Critical mass: how size inflation is displacing small

Keywords: anthropometric / apparel / size standards

Abstract

The system of identifying clothing by a number or code that does not reference body size has become known as ad hoc sizing. However, "Ad-hoc sizes have changed with time, often due to vanity labelling, an inflation in body dimensions associated with a size, to avoid confronting aging customers with uncomfortable anthropometric truth"[1]. Is size inflation a deliberate strategy of deceit or simply a technical adjustment by apparel companies to produce garments to fit an expanding market demographic?

It is possible to argue the size culture inherent in the Australian Standard "AS 1344–1997: Size coding scheme for women's clothing – Underwear, outerwear and foundation garments" when first adopted as the technical framework for mass market apparel in Australia in the early '70s, was a plausible representation of female size. It identified size 16 as the 'average' woman's size with measurements of bust/chest 95 cm, waist 75 cm, and hip 100 cm. This is supported by the definition of the size of an 18 year old in "AS 1182–1980: Size coding scheme for infants' and children's clothing – Underwear and outerwear" with identical girth measurements. Today this size definition is closer to that labelled a size 12 by the Myer (bust 95 cm, waist 75 cm, and hip 102 cm). Has the average woman increased or has size 12 been appropriated to satisfy the changing physique of the ageing fashion consumer?

In either case, what are the consequences of size inflation for smaller sizes? Where to next? Have smaller sizes become marginalised as 'skinny'? This paper provides a technical and historical critique of apparel standards in Australia by cross referencing Australian Standards for women's and children's apparel against public health children's growth tables. It looks at the consequences of fixed incremental size inflation on smaller sizes, and what happens when a 16 becomes a 12, an 8 becomes a 4, and a 6 becomes a 2. It also links size culture and identification with 1970s mass market retail culture.

[1] EN 13402. http://en.wikipedia.org/wiki/EN_13402, viewed 10 October 2006.

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Background

This paper is part of a broader research project into technical and cultural aspects of the apparel sizing systems for mass market apparel. It stems from experience in developing apparel for the corporate or uniform market – an area that provides an alternative perspective to apparel design and development, primarily because its purpose places functionality over fashionability and therefore operates on a different supply cycle. Technical information on body dimensions for all age groups is required to develop effective corporate product. A viable working knowledge, not based on incorrect assumptions of the body, is necessary as garment size must be accountable. The current perspective in Australia is still dependent on a dominant sizing culture instilled in Australian Standard *AS1344–1997: Size coding scheme for women's clothing* – Underwear, outerwear and foundation garments (Standards Australia 1997). This much maligned standard is considered to be technically irrelevant by most sectors of the Australian apparel industry who have developed their own laissez faire approach by inflating size to suit changing consumer demands (Cuthbertson 2007, p. 4). The aim of this paper is to investigate the reasons for and impact of size transgression that has taken place under the mantle of *AS 1344* since its introduction in the 1970s.

In particular, this research seeks to investigate the role that non-representational size designations that do not relate to body measurements have played in supporting size inflation. Now called 'vanity sizing', it implies the deliberate manipulation of size to 'play to a customer's vanity' (LaBat 2007, p. 100). The discussion of such is to the degree to which this is a deliberate strategy or basically a justifiable approach; an approach that has to accommodate an increasingly disparate market demographic within the limits of a viable stock model, existing manufacturing methods and an inadequate sizing framework based on a 'conjectural patchwork of European and American sizes' (Hoffman 1990, p. 12). However, what are the assumptions and consequences of size inflation especially for smaller sizes? Have they been displaced by this one way upward trend? If the margins have not been preserved in this process then this is likely to be the case.

This trend is examined firstly by investigating if *AS 1344* was ever a valid reference. Is there any evidence that this document which prescribes size and shape was ever a legitimate or useful reference for the production of mass market, ready-to-wear apparel in Australia? If so, at what

point did it become, as it is now considered, misrepresentative? Is it possible to compare the evolution of women's apparel size in Australia to those adopted in the United States (US) to differentiate these changes? Also, to what extent is the use of a numbered ad hoc code that does 'not refer to either body or garment measurement' (Petrova 2007, p. 60), an accomplice to this misrepresentation?

Size definitions that have no obvious relationship to body measurements can be manipulated or easily changed (Ashdown 1998). Thus today's size 12 can become tomorrow's size 10. The system of identifying clothing by a number or code that does not reference body may be the ideal convention for fashion apparel. If fashion survives on change and if 'Fashion that is anomalous to change is not fashion' (Lewis 2007, p. 309) then an ad hoc system may perfectly represent the mode but undermine the process of standardisation.

It is possible to argue the size definition for the 'average woman', as specified in *AS 1344* when first adopted in the early '70s, was a contrived but plausible representation of average female size. It cannot be proven if it ever represented the 'statistically average woman' as it was derived from data from a non empirical source, and there is no surviving statistical audit trail to validate how the standard was determined. Taylor and Shoben in their practical text, *Grading for the Fashion Industry* explain that 'the average figure ... represents the highest percentage of the population, and radiating out from it are progressively rarer combinations' (1984, p. 13). However the common point for the assumed 'average' figure in *AS 1344* can be identified from an analysis of the link between this standard and *AS 1182–1980: Size coding scheme for infants' and children's clothing (underwear and outerwear)* (Standards Australia, 1980) *(*refer Figure 1: fig 1.3 and 1.4*),* and the accepted industry practice of the time. A comparison with adopted and amended US apparel standards provides additional support for this description. These amendments can be used to benchmark the ad hoc or informal size shifts that have taken place within the Australian market in women's apparel and to compare the Australian average to the US size.

fig 1.1

Common size descriptors in use until 1972 (inches)

Size code	XXSSW	XSSW	SSW	SW	W	XW	OS
Bust inches	30	32	34	36	**38**	40	42

fig 1.2

L9-1970 Imperial Standard (reference standard) AS1344-1972 (inches)

Size code	8	10	12	14	16	18	20	22	24	26
Bust	30	32	34	36	**38**	40	42	44	46	48
Waist	22	24	26	28	**30**	32	34	36	38	40
Hip	32	34	36	38	**40**	42	44	46	48	50

fig 1.3

AS 1344-1975 Average Women - Metric conversion (cms)

Size code	8	10	12	14	16	18	20	22	24	26
Bust	75	80	85	90	**95**	100	105	110	115	120
Waist	55	60	65	70	**75**	80	85	90	95	100
Hip	80	85	90	95	**100**	105	110	115	120	125

(Standards Australia, 1975)

fig 1.4

AS 1182- 1980 Size coding scheme for infants' and children's outerwear (cms)

Size code - Years	8	10	12	14	16	18
chest	68	74	80	86	90	**95**
waist	60	62	64	66	70	**75**
hip	72	78	84	90	95	**100**
height	130	140	150	160	165	**170**

(Standards Australia, 1980)

Figure 1. Comparative size code reference tables for average women size (fig 1.1, 1.2, 1.3) and infants' and children's outerwear (fig 1.4).

The average woman of the '70s

Australia's first clothing standard Australian Standard *L9*, was adopted in 1959, based on the United States Commercial Standard *(CS) 215–58: Body Measurements for the Sizing of Women's Patterns and Apparel* (Standards Australia, 1997). The *CS 215–58* standard was developed from anthropometric measurements of a large but 'unrepresentative sample' of white women during the late depression years of 1939–1940 (LaBat 2007, p. 94). While survey measurements and recommendations for classifying body types were published by the US Department of Agriculture in *Women's Measurements for Garment and Pattern Construction* in 1941 (O'Brien and Shelton, cited in LaBat 2007), it took until 1959 to publish *CS 215–58* at the request of the Mail Order Association of America (MOAA). The questionable validity of *CS 215–58* was confirmed by its amendment in 1970 using 1960–62 public health data that showed adults were then somewhat taller and heavier (Devarajan et al. 2002, p. 53). Sizes were amended ('bust girth was increased by one grade interval') and published in a new standard *PS 42–70* in 1971 (LaBat 2007, p. 95).

This statistical adjustment requested by the MOAA may be viewed as an early example of vanity sizing. The MOAA whose members had used *CS 215–58* to produce garments, found that the 'standard did not reduce returns due to poor fit' (LaBat 2007, p. 95). This is a difficult judgment to define as Lewis has observed 'absolute expressions of fit do not exist' (2007, p. 313). Consider also the influence of fashion changes that took place within this period, for example from the womanly constructed shapes of the post 1947 New Look with clinched waists and projected busts, to the youthful androgynous flat silhouettes of the mid sixties (Corps de Mode(S) 2006). Of these changes, Lewis has noted that 'when fashion changes from tight to loose the concept of fit is further displaced' (2007). Taylor and Shoben confirm this quandary:

> The problems of grading and sizing increase as the garment fit becomes closer to the actual body shape. Conversely, they decrease as the garment category becomes looser. The extremes may be represented by a sari and a brassiere (1984, p. 12).

Prior to the introduction of the Australian Standard *L9* the Australian apparel industry had adopted the two inch size interval, which was the common practice in the British imperial tailoring system (Aldrich 2007, p. 41). The two inch girth grade was an easy division to a half inch measure when working on a folded front or back pattern piece. It was directly interpreted into the five centimetre grade after Australia converted to the metric system. The following photo from the *David Jones Mail Order Autumn Winter Catalogue 1928* (refer Figure 2), shows a size range starting at size 34 inches for size 1, to 48 inches for size 8. Individual size descriptions for size ranges according to styles offered range from size 1 to 4, or 1 to 6.

Figure 2. Size schedules for frock sizes in *David Jones Mail Order Autumn Winter Catalogue 1928*.

The post-1969 Standards Association amendments to the original Australian Standard *L9* established the practice of labelling size by the US 'Misses' size code, with size descriptors from 8 to 26, rather than the inch size code measures. The origin of the Misses code is attributed to representing a pre woman's size in terms of age (e.g. 10, 12, 14, 16, and 18) and was first adopted when Butterick started producing printed paper patterns in 1867 (Ashdown et al. 2007, p. 332). Once past 18 years of age, girls were considered women and sizes moved to bust representations with sizes of 34, 36, 38 inches etc. (Ashdown et al. 2007, p. 336). As the Australian market was less extensive than the US market, it was not viable to differentiate market segments via separate size categories for mass market apparel, e.g. Juniors, Misses, Women's and Half-sizes. Thus the two inch fixed incremental grade protocol was maintained with Misses size descriptors.

The point of difference between Australia and the US was and still is the method of grading sizes. Since the introduction of *CS 215–58*, *PS 42–70*, and the American Society for Testing and Materials current standard *ASTM D5585–95* (ASTM 1995), the US grading system is based on a variable amount per size for girth increases and decreases in the Misses size grade (refer Figure 2, fig 2.1 and 2.2). Smaller sizes grade one inch, middle sizes grade one and a half inches, and above larger sizes at two inches. Size designation codes identified by the same protocol of 8, 10, 12, 14, 16 etc. consequently have a different meaning to *AS 1344* size because of grading variables. In *AS 1344,* girth measurements increase and decrease by a fixed amount for each size i.e. by two inches or the metric equivalent of five cm. To further explain, when considering this difference, the US grade protocol in former standard *PS 42–70*, and the current standard *ASTM D5585–95*, increase a size 8 by one inch (two and a half cm) to a achieve a size 10, however in *AS 1344* the increase from an 8 to a 10 is twice the amount at five cm. Accordingly a direct comparison or conversion between Australian and US apparel size is not possible as they are not developed on an equivalent scale.

British sizing, while also being labelled by the Misses code has struggled since metrication with the four cm size break specified in British Standard *BS 3666:1982* (Aldrich, p. 44) and 'the general practice in the past … to use the 2 inch or 5 cm grade' (Taylor and Shoben, p. 15).

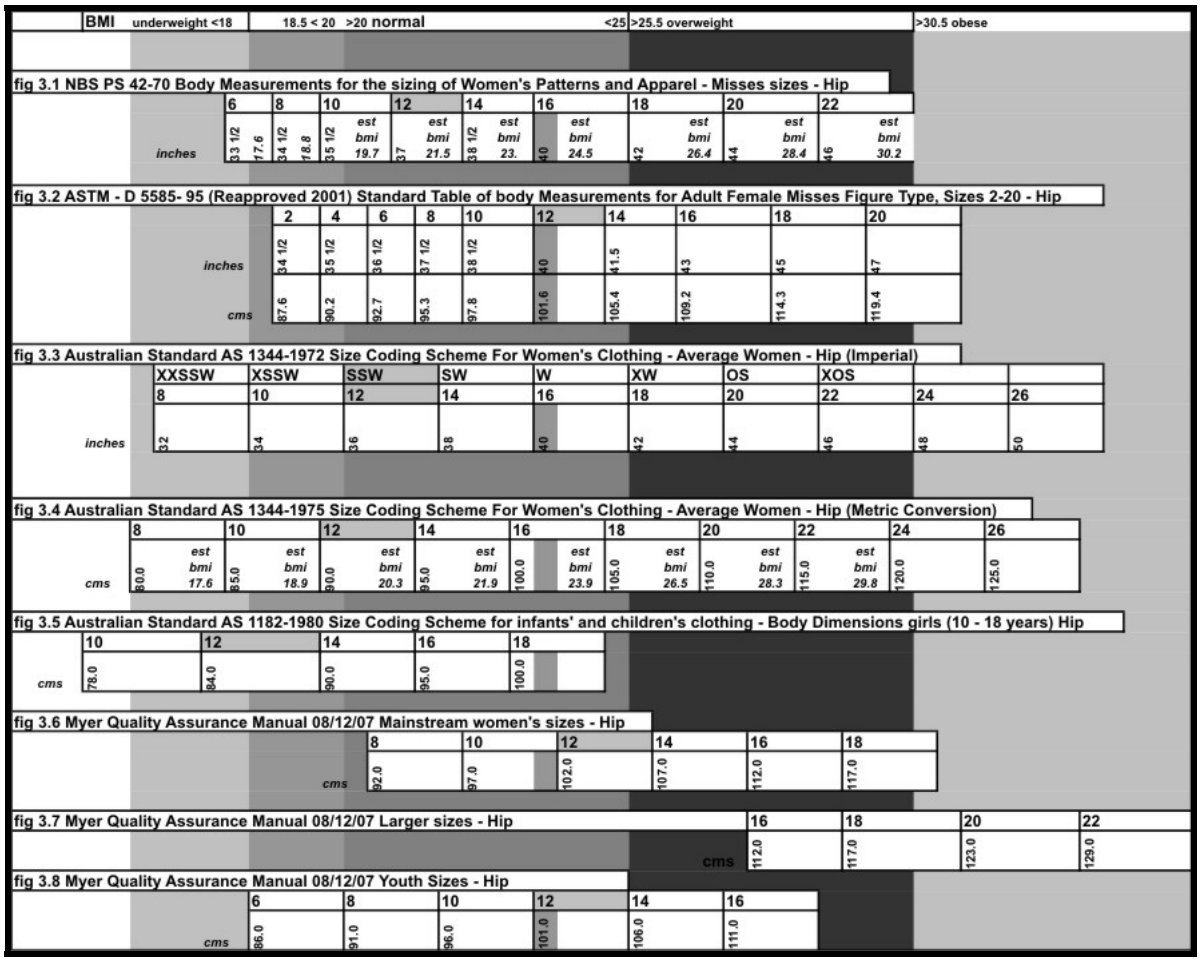

Figure 3. A comparison of hip measurements between fig 3.1 Standard *NBS PS42–70* (NBS 1971), fig 3.2 *ASTM–D 5585*–95 (ASTM D5585), fig 3.3 Australian Standard *AS 1344–1972*, fig 3.4 Australian Standard *AS1344–1975*, fig 3.5 Australian Standard *AS1182–1980*, fig 3.6, 3.7, 3.8 Myer Quality Assurance Manual (QAM2000).

Grade increments (the amount of increase or decrease per size) are represented by proportional amounts according to the value of the increase or decrease. The 100 cm or 40 inch measurement point is highlighted on each table. Tables are benchmarked against relative body mass index (BMI) classifications.

Motivated by the impending amendment in the late 1960s to *CS 215–58* in the US, the Standards Association of Australia adopted a grass roots approach to conducting its own survey ('Calling All Girls') via *The Australian Women's Weekly* magazine to update Australian Standard *L9* and create a unique standard:

> By now a new system of sizing has been adopted in the US by the Measurement Standard Committee of the Pattern Fashion Industry ... One of our biggest problems in Australia is that we do not have a standard sizing system of our own. We follow American Standards or European Standards. This is very unfortunate as, many Australian girls and women lead a more active sporting life, and as a result our shapes are often different from women in other parts of the world (*The Australian Women's Weekly* 10 September 1969, p. 40).

'Calling All Girls' requested all females between the age of 10 and 75 to send in their measurements. Height, bust, waist and hip measurements were self-reported by 11,455 women (Standards Australia 1997, p. 3), taken as advised:

> ... over your foundation garments. For young girls or women who don't wear foundations, take them over a thin vest and briefs (*The Australian Women's Weekly* 10 September 1969, p. 40).

Age categories were defined for women by groupings as 17–19, 20–25, 26–45, 46–75, and for girls as 10, 11, 12, 13, 14, 15, and 16. This was a defining moment for Australian women, as all editions of *AS 1344* (1972, 1975 and 1997) derive data from this source (Standards Australia 1997, p. 2). *AS 1344* still influences the size and shape of garments made for the Australian market, albeit in a hybrid format. Numerous attempts to update data in *AS 1344–1997* have been unsuccessful (Kennedy 2006). By comparison the process of amendment of women's apparel standards in the US has undergone a number of formal amendments, albeit without new anthropometric survey data. The introductory paragraph to *ASTM D5585,* the current voluntary standard for women's apparel in the US, provides a summary on the variables and intangibilities of these documents:

> It is important to note that the body measurements herein have been derived from designer experience and market observations and crosschecked with available databases in the attempt to identify current customer characteristics and changing proportions and not from new nationwide anthropometric research (ASTM D5585).

At the time of the 'Calling All Girls' request, fashion pages in *The Australian Women's Weekly* showed a variety of size descriptors, in three different formats: imperial measurements for

separate item blouses 32 to 36 inches, and pants 24 to 30 inches; whole garment descriptions in XXSSW to W (refer Figure 1, fig 1.1); and references to sizes 8 to 12 for department stores' garments. *AS 1344–1972* was therefore derived from the composite of existing accepted practices (the two inch size break), the self-reported data from 11,445 women, and the Misses size codes descriptors. Its ethos rather than methodology was influenced by the O'Brien and Shelton 1941 (cited in Winks 1997; LaBat 2007) anthropometric research that resulted in the inaugural US *CS 215–58.*

Thus it can be assumed that *AS 1344* was loosely based on identifying a mid point statistical average (from self-reported data) for the women's size and shape, constructed by foundation garments (Standards Australia 1997, p. 4), and extrapolated by a fixed lineal incremental two inch decrease and increase in girth. Fixed lineal grade increments simply scale the average shape, and assume as described by Schofield 'a premise about a relationship between measurements of the body that is not empirically tested' (2007, p. 179). Efficient mass production is based on achieving an economy of scale, thus 'size development strives to fit the most people with the least number of sizes' (Loker 2007, p. 249). In a critique of *AS 1344*, Winks highlighted that the 'fixed incremental approach shows that the measurements are not directly taken from survey data' (Winks 1997, p. 48). The advantage in identifying the average size is that it creates a fixed point of consistency which can be easily scaled up or down to attain previous and subsequent sizes. It is the quest for the base size and shape, as close as possible to 'the statistical average', and to be successful should represent the 'dimensions and proportions' of the target market (Schofield 2007, p. 158).

The representation of the Australian average was aided in 1969 by the ability to construct shape by the foundation garment, the accepted supplement and necessary addition to the body, since the 1920s (Best 1991). As further explained by Best, 'the sought after ideal became in statistical language the average figure type' (1991). This addition to the body made size specifications within *AS 1344* less crucial as the foundation garment helped achieve the homogenous ideal shape, a shape that it constructed and controlled. This premise was subsequently undone by the abandonment of the foundation garment, which having been softened to a 'panty girdle or control panty' by the mid 1960s, was abandoned to the hipster brief by the early 1970s (Chenoune 1999, p. 180).

The assumption is that the size of the ‘statistically average woman’ was labelled with an abbreviated narrative description of ‘W’ with a bust, waist and hip of 38–30–40 inches (95–75–100 cm) (refer Figure 1, fig 1.1). Post the ‘Calling All Girls’ survey this became a size 16 with a bust, waist and hip of 38–30–40 inches (95–75–100 cm) in *AS 1344*. To further support the construct that 16 was the size of the average woman, a comparison of the body dimensions of the size 18 (referring to years in age), with a chest, waist and hip of 95–75–100 centimetres, specified in the children’s size coding scheme *AS1182–1980*, shows identical girth measurements (refer Figure 1, fig 1.3). Was this assumed as the point of maturity where a girl becomes a woman? This was the Butterick paper pattern rationale as previously cited (Ashdown et al., p. 336). It is a logic that has been blurred by the confusion of label identifiers not differentiating between size by ad hoc code, or size by age reference, and the transgression of Misses size codes to represent the mature woman.

The mature woman’s stature (size 16) can be defined by weight and height data detailed in *AS 1344*. The importance of which had been identified by O’Brien and Shelton (1941), and as explained by Winks:

> ... a stature-weight combination would be the best basis for classifying women’s body types for the establishment of a standard system for garment and pattern sizes (Winks 1997, p. 14).

As data for weight and height is detailed in *AS1344–1997* it is possible to calculate the associated body mass index (BMI) according to size. BMI is defined as the individual's body weight divided by the square of their height (Australian Bureau of Statistics [ABS] 1995, p. 57). It is a measure that is meant to broadly categorise populations for purely statistical purposes. ‘As noted, its accuracy in relation to actual levels of body fat is easily distorted by such factors as fitness level, muscle mass, bone structure, gender, and ethnicity’ (Wikipedia BMI). However, BMI is a useful benchmark to assess size and provides a better comparative reference than ad hoc size codes. According to O’Brien and Shelton’s 1941 anthropometric research that resulted in the first commercial standard *CS 215–58*, the stature-weight combination was ‘considered the best basis for classifying women’s body types’ (cited in Winks 1997, p. 14).

Both height and weight information are specified in *AS 1344–1975/1997*. Height information was requested from survey participants in *The Australian’s Women’s Weekly* survey ‘Calling All

Girls'. It is unclear from where weight data was derived. The BMI calculation for the size 16 with a height of 165 cm and 65 kg has a calculated BMI of 23.9 and is within the acceptable weight range. In the Australian Bureau of Statistics (ABS) 1995 National Nutrition Survey (NNS) the mean height for women 19 to 24 years is 163.9 cm and weight is 63.4 kg (Australian Bureau of Statistics [ABS] 1995, pp. 36–7). This produces a BMI of 23.6. However, is the size 16 label an acceptable size for the average woman today?

In 1969, women's magazines confirmed the young and slim market. *The Australian Woman's Weekly* (30 July 1969) fashion pages described sizes in the 'FASHIONS IN THE SHOPS' pages, by XXSSW to SW, XSSW to SW, 8 to 16, 10 to 16 and 32 to 36 and pages titled 'FOR THE OLDER WOMAN', show sizes XXSSW–W, indicating a profile with a BMI index of less than 25. The 'older woman' fashion profile was replaced in the 22 October 1969 edition with a title 'FOR THE OVER THIRTIES'. This page shows dresses in a size range XSSW to XW, pushing the size definition into the BMI overweight classification of 26.5 (refer Figure 3, fig 2.3). By disclosing size in fashion editorial pages, aspiring consumers were able to assess if styles would be suitable to their size or figure type.

The success of *AS 1344* as a valid reference for size when introduced in the '70s should be considered in the context of the explosion of the youth market and the teenage fashion demands of the baby boomer generation who in 1970 were aged 9 to 24 (Salt 2007, p. 111). This was the first generation whose 'experience of the world was not shaped by direct experience, but by mass media' (O'Hanlon 2006, p.13). *Dolly* magazine was launched in 1970 as a monthly teen magazine. Its target age group was and still is defined at the 14 to 17 year olds (Wikipedia Dolly). There was no need to reference size on its fashion pages. Dolly fashion was for the still developing adolescent female. Mail order advertisements confirm the young and adolescent profile. The buying model that covered young fashion at the time predominantly spanned four sizes, from 8 to 14 (= XXSSW to SW), or 10 to 16 (= XSSW to W). Thus the mid point for a profile in this range of 8 to 16 is a size 12, BMI of 20.4 and a hip of 36 inches (90 cm) (refer Figure 3, fig. 3.4). This size range is within the normal or a BMI of less than 25.

Figure 4. Dolly mail order offer illustrating size 8, 10, 12, 14, with bust, waist and hip measurements that comply with *AS 1344* imperial size profiles.

The young baby boomer

Unlike *The Australian Woman's Weekly,* whose readership was mature women, *Dolly* represented adolescent females. Their size profiles had been aligned to the clothing standards framework by the use of the Misses size profile of 8, 10, 12 and 14. This replaced the women's codes XXSSW to SW, XSSW to SW, which appears to have lasted to some extent until the introduction of the metric edition of *AS 1344–1972*. This youth size profile was perfectly suited to the new young consumers of the day, baby boomers born between 1946 and 1960 (Davis 1997). As 'the first generation to be immersed in a media-driven culture of consumerism' (O'Hanlon 2006), baby boomers have, as described by Davis:

> ... traditionally lead a clubbish lifestyle organised around happens and trends, from the twist to hula hoops to Frisbees to disco to aerobics to line dancing (1997 p. 7).

Consumer trend forecaster and business advisor, Bernard Salt, sites that this generation has been ‘the defining force in Australian popular culture for three decades’ (2007 p. 85) and that ‘Craig Kimberley invented Just Jeans in 1972 to service the teenage fashion demands of the baby boomers’ (2007 p. 111). The teenage size profile can be identified from an editorial feature in *Dolly* December 1973, *Dolly’s guides to the tops in Jeans*. A range of brands are featured including Australian labels Daily Planet (8–14), Brian Rochford (8–16), Mr Simon (8–14), Ricky Reed (8–16), and US bands Levis (8–16), Amco (all sizes), and Wrangler (8–18).

In 1970, baby boomers were aged 9 to 24 years, and were a markedly different group to the generation before them – ‘frugals’ (Salt’s description for this older generation) were not into fashion (2007, p. 119). The point of difference in terms of their consumer behaviour is described by Salt as having survived the depression and the war years. Their style was influenced by the post New Look 1950s womanly constructed hourglass silhouette of projecting busts, small waists, and swirling or pencils slim skirts (Corps de Mode(S) 2006). The micro mini, hot pant and girdle free styles from the late ’60s were styles worn by their daughters who grew up in this era of unprecedented prosperity. With money to spend they were able to ‘impose an aesthetic canon in their own image: an adolescent silhouette’ (2006).

Vintage clothing from the ’70s and ’80s found for sale on eBay today shows the level of compliance to size standards described in *AS 1344*. Commonly described as ‘vintage size’, these listings confirm the size demographic. Size labels stating measurements for bust, waist and hip were used during the period of metric conversion to advise customers of the new size.

Figure 5. Photo of a dress listed on eBay as '1970s vintage/retro zip up shirt style dress' showing complying *AS 1344* metric size.

70's·vintage·maxi·dress¤	
*LABEL¤	Osti·Fashions¤
*FABRIC¤	Triacetate·Nylon¶ ¤
*SIZE·/·BEST·FITS·/¶ MEASUREMENTS¤	Labelled·a·vtg·sz·14·but·will·suit·a·modern°Aus°10/12/m·best.·Has·been·pinned·slightly·to·fit·mannequin¶ *bust·95cm·*waist·77cm·*hip·free*length153cm¶ 1·inch·=·2.5cm¤
*FEATURES·/¶ EXTRA·INFO¤	*flutter·sleeves*darted/fitted·bodice·*low·scoop·back·with·zip·*quality·fabric·with·fabulous·retro·print¤
*CONDITION¤	Excellent·Vintage·Condition!·¤
~~*~~*~~*~~¤	

Figure 6. Photo of a dress listed on eBay as '1970s vintage maxi dress' describing size as 'vtg'.

Metrification in Australia forced a new discipline via the introduction of new labels detailing metric measurements for consumer reference (Standards Australia 1975, p. 2). The introduction of the metric system also provided a technical point of departure from the previous two inch imperial size breaks. The process of metric conversion introduced a new pragmatic approach by 'rounding off' the size breaks, 'to give clarity and flow within the charts' (1975). For example the 34 inch metric conversion equated to 86.36 cm and was rounded to 85 cm. The effect was a decrease, or reverse vanity size of the size scale (refer Figure 2 fig 2.4). The five cm break across 10 sizes was a decision that maintained the minimum sizes over the maximum spread. Did this contribute to technical disregard of the Australian Standard or were there other forces at work?

In examining this assertion, it is possible to explain the degree of size appropriation that has taken place over 30 years since the adoption of *AS 1344* via a case study of the winner of the *Dolly* (January 1972, p. 32) diet competition. The winner, '19 year old Erin from Prospect in Adelaide', who, 'after years of being a fattie', 'suddenly has a model girl figure' by shedding '19 pounds (8.6 kg) over three weeks' (1972). Her morphology both pre and post diet and 30 year evolved garment size forecast, can be benchmarked according to the 2000 Myer retail apparel quality assurance size standards to assess the degree of size shift over this period.[2]

At 5ft 4in (162.5 cm) with a pre diet weight of 9 stone 12 pounds (62.5 kg) 'fattie' Erin's BMI was 23.6 and within the acceptable weight range. Her dress size was described as an SW.

> I used to be thin, that was when I first started high school. Then I started putting on weight. By third year I was up to 9 stone and I kept going. At one stage I was over 10 stone (1972).

Her desire to lose weight was also motivated by her desire to fit into a size XSSW wedding dress, as her fiancé said '… he wouldn't marry me unless I could fit into the dress' (1972). Calculating her 19 pounds loss, Erin's post diet BMI dropped to 20.4. Her dress size is described as changing two sizes, while her before and after measurement data indicates one size change. Regardless of how *Dolly* described Erin's dress size in the account it is possible to

[2] The Myer department stores' quality assurance protocols were established in the mid 1990s for the development of their private label product. They have maintained a methodological commitment to product development and fit since that time and are considered influential in establishing apparel benchmarks for the industry and consumers.

benchmark her BMI pre diet size (23.6) against the height and weight data detailed in *AS 1344 1975/1997* to a size 16 (refer Figure 2. fig 2.4). This is the same BMI previously identified as the average of the 1995 NNS for 19 to 24 years and the W or women's size.

Translating Erin's size equivalent by the Myer Quality Assurance Department 2000 guidelines Myer Miss Shop size standards, her size would be a 12 and her post diet BMI at 20.4 defines her as a size 8. Thus in 1970 a BMI of 23.6 = size 16, in 2000 a BMI of 23.6 = 12, according to the Myer Quality Assurance Standards (QAM 2000).

Erin would have been 48 years old in 2000. By Erin's pre diet morphology, and hypothetically adjusting her BMI by NNS 1995 data by her age group average (45–65), it would be 27.4. At 48 and with a BMI of 27.4 she would fit within the Myer 14 to 16 size range (QAM 2000). Thus as she has aged, her BMI has increased but her dress size has decreased. She has been lucky enough to be a member of a generation who according to Salt as '… they age they evolve fashion to disguise the decline of their bodies' (2007 p. 86). This level of denial of ageing is supported by O'Hanlon who in his essay *My Generation* declares:

> … we're reluctant to let go of our youth. If anything, we reject ageing altogether, marketing to ourselves the idea that it's a state of mind: with the right science and medicine (preferably synthesised within a viable consumer product), a healthy diet, regular exercise and a little hybrid spirituality, we might be able to live forever (2006, p. 15).

Female baby boomers have a powerful bond with the size profile and culture that was adopted for 1970s young fashion merchandise i.e. 8, 10, 12, 14 or 16, where 12 was considered the middle size and 16 the woman's size. The system was instigated to provide young and groovy 1970s fashion styling, for a generation who grew up in this era of 'unprecedented prosperity' (Davis 1997, p. 1) and have remained avid supporters of consumerism ever since. 'Boomers have made more stuff, and sold more stuff, than any other generation' (Schultz 2006, p. 9). Their spending power and willingness to stay in fashion has forced the evolution of the traditional buying model of 8–16 to suit their morphology. Ad hoc size definitions that do not relate to body size have been willing accomplices. The system is further distorted as the statistical average size moves further from the ideal of the young and thin.

Fashion merchandise is bought according to an evolutionary model based on sales history, and as explained by David Bush, a buyer with David Jones for 20 years, is a 'mathematical process'. 'We look at the previous season's history, store by store and also which garments – skirts, shirts – sold well' (Zamiatin 2007, p. 15). Garment size is part of this history. When garments at the larger end of the size scale report strong sales, the assumption is that women are larger and garment dimensions should be changed to satisfy this trend. The trend is hidden by maintaining the traditional size profile within the buying model. Thus brands can age with their customers. This is a factor in brand evolution that has alienated younger and smaller customers. Susie Holt, Country Road's General Manager for design and product development has been brought in to 'attract new twenty – and thirtysomething customers without alienating the older ones' (Zamiatin, 2007, p. 13).

Size inflation has been denounced by Standards Australia who in the forward of *AS 1344–1997* state:

> This edition confirms the data in the previous edition, due to the absence of a more up-to-date survey. With this in mind the committee wishes to mention that the increasing trend of labelling size codes by transposing the size code one or more position to the right of its correct measurement currently shown in Table A1. This trend is to be discouraged as it merely creates uncertainty of fit in the minds of consumers and detracts from the usefulness of a size code system (Standards Australia 1997, p. 2).

In April 1995 in a meeting of the Standards Australia Clothing Committee CS/92 – Sizing Systems for Clothing, representatives from the Retailers Council of Australia, Mr D Miller-Randle and Mr M French explained retailers concerns with the standards framework:

> … retailers have been concerned since the 80's but have managed with tricks of the trade, especially in relation to older women's clothing. A 14 has been labelled as a 12 or 10 as it's perceived as being flattering. Manufacturers had drifted away from the Standard by 1982. Young women 14–21 years were going through the sizes rapidly, the women's centre of distribution was a 14–16 not a 10–12.

Mr French pointed out that:

> It's when garments get smaller and shorter you realize how wrong sizing is. Not only is the code really a size up but the bust, waist, hip relationship changed (Standards Australia 1995).

This confirms that retailers in their quest to satisfy the fashion demands of ageing consumers, have been able to adjust the size of merchandise to suit the changing 'centre of distribution'.

While Bernard Salt's observations may not be considered a scholarly critique of the boomer generation, his approach links demographic, business and consumer behaviour. He describes that when baby boomers started to approach 40 years in 1982 they 'shifted from youth to middle age' they 'put on weight when they pushed into their 40s' and that 'Boomer women moved from 'hip young mum' to 'middle-aged mother' during this decade' (Salt 2007, p. 40).

This trend is illustrated in Figure 7 which shows increasing levels of BMI moving into the overweight and obese categories with age.

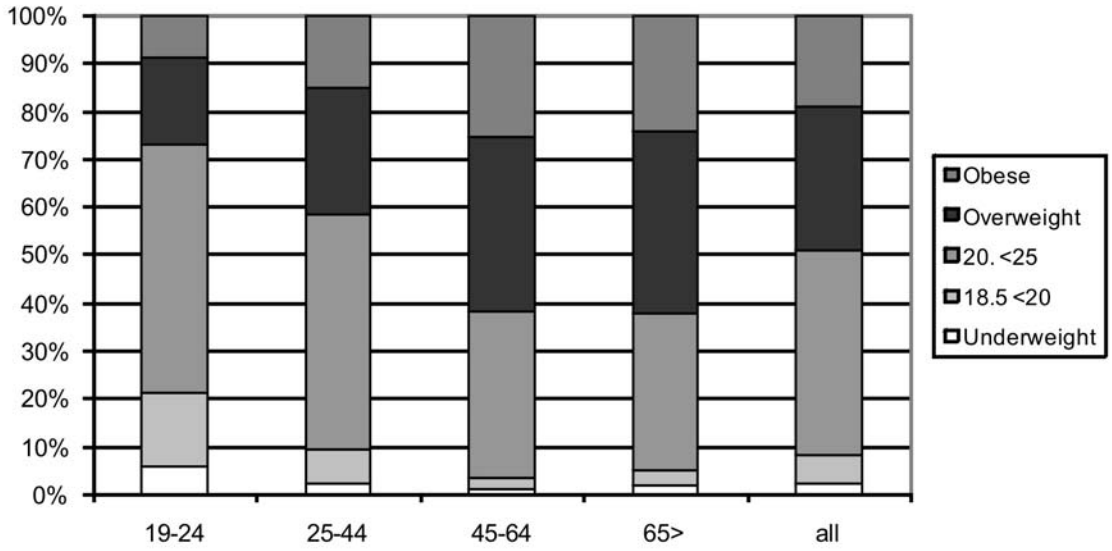

Figure 7. BMI categories according to age groups.
(Source: Australian Bureau of Statistics 1995, National Nutrition Survey: Users' Guide, Table 22, Persons aged 19 years and over Body Mass Index, ABS, Canberra, p. 38.)

Size inflation is a market correction tool or 'trick of the trade' that adjusts the buying model to satisfy demand and maintain merchandise status quo. The quotes from the retailers confirm the expanding market. Mr Miller-Randle confirms this by describing the differentiation of young women's size for 14 to 21 year olds from women's size at 14–16. Mr French's remarks highlight the systemic problem with grade increments that make incorrect assumptions about body size 'used in practice but not empirically tested' (Schofield 2007, p. 179). This assumption is especially incorrect when it comes to smaller size and shape, because of the change in the relationship to the bust, waist and hip. *AS 1344* assumes fixed proportional body measurements for all sizes. This error can be attributed to the fact that the standard's data was derived from a non empirical source, and is conditional upon wearing foundation garments to construct the prescribed hourglass shape represented in *AS 1344* (Kennedy 2006).

US vs. Australian standards

Returning to the comparison of US size to Australian size it is possible to trace the trend in size shift that has occurred by way of formal amendment in the US and by surrogate amendment in Australia. Figure 3, fig 3.1 ranks the hip measurement for the US standard *PS 42–70* according to grade increments. It shows a size 12 with a hip measurement of 37 inches and a BMI of 21.5. As previously explained this standard was the amended version of the first US standard *CS 215–58*, based on the O'Brien and Shelton 1941 anthropometric database (NBS 1971). By 2001 standard *D5585* ranks a size 12 hip at 40 inches or 101 cm (Figure 3. fig 3.2). This equals the Myer size 12 hip of 102 cm or 40 inches (Figure 3. fig 3.6 and 3.8). Thus in both countries the 'women's centre of distribution' as described by retailer Miller-Randle prefers to be called a size 12. Retail merchandise models appear to self regulate by adjusting size 12 to match the shifting mid point. Size 12 has been appropriated to satisfy the changing physique of the ageing fashion consumer, rather than the ageing fashion customer changing size.

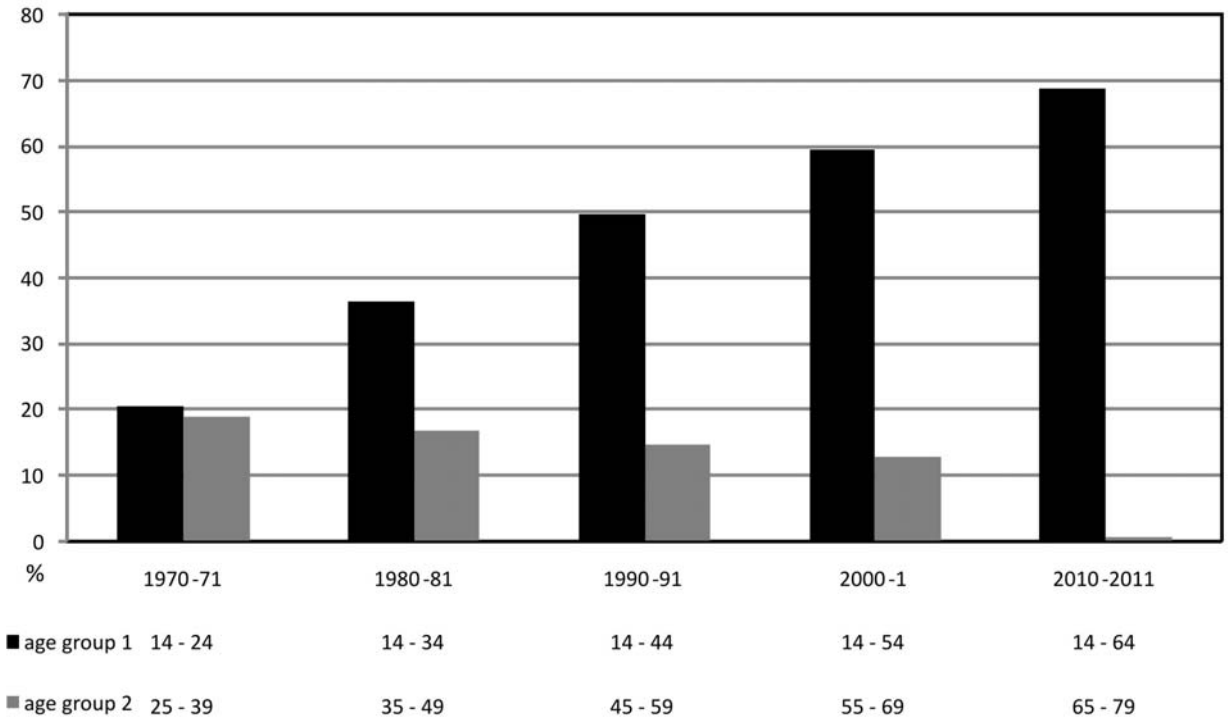

Figure 8. Represents females by percentage of population according to age groups.
Source: Australian Bureau of Statistics 2007, 3222.0 – *Population Projections, Australia,* ABS, Canberra.

Figure 8 represents Australian population data for females as a percentage of population in two age groups spanning ten year periods. Age group 1 in 1970–71 shows the 1970s eligible fashion consumers from the age of 14 and represents 20.5% of the female population. Age group 2 represents 18.9% of the previous generation females when they are 15 years older. Move the 1970s eligible fashion consumers on ten years and include more fashion consumers from the age of 14 and the percentage of population increases to 36.3% in 1980–81. By 2000–1 the eligible fashion female represents 60% of the population. In 2010 the market reaches critical mass when the total number of eligible fashion females are aged from 14–64 and represent 68.8% of the total female population (Australian Bureau of Statistics [ABS] 2007). At this stage the demographic for the eligible fashion consumer comprises a very complex market profile which has fundamentally moved beyond the parameters of the size 8–16 *AS 1344* framework. At best it may have provided 10 to 15 years of size guidance. A degree of compliance can be observed at a time when the fashion and fit 'represented the dimensions and proportions of their target market' (Schofield 2007, p. 158), the young and slim. However as 'baby-boomers shifted

from youth to middle age' (Salt 2007, p. 40), the statistical average size moved beyond the ideal and the *AS 1344* framework became displaced.

In 1990, *SewTrade,* magazine the official journal of the Clothing and Footwear Institute in Australia, mounted a campaign on behalf of the industry and consumer groups requesting that the National Nutrition Survey be extended to include anthropometric measurement data to help amend what they correctly described as a sizing system 'based on a conjectural patchwork of European and American sizes'. While extensive support was received from 'educationalists … designers and consumers', no support was received from apparel manufacturers and the lobby was unsuccessful. Editorial comment from *SewTrade* magazine at the time posed a number of reasons for this lack of support:

> Is the prospect of replacing all existing patterns with revised sizes too costly and troublesome? Is it easier to put this decision in the too-hard basket until this once-in-a-lifetime opportunity is overtaken by events? Is it easier to protest that manufacturers will make whatever retailers specify, therefore if the retailers want it they will ask for it? (Hoffman 1990, p. 12)

This comment pre-dates the significant changes that occurred to the merchandise supply model. Mr Miller-Randle's statement at the Standards Australia CS/92 meeting in 1995 confirms retailers influence. At this point department stores began to develop their own in-house brands. They directly controlled their own merchandised product rather than purchasing from wholesale ranges. Quality assurance procedures, including garment size specifications were required to control the supply of in-house merchandise. With wholesale ranges this function is the responsibility of the wholesaler. Retailers now have great influence over size definitions in the marketplace and are able to make adjustments according to buying trends. A trend since the 1980s has been to adjust up. However has this practice of 'transposing the size code one or more position to the right' (Standards Australia 1997, p. 2) been at the expense of smaller sizes?

The vanishing small

When *AS 1344* was introduced in the 1970s the smallest size represented was a size 8 and outlined a petite person who weighed 45 kg and was 160 cm tall (BMI = 17.6). The bust, waist and hip measurement for this size is 75–55–80 cm. This could have been the size of a ten year

old as the 'Calling All Girls' survey requested size information from age 10 to 75 '… to classify figure types of women under various age groups. For girls from ten years to 16 years each year is important in figure development' (*The Australian Women's Weekly* 1969, 10 September, p. 40).

Considering that the eligible fashion consumer has been marketed to, from (and before) the age of 14, size profiles reflect that this demographic is still physically developing. A BMI of less than 18.5 cannot necessarily be classified as underweight, as 'adolescents below the age of 18 years must be evaluated against age and gender reference standards' (State Government of Victoria Department of Human Services, Child Health Record).

The 1995 National Nutrition Survey for age 12–15 years, shows that 35% of this cohort is 49 kg and under; and that 44% are under 159 cm in height (ABS 1995). Anthropometric measurements of 5,500 children aged 5 to 16 from the *NSW Schools Physical Activity and Nutrition Survey (SPANS) 2004* (Booth et al. 2006), shows the median BMI for children aged 13.3 years old to be 19.8 and for 15.3 years to be 20.6 (Booth et al. 2006, Appendix L). Thus half the population for these age groups has a BMI of less than 19.8 and 20.6 respectively. To further support the idea that *AS 1344* was youth size profile, the median waist measurement for the SPANS 15.3 year old is 64.1 cm, which is within tolerance of the *AS 1344* size 12 waist measurement of 65 cm. 90% of the SPANS 15 year old population matches the *AS 1344* size 8 to 16 waist profile [3] (Booth et al. 2006, Appendix L).

The size definitions in *AS1344–1975/1997* for size 8, 10 and 12 catered to this size profile (refer Figure 3 fig 3.4). By Myer Miss Shop size specifications (refer Figure 3 fig 3.8) a size 6 equals the *AS 1344* size 10, a size 8 equals the *AS 1344* size 12. The *AS 1344* size 8 is not represented, however if it were, by the equivalent grade it would be a Miss Shop size 4.

[3] AS 1344 Waist measurements/SPANS waist measurements (15.3 years)
size 8 = 55 cm / 5th percentile 55.5 cm
size 10 = 60 cm / 30th percentile 60.5 cm
size 12 = 65 cm / 50th percentile 64.1 cm
size 14 = 70 cm / 80th percentile 70.8 cm
size 16 = 75 cm / 90th percentile 74.0 cm

To make this comparison to the US *ASTM–D 5585–95* Misses size (refer Figure 3 fig 3.2), a size 2 is slightly larger than the Myer Youth (refer Figure 3 fig 3.8) size 6. A size 0 would be needed to cover the equivalent sizes. Thus size inflation has displaced small: a systemic shift confirmed by Daisy Veitch, the instigator of the 2002, *National Size and Shape Survey of Australia* (Kinanthreport 2003).

> These women used to be a size eight, they became a size 6 and then they became a size 4 and now they can't find any thing in the shop that fits them and they are forced to go shopping in the children's wear department (Cuthbertson 2007, p. 5).

This small size demographic is now associated with the 'skinny or size 0' (Kay 2006) model syndrome, which is the same size 8 to 10 physical profile detailed in *AS 1344* (refer Figure 3 fig 3.4). The 'women are getting bigger' argument claiming that the average female's size 'has increased substantially over the past few decades' (Berry & Henneberg 1997, p. 83) is made without the qualification of age. WFF Kemsley acknowledged the age/body relationship in Women's Measurements and Sizes in the 1957 published results of the British anthropometric survey (Kemsley 1957). Differences in the size of the British 'statistical average woman' according to the Kemsley groupings is explained by Taylor and Shoben by age categories of 18 to 29, 30 to 44, and 45 to 65 years (Kemsley cited in Taylor and Shoben 1984, p.14), with calculated BMIs of 21.9, 23.6 and 28.5 respectively. Comparing youth size to grown adults is misleading.

Size inflation has displaced youth/small size. The contradiction now being that this subjugation for the ageing fashion consumer has not been supported by an acceptable fashion narrative, a narrative that still prefers to represent the image of the young and the slim. A recent fashion editorial in *The Age* newspaper featured a report on a fashion agent who represents a stable of 'trend-transcendent' labels described as meaning 'they reflect the designer's vision more than fads', with a consumer older than 'fashion's mainstream core market of 16–24 year olds and prepared to pay a higher price for originality'. The article discusses the dilemma the agent faces as her newest 'clever young designer' refuses to cut anything over a size 12 to maintain a model proportioned image. This 'unkind snobbery' prefers to exclude 'the average sized women, often older and with the intellect and income to afford these designer's clothes …' (Breen Burns 2007). An absence of reliable anthropometric data deepens this void. The size and the shape of

consumers outside the model proportioned image is not commonly understood or referenced. In short, it is easier to design for and produce apparel within a small and homogenous grouping.

Conclusion

This paper has examined the changing boundaries of the size definitions of mass market apparel, specifically the trend (vanity sizing) to inflate size profiles while maintaining size code descriptions. This prompts the question: is this practice a deliberate strategy intended to exploit anthropometric denial or a laissez faire approach to satisfy evolving market conditions? Whichever the case, both situations marginalise those it excludes.

The Australian Standards framework for women's apparel *AS 1344,* a quaint and methodologically questionable composite of 1960s anthropometric stereotypes, showed a level of compliance when first introduced in the 1970s. It represented the size of the emerging fashion consumer; a consumer whose profile fitted the *AS 1344* size 8 to 16 range and did not extend beyond the BMI definition of normal. Such is the nature of the relationship between this consumer and the market for this early adopter demographic that as they age, the market has been willing to adapt to meet their needs. Non-representative size codes have allowed this subjective reassignment to evolve.

A consequence of this size shift is that within the Australian market, a struggle for ownership of size has developed. Size shift has skewed the limited range of size options, creating a void at the small end, ironically, the profile initially colonised by young baby boomers. In the confusion over market segments that now cover the age ranges from 14 to 65+, smaller people have become displaced. Size codes of 8 to 10, that in the 1970s fitted slim youth, have changed meaning to refer to the smaller numbers of 2 and 4. In the US, these profiles read as 0 and assume an eating disorder. However this group still owns the preferred fashion paradigm, an ideal that is harder to attain from a position of ageing.

There are significant ramifications from size shift, especially for areas that operate on a different product cycle to fashion. This analysis is useful in providing an alternative view on how a system could be better developed to meet the needs of a changing market. The optimum system would transcend a proscriptive definition of size and provide a multimodal framework to reflect changing population profiles. In a complex market that needs to accommodate youth size, adults, a redefined middle age, and the elderly, a 'one profile fits all' does not work. Size

standards that prescribe anthropometric size and shape cannot keep up as the boundaries of what they are meant to define keep changing.

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