

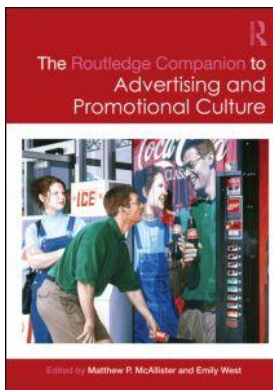
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## **The Routledge Companion to Advertising and Promotional Culture**

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### **The paradox of materiality**

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# THE PARADOX OF MATERIALITY: FASHION, MARKETING, AND THE PLANETARY ECOLOGY

*Juliet B. Schor*

In recent years, a historically unusual development has occurred. New, branded, fashionable clothing can be acquired at strikingly low prices. Used apparel can even be purchased by weight, rather than the piece, at prices in the neighborhood of \$1 to \$1.50 per pound. This makes clothing even cheaper by weight than many basic foodstuffs.

The low price of apparel deserves notice. In the West, clothing has historically been a high-priced and valuable commodity (Lemire 2005; Roche 1994). Apparel has traditionally been expensive to produce, and as a consequence, once fashioned, a garment lived a long and varied social life. As its suitability for higher-status uses (e.g., special-occasion wear) began to decline as a consequence of use, it would cascade through a series of lower-status employments (e.g., indoor wear). For example, in McKendrick, Brewer, and Plumb's (1982) classic, albeit contested, work on the origins of the consumer revolution in Britain, apparel was handed down from elite women to their servants. Eventually many garments were turned into rags, or quilting squares, new uses that extended their productive lives. Apparel literally turned to dust in cases where it became a rag or a patch and eventually wore out. Recent historical contributions find that used clothing has traditionally been so valuable that it has served as a local or alternative currency in the extensive second-hand economies that have existed for centuries alongside markets in new goods. Beverly Lemire has found an "overwhelming prominence of apparel as the primary article of exchange," second only to metals and precious stones (2005: 97).

In the United States, apparel acquisition and use are very different today. The industry has shifted to "fast-fashion," or McFashion (Lee 2003), and is operating on a much shorter timeline (Abernathy et al. 1999). On the consumer side, acquisition is more indiscriminate, use is shorter, and discard is more frequent. Together, these changes can be described as the speeding-up of the fashion cycle.

The concept of a fashion cycle has a long pedigree in the academic literature. Simmel, most famously, wrote on it, but Veblen's model of consumption innovation and other accounts of class-patterned consumption implicitly incorporate aspects of fashion

dynamics (Simmel 1957; Veblen 1899). Post-modern and other analyses of the growing importance of style and image also frequently include the concept of fashion (Baudrillard 2001; Ewen 1988). While much of the discussion to date has been about apparel and related commodities (the so-called “fashion” industries) (Craik 1994; Crane 2001; Lipovetsky 2002), the concept can be applied more generally.

On the production side, for many consumer goods, technological change and heightened global competition have resulted in more rapid movement from conceptualization and design, through production and distribution, and eventually to retail. It appears that a parallel process has developed on the consumer side, with high levels of acquisition, use, and discard of items. Mike Featherstone’s widely cited (1991) thesis on the aestheticization of daily life is an early theoretical statement relevant to this development (see also Haug 1986). When everyday commodities become objects of aesthetic aspirations, they are more likely to be drawn into a faster-moving aesthetic, or fashion sensibility. Branding and advertising shape new symbolic meanings for goods, raising their social valuations. This in turn speeds up the cycle of purchase, diffusion, and eventually discard.

There has been recognition of these trends for the case of apparel (Abernathy et al. 1999; Lee 2003). However, it is the argument of this chapter that a larger range of items can now be understood as part of a consumer “fashion cycle.” Indeed, the scope and pace of change may justify a description of a new phase of consumption characterized by generalized fast-fashion. While this may seem like an uncontroversial, indeed commonplace, observation, it runs counter to a variety of claims that have been made about contemporary consumer trends and to much of the recent literature in consumer studies. Furthermore, consumer cultures with an accelerated fashion cycle may be characterized by what I call the materiality paradox (Schor 2010). The growing role of fashion and symbolic meaning does not make the materiality of goods less important, as some have suggested, but may actually require higher levels of material throughput to sustain.

The speed-up of the fashion cycle is of interest for understanding the nature of consumer culture, household finances, social interactions, marketing, and retailing. It also has significant ecological consequences. These are increasingly urgent. The planet is understood by many scientists to be consuming well beyond its sustainability frontier (Meadows, Meadows, and Randers 1992; United Nations 2005; Wackernagel et al. 2002; World Wildlife Fund 2006). We are witnessing the breakdowns of a number of crucial eco-systems, including climate, ocean, agricultural, and tropical forest systems. Many ecologists believe we have passed crucial boundaries for eco-system de-stabilization (Rockström et al. 2009), with the disruption of climate being only one of the areas of urgent concern. Tipping points loom, and perhaps are already passed in some cases. For ecological reasons, it is crucial that we identify and grapple with the materiality paradox (Schor 2010).

To illustrate the rise of a fast-fashion cycle, this chapter uses trade data as a preliminary attempt to develop a new methodology, namely materials flow analysis at the consumer level, or what we might call the “macro-material analysis of consumption.” Industrial ecologists have argued that materials flows are an excellent metric for assessing the ecological impact of economic activity, and in the last two decades have developed the technique of measuring materials flows (Fischer-Kowalski and Haberl 2007; Wernick et al. 1996). However, that research has looked only at raw materials. This chapter presents materials flows analysis for consumer goods themselves. This perspective does not illuminate the hidden flows that are crucial to understanding ecological impact but are not present in the final product (e.g., earth moved in mining, water for washing computer chips). And the data are very partial at this point. However, the

methodology may be of interest because, in contrast to production-side measures, this approach illuminates patterns over which end-users (i.e., consumers) have control.

### Marketing, the Fashion Cycle, and the Materiality Paradox

We live in the age of marketing. Expenditures on branding and advertising have risen. Marketing has gotten far more creative, expanding beyond traditional outlets and inserting itself directly into public space, schools, the Internet, and cultural content. Brand value is increasing, and the number of commodities that are branded has expanded. Together these trends mean that the symbolic value of goods, in contrast to their utilitarian functions, has risen. While this is a hard claim to prove empirically, measures such as brand value, the price premium relative to cost, and related data suggest that there is growing symbolic value in the consumer economy. The extent and importance of the symbolic have intensified and expanded.

In the literature on consumer studies, marketing, and advertising, the growing importance of symbolism is widely accepted. Baudrillard (2001) and others have claimed that what people consume is the meanings or symbolic dimensions of goods, rather than goods as physical objects. The classic example is the Nike shoe, which costs only a few dollars to make, and is not physically distinct from many other shoes, but its marketing and high price rely on branding and advertising resources. Advertising and marketing create what is known as “symbolic value.” That means consumers are willing to pay more than cost of production plus a competitive profit rate, or, in what amounts to the same thing, more than the price of a materially identical generic. Branding turns products into commodity signs, which are a fusion of the brand logo and its complex and highly valued meanings (Holt and Cameron 2010).

Advertising and marketing are central to the process of creating signs, as they are the activities that transform material objects into cultural signals. Without advertising, the Nike shoe is a rubber and material object with uncertain symbolic meaning. Indeed, most commodities lack symbolic meanings in the absence of ads and marketing that define them. Ads tell stories about products, create brand “identities,” and tie narratives to material objects. With successful branding, the undefined material object becomes a specific commodity sign with a well-known meaning.

One corollary of the position that symbolic value has come to dominate is that the materiality of consumption becomes less important. Indeed, in a number of prominent theorizations of contemporary consumer society, the materiality of goods almost disappears, either explicitly or implicitly. In Baudrillard’s formulation of an economy of sign values the physical properties, materiality, or use values of goods come to be dominated by their “sign” values, which are purely symbolic. He asserts that we live in a consumption- rather than production-dominated era, such that the factories, workshops, and offices of the production system are rendered unimportant and invisible. Other writers in this genre include Ewen (1988), Lash and Urry (1994), and Ritzer (2003, 2005). In these accounts, the material properties of goods are eclipsed by signs and symbols, experiences, and images.

Another body of sociological literature, which is more empirically based, makes the related argument that advanced industrialized economies have moved away from goods production toward a service-oriented consumer economy (Gershuny 2000). A political science variant on this theme is Inglehart’s (1989) work on values shift, in which he argues that consumers are increasingly post-materialist. Finally, a related argument

directly addresses the idea that the economy is “de-materializing.” While some of this literature is normative, and has arisen in response to the damaging ecological impacts of goods production and the possibilities for efficiencies in natural resources (McDonough and Braungart 2002; Pauli 2000; Weizsäcker, Lovins, and Lovins 2001), there is also a descriptive/predictive strain, which takes the view that this is the next stage of capitalism (Wernick et al. 1996; see also the discussion in Slater 1997 and the related arguments of ecological modernization theory in Mol 1996).

I believe this perspective misunderstands contemporary trends. As the data presented below suggest, rather than de-materializing, the contemporary era is associated with *growth* in material consumption. This may appear to be a contradiction or a refutation of approaches that stress symbolic consumption. But paradoxically, high and rising material throughput is a central feature of symbolically driven economies, in contrast to much prior thinking on the topic. That is because sign economies are vulnerable to the dynamics of rapidly changing symbolic value, through a generalized fashion cycle. If what is fashionable (or symbolically valuable at any point in time) remains so for only a brief period of time, then new (material) goods will be necessary to replace outmoded, or newly *unfashionable*, products. The principle is that behind every symbolic good lies a material one. When the fashion cycle speeds up, so too does material throughput. A materiality paradox arises: when consumers are most hotly in pursuit of non-material meanings, they are most prone to use up natural resources. This point brings to mind Raymond Williams’s famous quip that our problem isn’t that we’re too materialistic; it’s that we’re not materialistic enough. That is, we de-value the material world by excessive acquisition and discard of products (Williams 1996).

The globalization of production has facilitated these developments. By lowering costs and prices, globalization has made it economically feasible for consumers to purchase more. In addition, because globalization locates the material backstage elsewhere, it allows the fiction of de-materialized consumption to be reproduced. As a now large literature on commodity-chains (Gereffi and Korzeniewicz 1993), sweatshops (Collins 2003; Klein 2000; A. Ross 1997; R. Ross 2004), and other dimensions of global production reveals, the real conditions under which products are made are intimately connected to the natural/material world (Robins and Humphrey 2000). Accounts of consumer culture in the importing countries that theorize our era as one in which information, advertising, or symbols have made materiality less important are allowing the spatial distances to obscure this reality.

The materiality paradox is also relevant to another major theme in the literature, which draws on influential contributions by Kopytoff (1986) and Csikszentmihalyi and Rochberg-Halton (1981). Kopytoff wrote about the movement in and out of commodity status that goods can undergo, how consumers “singularize” or personalize products, and the ways in which consumers sacralize their purchases. Consumer researchers have studied these sacralization rituals (Belk, Wallendorf, and Sherry 1989), the personal “internalization” of goods (Ilmonen 2005), possession rituals (McCracken 1990), collecting behavior (Belk 1995), craft consumption as a form of personalization (Campbell 2005), and sentimentality in consumption (Csikszentmihalyi and Rochberg-Halton 1981; Wallendorf and Arnould 1988). Studies of sub-cultural consumption describe the intense emotional investments that people put into consumer goods (Schouten and McAlexander 1995).

In these accounts, consumers are investing an enormous amount of meaning in goods, and in some cases those meanings are connected to particular goods (a special collectible, a favorite vehicle, etc.). But, in a rapid fashion cycle, consumers act differently.

They acquire items more indiscriminately, acquire goods more frequently, and make multiple acquisitions of identical items. Consumers use products for shorter periods of time, are more likely to accumulate them in household inventories, and divest themselves of items more readily, which can be seen in the growth of product storage, discard, and resale. The disposability of fashion, or, to use Kopytoff's term, commodification, is the opposite of singularization. Commodified goods are typically mass-produced, branded items with high equivalence to other identically branded products to which the consumer has little sentimental or other attachment, and which are discarded or exchanged (Kopytoff 1986; see also Ritzer 1993). The apparent contradiction of the simultaneous growth of commodification and singularization is that, while they form opposite ends of a conceptual spectrum, they are dialectically related. In this interpretation, the dominant trend of a quickening product cycle also leads consumers to selectively singularize a small number of commodities. Thus accounts of sacralization are at best partial and at worst misleading.

This suggests a methodological point. Much of the consumption studies literature of the past two decades has been small-scale studies of particular types of consumption or individual products. It is often qualitative and ethnographic. What this chapter argues, however, is that, to adequately characterize the current moment of Western consumer culture, we must pay attention to the mass-produced (albeit customized) commodities that have been characterized by low prices and high acquisition, such as apparel, consumer electronics, furniture, toys, and household goods. This may take researchers back to the large retail environments, such as shopping malls or big box stores, that were once popular objects of study but have fallen out of favor with researchers (Shields 1992). The more general point is that macro-analyses and aggregate data should be central to theorization and empirical description of contemporary consumer culture.

### Data and Sources

How can we measure a fashion cycle? The standard approach is to look at flows of spending. However, dollars are a flawed metric for a number of reasons. First, the fashion cycle is centrally about numbers of purchases and actual items, not just dollars spent. If prices are falling, expenditures can be declining at the same time as frequency of purchasing is rising and the speed of the fashion cycle is accelerating. For this reason, data on actual items purchased are more useful. The second reason that dollar flows are less interesting is ecological. To measure ecological impact, volume, by weight and by unit, is a much more important variable because it is a more direct measure of actual resources used. A thousand dollars of expenditure can lead to either a small or an enormous ecological impact, but a ton of fossil fuel burned or a hundred trees chopped down has a determinant effect on the planet. For this reason, a body of research within the social and ecological sciences has developed to study actual flows of resources, which is called materials flow analysis (MFA) (Fischer-Kowalski and Haberl 2007; OECD 2008; Wernick et al. 1996). MFA measures the flow of fossil fuels, wood, bio-mass, metals and ores, and other materials through an economy. After years of sporadic attention, MFA is becoming more popular, especially in Europe.

Within MFA, the standard approach is to measure trends at the sites of production, specifically focusing on raw materials, and typically at the country level, because that is how the data are collected. However, nationally based materials accounting has drawbacks. It does not include materials that are imported from abroad, a significant lacuna



in an increasingly global production system. And, by focusing on flows of raw materials (a certain number of tons of coal, for example) rather than so-called “final” goods (or finished products), this method cannot illuminate the consumer experience. It is therefore especially ill adapted to analyze a fashion cycle. To capture the latter, I have put together an alternative type of material flows estimate, looking at the trends in the volume of final goods. However, this method is also hampered by data limitations. At present, there are no data for domestically produced goods. But imported manufactured goods are measured by dollar value, weight, and often actual units. Because imports have become such a large fraction of household consumption, particularly in some categories, they are a plausible starting point.

I have amassed data across the 99 commodity groups that make up the entirety of the manufactured goods economy.<sup>1</sup> The data are collected in such a way that they do not allow identification of purchasers (or end-users) and therefore include not only household but also business and government consumption. Because the focus of this chapter is the expanded fashion cycle and the goods that households purchase, I have identified a sub-group of 24 commodities that covers household purchases (food, furniture and furnishings, electronics, apparel and footwear, vehicles, toys and games, etc. The first category, food and beverages, is the sum of 23 individual category codes).

A few caveats are in order. Not all 24 commodity groups are relevant for a “fashion cycle.” Pharmaceuticals and food and beverages are non-durables. However, I have included them to avoid biasing the results by choosing only certain categories of household consumption. Furthermore, some of the categories include household consumption but are dominated by intermediate goods (i.e., goods used in the production of other goods). These include machinery, plastics, and rubber. For completeness, I have also included results for the entire manufacturing sector. The years chosen (1998–2005 with extension to 2007) were dictated by data availability as well as trends in prices and foreign trade, which are relevant to the fashion cycle.<sup>2</sup>

While ecologists look at material flows, the sociological phenomenon of a fashion cycle is typically conceptualized in terms of individual items. It is therefore useful also to consider numbers of items purchased, or units. (As with data by weight, unit data are only available for imports, except in a few cases.) These data are more cumbersome to construct because in many cases aggregation of product types within the broad commodity categories must be done manually. For example, in toys, the many types (dolls, board games, guns, kitchen sets, etc.) are considered sufficiently different for the database not to permit aggregation. For some of the commodity groups there are large numbers of sub-categories. I have, however, gathered unit data for some of the commodities in order to see if the trends in weight are similar to those in units, and in two cases (apparel and footwear) I was able to find units of total consumption (imports plus domestically produced goods). Finally, because data on consumption from domestic sources (rather than imports) are only available in dollar terms, it will be useful to refer to price trends in the discussion. Table 30.1 shows the consumer price indices for department store prices, durable goods, and a number of the specific commodity groups discussed below.

### The Acceleration of Consumption

My estimates indicate that the volume of imported consumption is increasing at a rapid pace, both within individual categories and across manufacturing as a whole. In Table 30.2 I present estimates of the increases in commodities imported into the US measured

Table 30.1 Consumer price indices (CPI) for durables and selected commodities

Year	Department store inventories <sup>1</sup>		Apparel	Toys	Computers	Furniture	Vehicles	Appliances	All durables
	Store total	Durables							
(Feb) 1993	542.9	457.6	134.0	122.4		121.7			119.8
1994	545.8	463.1	133.2	122.9		126.5			123.1
1995	545.8	465.1	131.9	122.9		129.6			127.4
1996	548.3	467.3	132.2	125.3		132.7			129.1
1997	554.2	470.0	133.0	126.7	100.0	133.2			129.5
1998	552.3	462.4	133.0	122.6	91.3	133.6	143.6		127.9
1999	540.7	455.6	130.8	115.9	59.7	135.0	143.0	98.7	126.2
2000	537.7	444.9	130.4	107.1	45.1	134.7	142.2	96.8	125.1
2001	532.4	433.1	129.6	101.2	33.9	133.7	142.4	94.9	125.7
2002	516.6	415.5	124.7	98.9	23.8	129.4	140.2	93.8	122.5
2003	502.3	402.9	121.8	88.3	19.1	128.7	138.2	91.2	119.4
2004	491.9	388.6	120.0	85.6	16.0	128.1	147.4	87.3	115.0
2005	494.3	381.0	120.0	79.6	13.5	125.3	138.8	86.8	115.8
2006	484.5	375.1	117.5	75.5	11.5	126.5	138.2	87.8	115.1
(Feb) 2007	489.6	372.4	119.9	72.3	10.2	127.1	136.2	89.1	113.0

Source: US Department of Labor (2012).

1 CPI for urban consumers, US city average, department store inventory index.



by weight (versus dollars, the usual metric). Measurements by weight are only available for imported and not for domestically produced commodities. However, this omission is not fatal, as imports are a large fraction of the total for many of the commodities, and in nearly all categories domestic production also increased. Using only imports therefore is generally an underestimate.

Consider the case of furniture, which has increased by 154.6 percent over the period 1998–2007. Anecdotal evidence suggests an “IKEA” effect. During this period, IKEA, a low-cost producer specializing in up-to-date design, increased its presence in the US market considerably. The large increase in furniture volumes is likely to be at least partly due to the downward price pressure exerted by IKEA and similar retailers, as well as a growing sensibility of fashion in the furniture market. (Furniture prices declined after 1999. See Table 30.1.)

Table 30.2 Increase in total import weight, US manufacturing, 1998–2007

<i>Commodity group</i>	<i>Increase (%)</i>
Food and beverages	45.9
Pharmaceutical products	226.4
Soaps	60.0
Plastics	97.6
Rubber	50.6
Leather and fur products	73.6
Manufactures of straw	55.0
Printed books	76.4
Textiles: fibers and fabrics	70.1
Carpets/floor coverings	62.8
Apparel	76.7
Footwear	37.1
Ceramic products	82.7
Glass and glassware	61.1
Pearls, stones, metals, jewelry	158.1
Tools and cutlery	89.1
Machinery	69.9
Small electronics	75.4
Vehicles	64.6
Clocks and watches	13.3
Musical instruments	3.8
Furniture	154.6
Toys, games, and sporting	58.6
Miscellaneous manufactured articles	17.9
Average of 24 commodity goods	63.0
All manufacturing commodities	27.6

*Source:* Air weight and vessel weight are available from WISERTrade (2012). Other imports are Mexico and Canada transborder (by rail and truck), from the US Bureau of Transportation (2012).

*Notes:* Percentage increases are based on millions of kilograms. Total US import weight = air weight (kg) + vessel weight (kg) + Mexico transborder (kg) + Canada transborder (kg).

If we measure consumption in terms of number of items, rather than total weight, we also find a dramatic acceleration over this period, as is shown in Table 30.3. Combining the data across 51 detailed categories of furniture (e.g., mattresses of cotton, mattresses of cellulose, etc.) we can see that, in 1998, there were 327.6 million pieces of furniture of all types (mattresses, seats, dressers, etc.) imported into the United States. In 2005, the total was 651.3 million, a 99 percent increase. These estimates of units consumed are also consistent with the idea of an IKEA effect, that is, increased buying spurred by the expansion of cheap, but fashionable, imported furniture.

Does the increase in imports represent a real rise in consumption, or are imports just substituting for domestic production? As noted above, we have no data on domestic production by volume or in units, only prices.<sup>3</sup> In the case of furniture, the dollar value of domestic production minus exports rose 21 percent over this period. Furthermore, the decline of furniture prices likely means the dollar increase understates the true growth in the consumption of domestically produced furniture. Therefore, in furniture, the import rise is not merely a substitution effect, and domestic production seems to have risen as well.

Consumer electronics is another case where a fashion cycle may be operating. The material volume of small electronics imports, which includes computers, cell phones, televisions, and a variety of other products, has increased by 75.4 percent (Table 30.2). This is striking when we consider that a number of these products have been on a trajectory of size reduction. For example, laptops have grown in popularity relative to desktops, and desktops have also become much smaller. A similar trend has occurred with computer peripherals, MP3 players, and cellular phones. There was also a shift to thinner, flat-panel, and plasma televisions.

Calculations on imported unit volumes show that they have increased substantially. As Table 30.3 illustrates, the number of imported cell phones rose from 14.2 million in 1998 to 177.2 million in 2005, or 12-fold. (Cell phones are a well-known short-lived, fashion-driven product.) Laptops rose from 3.3 million to 23.8 million, a sevenfold expansion. But the increase has occurred not only in newer technologies. Ordinary household items such as vacuum cleaners more than doubled (67 to 188 million), and

Table 30.3 Unit volumes of imports, selected commodity groups

<i>Commodity group</i>	<i>1998 (millions of units)</i>	<i>2005 (millions of units)</i>
Furniture	327.6	651.3
Cell phones	14.2	177.2
Laptops	3.3	23.8
Vacuum cleaners	67	188
Ovens, toasters, and coffeemakers	76	227
Consumer electronics <sup>a</sup>	715	1,400
Apparel <sup>b</sup>	12,900	20,400
Footwear <sup>b</sup>	1,600	2,300

Sources: WISERTrade (2012); US Bureau of Transportation (2012).

a Small electronics include: vacuum cleaners; electric shavers; flashlights; water heaters; hair drying apparatuses; ovens, toasters, and coffeemakers; speakers and headphones; laptops; cell phones; and welding equipment.

b Includes a small amount of domestic production.

ovens, toasters, and coffeemakers rose from 76 million to 227 million. A subset of ten small electronics categories for which I have calculated unit volumes increased from 715 million units in 1998 to 1.4 billion in 2005, a nearly 100 percent increase. How much of this increase was a substitution for domestic production? It is difficult to tell from the data we have. In dollar terms, the quantity of domestic production consumed in the country fell by 27 percent. However, the prices of these goods collapsed over this period, which could account for much of the decline. Computer prices (Table 30.1) fell to a tenth of their original price. Similarly, the television price index (not shown) fell from 60.0 to 18.4. Because the price decline for the category is larger than the reduction in domestic dollar values, the net contribution in volume (by units or weight) of domestic production may actually be positive. Some industry estimates of units support this interpretation. For example, Scanlon (2004) reports that computer purchases rose from 28.4 million in 2000 to an estimated 60 million in 2006, and estimates are that, between 2006 and 2015, 670 million computers will be purchased in the United States.

Another commodity group with a large weight increase was ceramics (82.7 percent). A fashion cycle explanation says that the availability of cheap dishes and other ceramic items at chic but inexpensive retailers such as Target accounts for the large increase in this category, and that the trend is due to households replacing their dishes more frequently than in the past. However, examination of the detailed unit categories shows that, although units of imported table and kitchenware have increased, the rise is modest in comparison to the increases in bathroom fixtures and tiles. Given the housing boom and sharp increase in bathrooms per home, as well as the popularity of kitchen remodeling during this period, the increases in these categories are not surprising. To some extent kitchen remodeling can be thought of as fashion driven, because older kitchens and bathrooms have gone out of style. However, there is also a scale effect, as the number of bathrooms per home and the size of kitchens have grown. The domestic value data show a decline of 38 percent over the period, but we do not have details on which types of ceramics are domestically produced. The prices trends suggest that there was a decline in domestic production, so to some extent the rise in imports is due to substitution rather than an overall growth in consumption.

Vehicles are a category which is environmentally very significant, both because the material throughput involved in vehicle manufacture is large, and because of the impacts of gas consumption on the atmosphere. The material volume of imported vehicles has risen 64 percent. Domestically produced consumption in dollar terms increased by a modest 5 percent over the period, and prices of new vehicles fell slightly, from 143.6 (1998) to 136.2 (2007), indicating that total consumption (imports plus domestic production) may have increased about 70 percent.

Finally, we can consider trends in apparel and footwear, the canonical objects of fashion, and canonical fast-fashion commodities. Apparel has witnessed a 76.7 percent increase in import volume over the period. As in furniture, this is also a category where low-cost/high-fashion retailers such as H&M have entered the market. The trends in apparel have been widely noticed and written about (Fernandez 2004a, 2004b).

Unit data from an industry source (AAFA various years) are available for both apparel and consumption and show large increases. In 1998, US consumers purchased a total of 12.9 billion individual pieces of apparel. In 2005, the total was 20.4 billion, an increase of 58 percent. This is the sum of both domestic and imported consumption. On a per capita basis, the figures work out to 46 pieces per year in 1998, and 68 in 2005. The

latter figure indicates that the average American consumer is now purchasing a new piece of clothing every 5.4 days.

Footwear purchases have not increased as much. Import weight rose by 37.1 percent, less than in a number of other categories, likely because the price trends have not been as favorable to consumers as in apparel. In unit terms, total consumption increased from 1.6 billion in 1998 to 2.3 billion in 2005, a 43 percent increase. Average annual purchases per capita are 7.6 pairs of shoes a year.

Table 30.2 includes a summary measure for the 24 commodity groups, as well as the volume of all manufactured imports. In addition to the commodities noted above, those with large increases include: plastics; rubber; leather; toys, games, and sporting goods; miscellaneous; carpets; and pearls, stones, metals, and jewelry. Food and pharmaceuticals also increased. Taken together, the 24 commodities had an increase in material volume of 63 percent, or about 7 percent a year. For the entire sector, the total increase over the period was 27.6 percent, or approximately 3 percent annually.

While national data are useful for many purposes, per capita estimates are also important. If the argument of an accelerated fashion cycle is correct, it is occurring at the individual and household level. Furthermore, for metrics such as greenhouse gas emissions and ecological footprint, the global environmental discourse is about per capita in addition to national trends. If the rise in material volumes were solely or mainly a result of population increase, it would be unlikely to represent any important change in consumer behavior and would be far less interesting. My calculations find that the average person increased his or her consumption of the 24 commodities in the sub-group by 40 percent between 1998 and 2005 and for the sector as a whole by 20 percent.<sup>4</sup> These increases remain quite substantial, given that they have occurred over only seven years.

Although these data are not comprehensive, they do suggest that the thesis of dematerialization needs to be re-visited. While there are anecdotal examples of dramatic natural resource efficiency in ecologically pioneering firms (McDonough and Braungart 2002) they do not seem to be general across manufacturing. The far larger story is that consumers are purchasing an increasing flow of products.

### Inventories and Discards

When consumers increase their acquisition of goods they are faced with having to store them. While the Census survey on characteristics of new housing does not include data on closets or storage space, we do know that new homes have gotten much larger (Dwyer 2007), and anecdotal evidence suggests significant increases in closet and other storage space. Closet organizing has become a small industry in itself. The popular press is replete with books on how to reduce “clutter” or how to manage the volume of apparel in the closet. There is even a “profession” (Professional Organizers) devoted to helping people with their material overload (see National Association of Professional Organizers 2012). Another trend is the rise of self-storage. It is currently a \$20 billion industry, with 20.8 square feet per American household, and one in ten households currently renting space (Self Storage Association 2008).

Some items are accumulating in homes. I have been unable to locate systematic data. However, there are scattered studies and anecdotal evidence. Household inventories of consumer electronics, whose disposal is problematic on account of the toxic materials used in production, are currently building. In 2007 alone, 140 million phones reached

what the government terms “end of life” (EOL) management, in comparison to 19 million in 1999. In 2007, 205 million computers and peripherals were retired, in comparison to 124 million in 1999 (EPA 2008). The average computer lifespan is thought to have fallen from four–five years to two years, and one estimate suggests that the average home now has two–three obsolete computers (Scanlon 2004). It is estimated that nearly a billion and a half computers and televisions have been retired since 1980. On a per capita basis, 1.2 cell phones, computer products, and televisions were retired in 2007 alone (EPA 2008).

Apparel discard has also risen dramatically, although there are no comprehensive measures. One piece of evidence is the growth of the used, or second-hand, clothing industry, which is estimated to exceed \$1 billion (Fernandez 2004b). Much of the supply is exported to low-income countries. In 1991, 143.8 million kilograms of worn clothing were exported from the US to the rest of the world. By 2004, exports stood at 504.8 million kilograms (United Nations Statistics Division 2005). Interviews with officials at Goodwill Industries, Inc., a major collector and re-seller of used clothing, revealed that the agency was increasing its collections of clothing in the 1990s by more than 10 percent per year, only a fraction of which were placed in its stores (Schor 2005). Households have also been putting more apparel into the waste stream, and textiles currently constitute 4.7 percent of the municipal waste stream, or 78 pounds per person per year (EPA 2008). A growing supply of used clothing can also be found on eBay, Craig’s List, Freecycle, and other apparel exchange sites. Indeed, these sites have facilitated the exchange of a wide variety of items, as the growth of a generalized fashion cycle model would expect. At present, there are no available data to estimate the size of these secondary markets.

### Conclusion

Recent literature in consumer studies, advertising, and marketing draws attention away from macro-dynamics toward personalization, customization, and individualization. However, these trends are the smaller echoes of a much more significant shift toward rising purchases of mass market goods, or what I have called the fast-fashion cycle. In the United States, through the 1990s and 2000s, the fashion cycle sped up and expanded across the consumer landscape, into furniture, electronics, apparel and footwear, household furnishings, toys, and other categories. Although this trend has slowed somewhat since the downturn of 2008, the volume and increase in consumption remain significant. In contrast to the widespread belief that contemporary consumer economies are de-materializing, the material, and therefore the ecological footprint of consumers, is getting heavier.

Scientists are increasingly sounding the alarm about the overuse of planetary resources. The globalized, high-volume fashion-oriented consumer system is a key component of the larger unsustainable global economy, and the speed-up of the fashion cycle only intensifies ecological pressures. The United States, with an ecological footprint at five times the sustainable global level, already has an outsized impact on the natural environment. Its status as a global role model is another channel of influence. At this moment, marketers should turn their attention, not to getting consumers to buy more, but to figuring out how to slow down what has become an almost manic flow of goods through the cycle of purchase, use, and discard. While this is undoubtedly a difficult task, there are some leading examples and enlightened public policies that would

make a great deal of difference. Europe has instituted regulations for product take-back for consumer and electronics manufacturers—rather than letting consumers junk old machines, companies now take them back, and can refurbish and re-sell them. In the United States, in 2011 Patagonia instituted the Common Threads Initiative, which discourages consumers from buying products they do not need, and commits the company to resale or recycling of every garment purchased. It is an extremely innovative program well worth watching and, if successful, could be a model for reducing product purchase and dramatically improving and expanding product after-markets. Perhaps paradoxically, advertising and marketing have been at the forefront of this campaign: the company's ads for the 2011 holiday season used the tagline "Don't Buy This Jacket."

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### Notes

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- 1 Data on imports are from two sources, each of which contains two methods of importation. Goods arriving or departing by sea and air are from the WISERTrade database. Goods arriving or departing by rail and truck are from the Department of Transportation TransBorder Freight Data, which began in 1993. Imports are constructed by summing these four importation methods.
- 2 The first year the import data are available in electronic form is 1998, and in 1997 the manufacturing coding system was changed, which creates problems of comparability. Therefore, we have constructed all data for 1998–2005. This is a useful period to consider, because after 2005 some of the key trends seem to have either slowed or reversed, on account of the decline of the dollar, the end of price declines for some goods, and the rapid growth of exports. This period was unusual in a variety of ways. We have therefore estimated the changes over the period 1998–2005, as well as 1998–2007, which is the end of the economic boom. Domestic production data were only available to 2006 at the time these calculations were done.
- 3 Domestic production dollars are based on US Census Bureau (2006).
- 4 Population is from Annual Estimates of the Population, US Bureau of the Census.

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