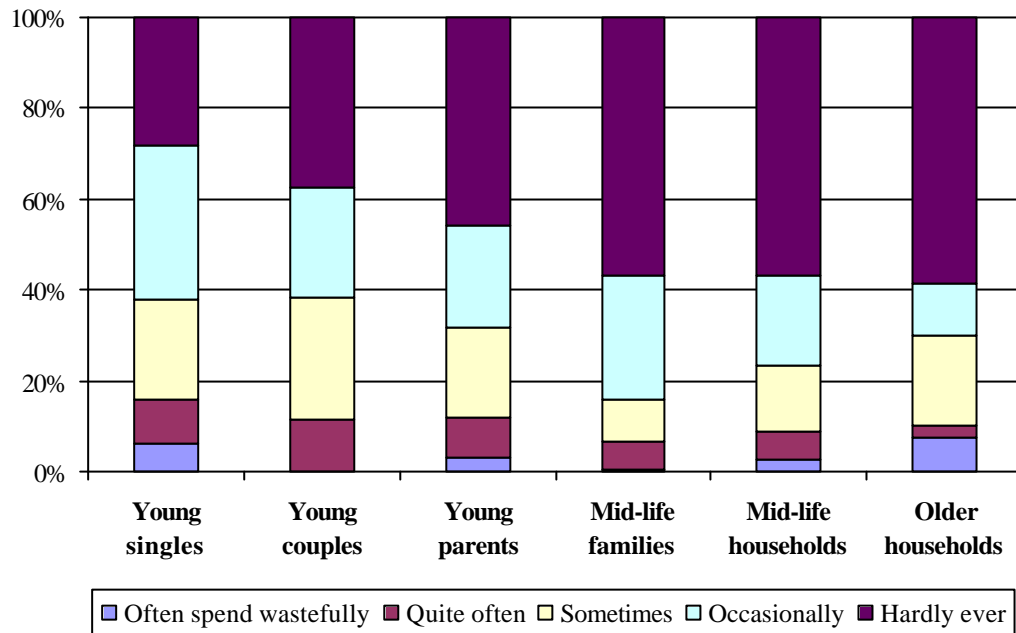


Despite the very high proportion of the population who believe that they seldom, or hardly ever, consume wastefully, at the same time Australians admit to squandering over \$5 billion per year on food on a regular basis. The survey results are revealing two different and conflicting stories and it appears that many Australians are in denial about their actual consumption behaviour.

Figure 17 shows some striking differences between household types. Mid-life and older households are much more likely to claim that they hardly ever consume wastefully, yet their responses to earlier questions suggest otherwise. For example, 57 per cent of mid-life families say they hardly ever buy things they do not use and 65 per cent state that they always give careful consideration to what they buy. However, 44 per cent of mid-life families admit to wasting more than \$10 of fresh food a fortnight and half of these throw away over \$20 worth. Ten per cent of mid-life families also waste more than \$100 a year on clothes that are hardly ever worn.

Similarly, 27 per cent of young couples admit to similar wasteful consumption of clothes despite respondents in both demographics believing that they do not often spend wastefully. The perceptions held by people are inconsistent with their actual behaviour.

Figure 17 Frequency of wasteful consumption, by household structure (%)



4. Towards reducing wasteful consumption

4.1 The growing waste problem

According to the ABS, the majority of Australians (57 per cent) state that they are concerned about environmental problems, down from 75 per cent in 1992 (ABS 2004). A much higher proportion of the population (79 per cent) agrees that Australia has 'a long way to go' in protecting the environment (Hawker Britton 2004) but evidence of personal commitment to this issue is supported by a household participation rate of over 97 per cent in recycling (ABS 2005). Similarly, a number of surveys have found that Australians are willing to pay more for products from less damaging sources (Denniss 2000). Finally, most Australians are aware of, and sympathetic to, the need to reduce litter both for aesthetic and environmental reasons.

Despite the stated concern for the environment and the high utilisation of kerbside recycling, Australian households generate very high levels of waste creating over 2.25 kilograms per person per day, more than 17 million tonnes of landfill in 2002-03 (ABS 2005). Consistent with the data presented in Section 2, food represents the greatest proportion of household waste, accounting for over 36 per cent of the garbage stream by weight (APrince Consulting 2004). Although participation in recycling is almost universally claimed, according to waste audits carried out in the ACT, among the most successful of jurisdictions in encouraging participation in recycling, only 65 per cent of recoverable material is actually recycled (APrince Consulting 2004).

There is little time series data on the amount of household waste created in Australia. The ACT waste audit shows that weekly household waste creation rose from 11.52 kilograms in October 1997 to 14.21 kilograms in October-December 2003 (APrince Consulting 2004). Growth in recycling has stabilised the generation of landfill in the ACT and Victoria over the last eight years but, as participation in recycling approaches 100 per cent in coming years, continued growth in consumption expenditure is likely to exceed the capacity to recycle. By international standards Australians are large producers of landfill, the third biggest in the developed world on a per capita basis, behind only the US and Israel, generating 25 per cent more waste than the OECD average (OECD 2004).⁹

This contradiction between our stated concern for the environment and our high generation of household waste, combined with the levels of wasteful consumption revealed in the survey commissioned for this paper, suggest that Australians are in a state of denial about their behaviour. On one hand, campaigns by environment organisations and public education efforts over the last two decades seem to have succeeded in persuading Australians that protecting the environment by reducing waste is a good thing, but on the other the proliferation of waste is high and growing. The very success of waste reduction and recycling programs aimed at business and the community have lulled us into believing that the problem is being solved. Thus, as Weizsäcker *et al.* (1997) argue, what was seen to be a stepping stone to a desired outcome has become an end in itself and ultimately a barrier to innovation.

⁹ Some countries reduce landfill through large scale incineration of waste. Neither Australia nor the US relies on incineration.

4.2 Types of wasters

We saw in the last section that most Australians believe that they think carefully about their spending decisions yet at the same time admit to spending over \$10 billion each year on goods and services that are not even used. We can understand this problem better if we compare expressed beliefs about waste with actual behaviour. Do those who feel guilty actually waste less? Do those who say they think carefully before they buy avoid acquiring goods that are not used? Do Australians who say they never spend money unnecessarily nevertheless engage in wasteful consumption? Some insight into these questions will help those whose task it is to persuade Australians to waste less.

The survey data allow us to divide Australians broadly into four types according to the amount of wasteful consumption they engage in and their attitudes to spending on goods they do not use. The four types are as follows.

Guilty wasters: accounting for around 14 per cent of the population, these are people who say they feel guilty when they buy things they do not use but are wasters nevertheless.¹⁰

Who cares wasters: also accounting for around 14 per cent of the population, these are people who say they are not bothered about spending money on goods and services they don't use. Whether big wasters or not, they are relaxed about buying things that are not subsequently used.

In-denial wasters: accounting for around 15 per cent of the population, in-denial wasters are those who waste a lot but say they hardly ever buy things that don't get used.¹¹

Saints: these are Australians who waste little, think carefully about how much use they are going to get out of the things they buy and feel guilty when they do waste things. Around 40 per cent of Australians fall into this category.

This division is particularly useful for formulating approaches to tackling Australia's growing problem of waste.

People who feel guilty about spending money on things they do not use may avoid the negative emotion by thinking carefully about their spending and avoiding wasteful consumption. These are the *saints*. For others, the 'pain' of guilt is not sufficient to outweigh the 'pleasure' of spending on things they don't need. We have already observed that this is characteristic of a compulsive disorder in which people cannot stop themselves from engaging in behaviours they know they will regret. Another group of wasters manage their feelings of guilt simply by reinterpreting their behaviour through denying that they engage in wasteful consumption.

It is a standard assumption of public education that if people are persuaded to change their attitudes then, in order to resolve feelings of discomfort and anxiety, a change in

¹⁰ Wasters are defined as those who waste \$10 or more each fortnight on one or more food categories, or \$50 or more a year on clothes, cosmetics or shoes, or over \$30 a year on books or CDs/DVDs. Big wasters account for around 25 per cent of the population

¹¹ There is some overlap between *in-denial wasters* and *guilty wasters*.

their behaviour will follow. In some cases this is undoubtedly a valid assumption. But the contradiction between attitude and behaviour can be resolved in other ways. It may be the case that public campaigns to alter wasteful behaviour have reached a natural limit and may in fact now be counterproductive. The typology above suggests that some Australians continue to behave wastefully even though it is contrary to their expressed attitudes. References to this sort of contradiction – known as ‘cognitive dissonance’ – are often used in public debate: ‘if you were *really* concerned about the environment then you would change your damaging behaviour’. However, when people are pressed, the inconsistency between their expressed beliefs and their actual behaviour may be resolved by a change in attitude rather than by a change in conduct (Shipworth 2000). In the case of waste, those people who feel somewhat guilty, rather than very guilty, are more likely to change their attitude to make it consistent with their behaviour whereas those who feel very guilty and tend to hold strong attitudes about wasteful spending are more likely to change their behaviour (Kantola and Syme 1984).

Cognitive dissonance may explain the recent signs of an environmental backlash in Australia wherein some people express irritation at being pressured to change their behaviour to protect the environment and turn the entreaties into their opposite: ‘Screw the environment’, they say, ‘why shouldn’t I just do what I want?’.¹² The determination to flout social convention is often ‘justified’ by apparently factual assertions suggesting that environmental problems are over stated or non-existent. Recent books, such as *The Sceptical Environmentalist* by Bjorn Lomborg, play to this desire to believe that things are not so bad that we need to change entrenched behaviours. And, as stated earlier, the success of recycling has convinced most Australians that we are doing enough, when in fact it is but a first step.

The existence of cognitive dissonance should be considered when developing policy approaches aimed at curbing wasteful consumption. Confrontational strategies may induce less, rather than more, concern about wasteful consumption. To date, public information campaigns about waste have been highly successful in raising awareness; however, such approaches may not be the most effective at changing behaviour. Future publicity campaigns related to waste should be based on a clearly stated objective either to increase awareness or change behaviour. In turn, campaign messages and policy evaluation should be designed accordingly.

There is another aspect of the denial phenomenon that can be illuminated by additional results from the survey. The survey asked whether respondents agree or disagree with the following statement:

Most Australians buy and consume far more than they need: it’s wasteful.

Eighty per cent agree that Australians are wasteful people who buy and consume far more than they need, with 25 per cent agreeing strongly with this proposition. Table 2 shows the responses broken down by wasteful behaviour. It is apparent that the proportion agreeing is fairly uniform, whether individuals are high wasters or not. However, those who waste most are much more likely to agree *strongly* that we are a nation that buys and consumes far more than it needs. Around 35 per cent of those

¹² An outburst along these lines by the social commentator Bernard Salt was published in the *Sunday Life* magazine of *The Age* newspaper in January 2005.

who waste a lot strongly agree while around 23 per cent of those who waste little or nothing strongly agree.

Table 2 ‘Most Australians buy and consume far more than they need: it’s wasteful’, by amount wasted on fresh food each fortnight

	Nothing	< \$10	\$10-\$19	\$20-\$29	\$30-\$49	\$50 +
Strongly disagree	1	0	4	2	0	2
Disagree	4	3	0	1	1	5
Total disagree	5	4	4	2	1	7
Neither	19	15	17	9	13	13
Agree	53	57	61	69	46	46
Strongly agree	23	24	18	19	37	34
Total agree	76	81	79	89	83	80

Most people believe that advertising is very effective at persuading others to buy things they may not need, but are adamant that ads do not work on them. In the same way, it is apparent that most Australians believe that everyone else spends far more money than is necessary and wastes a lot in the process, yet they themselves are free of this tendency. This self-deception is particularly strong amongst those who actually waste a lot. Previously we defined *in-denial wasters* as those who waste a lot but believe they do not spend wastefully. Here we have a more general phenomenon in which the waster denies that he or she is guilty of waste but believes everyone else is. This clearly creates an obstacle for public awareness campaigns; most people think these campaigns are necessary but are simply not targeted at them.

The types of wasters identified in our study have been analysed by income, age and household type. Some interesting differences emerge and are summarised in Table 3. The distribution of *saints* shows no variation by income, age or household type but, generalising somewhat, it is immediately apparent that the ‘problem wasters’ tend to be young, rich or both. Anti-waste strategies need to accommodate the different types. *Guilty wasters* may be persuaded to waste less by pointing to the contradiction between their attitudes and behaviours, although this runs the risk of changing attitudes and leaving behaviour unconstrained by feelings of guilt. The best way to appeal to *in-denial wasters* would appear to be to change their belief that they are not responsible for much wasteful activity. The *who cares waster* is much more difficult to change and is likely to respond only to external pressures that penalise wasteful behaviour. This may take the form of social sanctions, such as friends and peer groups expressing criticism, or formal penalties. The fact that there is a preponderance of young people among these three types of problem waster is cause for concern as they may represent a cohort that will travel through the next several decades with their wasteful behaviour flourishing. On the other hand, they may be more amenable to change because their behaviour may be less entrenched.

Table 3 Characteristics of wasters, by type

Type of waster	Much more likely to be:	Much less likely to be:
Guilty	Young (18-34); especially young parents	Mid-life and older households without children
Who cares?	Rich (\$100k +) Young (18-34)	Low-income
In denial	Rich (\$100k +) Young, especially young parents	Older and mid-life households without children

4.3 Some implications

While our desires are often thought to be insatiable, the results of this analysis suggest that in affluent societies we need to consider the limits on our capacity to consume. Just as the capacity of our stomachs limits how much we are able to eat, so too there are physical limits on our capacity to use other consumer goods. Imelda Marcos may have owned 3000 pairs of shoes but the use she derived from perhaps 2950 of them would have been close to zero. In new Australian homes, the area of floor space per occupant doubled between 1970 and 2000, so that many houses today have rooms that are hardly ever used. Similarly, many garages accommodate vehicles that are rarely driven.

The survey results reveal that Australians admit to wasting more than \$10 billion a year on goods and services they do not even use. We have suggested that this is likely to be an underestimate of wasteful consumption, but even so it does not account for the vast quantities of goods and services we pay for but use only partially. As the Australian economy continues to grow, and average incomes in Australia continue to rise, both the levels of waste created and the pressure on natural resources to produce this waste will also continue to rise. This effect suggests that wasteful consumption is likely to increase faster than the rate of economic growth. Recycling has a role to play in ameliorating these circumstances, but it cannot solve the root cause of the problem. Sections 3 and 4 show that, despite substantial efforts on the part of governments to educate the public about the need to protect the environment, young people are both more likely to engage in wasteful consumption and less likely to feel guilty about such behaviour. This is surprising because of the success of campaigns resulting in a high degree of acceptance of, and participation in, programs such as kerbside recycling. Yet in order to gain widespread community acceptance of the need to protect the environment, governments have been unwilling to make the link between growth in consumer expenditure and environmental degradation.

One way to make this point is by reference to the well-known formula linking the amount of environmental impact to population, consumption and technology. Thus

$$I = P.A.T$$

where I is some measure of environmental impact (in this case, volumes of waste), P is population, A is consumption per person or affluence and T stands for technology or the methods used to transform energy and materials into useful products (i.e.

impacts per unit of consumption). Clearly, the T component relates primarily to production processes so the IPAT formula reflects the production-consumption system. To date, governments have focused relentlessly on T, which includes recycling, because it is safe but stay well clear of any suggestion that rising consumption levels lie at the heart of the problem. In the same way, the first component of the slogan 'Reduce, reuse, recycle' receives virtually no attention. There is, however, growing awareness amongst those charged with solving Australia's waste problem that P, A and T form a system of production and consumption and that systemic issues need to be tackled.

Many Australians believe that if they take their own shopping bags to the stores and recycle all the products they buy, then they are behaving in a sustainable manner. Such behaviour is desirable, but it is the number of shopping bags and their contents that are the major determinants of environmental harm, not whether the bags are made of cotton or plastic. If Australians are to reduce waste and natural resource use significantly below today's levels, rather than simply relying on recycling to slow their rate of growth, then the Australian public must understand the link between the level and composition of their consumption patterns and the pressures on the natural environment.

Governments cannot continue to avoid the nexus between growing waste generation and rising consumption expenditure if programs aimed at reducing waste are to achieve their stated goal. Although highlighting the need to reduce and reuse will be more contentious than exhortations to recycle, such a shift in strategy is unavoidable if targets for reduced waste are to be met.

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Appendix

Consumer spending questionnaire

Household Spending

Q1. During the past **two weeks**, how much money do you estimate your family or household has spent on fresh food (e.g. meat, deli goods, fruit, vegetables, milk) that has been thrown away before being consumed?

Nothing <\$10 \$10-\$19 \$20-\$29 \$30-\$49 \$50+

Q2. During the past **two weeks**, how much money do you estimate your family or household has spent on takeaway food that has been thrown away rather than eaten?

Nothing <\$10 \$10-\$19 \$20-\$29 \$30-\$49 \$50+

Q3. During the past **two weeks**, what is your estimate of the dollar value of any frozen food you have thrown out?

Nothing <\$10 \$10-\$19 \$20-\$29 \$30-\$49 \$50+

Q4. During the past **two weeks**, how much money do you estimate your family or household has spent on home-cooked leftovers that have been thrown away rather than eaten?

Nothing <\$10 \$10-\$19 \$20-\$29 \$30-\$49 \$50+

Q5. Do you personally pay for the electricity in your household?

Yes No (skip to Q6)

Q5a. Some people leave electrical appliances (e.g. lights, TV, air-conditioners) on unnecessarily. Does this happen in your household?

Yes No (skip to Q6)

Q5b. If your household stopped leaving electrical appliances on unnecessarily, by what percentage do you think you would reduce your household's electricity use in an average month?

None 1-5% 6-10% 11-20% 21-30% 31-50% 51-100%

Q6. **In an average year**, how much money does your household spend on kitchen appliances (e.g. toasters, breadmakers, blenders) that never or rarely get used?

Nothing <\$30 \$30-\$99 \$100-\$199 \$200-\$499 \$500+

Personal Spending

Q7. On average, how much money do you spend **per year** on purchasing CDs/DVDs for yourself that you never listen to/watch?

Nothing <\$10 \$10-\$19 \$20-\$29 \$30-\$49 \$50-\$99 \$100+

Q8. On average, how much money do you spend **per year** on purchasing books and magazines for yourself that you never get around to reading?

Nothing <\$10 \$10-\$19 \$20-\$29 \$30-\$49 \$50-\$99 \$100+

Q9. On average, how much money do you spend **per year** on paying fines for late returns of DVDs/Videos/games?

Nothing <\$10 \$10-\$19 \$20-\$29 \$30-\$49 \$50-\$99 \$100+

Q10. On average, how much money do you spend **per week** on drinks in a bar or pub that you don't finish?

Nothing <\$5 \$5-\$9 \$10-\$19 \$20-\$49 \$50+

Q11. Do you have a credit card?

Yes No (skip to Q12)

Q11a. Do any of your cards have an interest free period?

Yes No (skip to Q12)

Q11b. Thinking only of the cards which do have interest free periods, according to your most recent monthly statement(s), how much interest were you charged on these cards in the month leading up to the statement(s)?

Nothing <\$20 \$21-\$49 \$50-\$99 \$100-\$199 \$200+

Q12. Now thinking about clothing. Excluding shoes and accessories and clothing for 'special events' such as weddings, over **an average year**, how much money do you spend on clothes that you only wear once or twice?

Nothing <\$30 \$30-\$49 \$50-\$99 \$100-\$199 \$200-\$499 \$500-\$999 \$1000+

Q13. **In an average year**, how much money do you spend on cosmetics and toiletries (e.g. perfume, aftershave, bath products) that you never or rarely use?

Nothing <\$30 \$30-\$49 \$50-\$99 \$100-\$199 \$200-\$499 \$500-\$999 \$1000+

Q14. **In an average year**, how much money do you spend on shoes, handbags and other accessories (e.g. scarves, ties, hats, jewellery) that you never or rarely wear/use?

Nothing <\$30 \$30-\$49 \$50-\$99 \$100-\$199 \$200-\$499 \$500-\$999 \$1000+

Q15. In an average year, how much money do you spend on electrical and computer equipment (e.g. electronic organisers, digital cameras, MP3 players) that never or rarely get used?

Nothing Less than \$99 \$100-\$499 \$500-\$999 \$1000-\$1499 \$1500+

Q16. Do you currently pay to be a member of a gym, health club or golf club?

Yes No (skip to Q17)

Q16a. How often would you say you use the facilities of the club?

Never Rarely Sometimes (skip to Q17) Regularly (skip to Q17)

Q16b. Please place a cross in the one box that best describes your membership fees. That is, how often do you pay your fees and how much do you pay each time? E.g. if you pay \$250 every 3 months then place a cross in the box in the '\$200-\$499' column and the '3 months' row).

Q17. Have you bought any exercise equipment in the last year (e.g. bicycle, exercise bike, weights)?

Yes No (skip to Q18)

Q17a. How often would you say you use this equipment?

Never Rarely Sometimes (skip to Q18) Regularly (skip to Q18)

Q17b. How much did you spend on the exercise equipment that you rarely or never use?

Nothing Less than \$99 \$100-\$199 \$200-\$499 \$500-\$999 \$1000+

Attitudes Towards Spending

Q18. Which of the following statements describes you best? For example, if the statement on the left describes you closely, choose 1. If the statement on the right describes you closely, choose 5. If you are half way between the two statements choose 3.

Q18a. When I buy items that don't get used I feel guilty	1	2	3	4	5	When I buy items that don't get used it doesn't bother me
Q18b. When shopping, I think carefully about how much use I'm going to get out of the things I buy	1	2	3	4	5	When shopping I rarely think about how much use I'm going to get out of the things I buy
Q18c. I often find that things I've bought don't get used often	1	2	3	4	5	I hardly ever buy things that don't get used often



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