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Please address all correspondence to:

Juliet Schor

University of Tilburg

Department of Leisure Studies, room S-231

5000 LE Tilburg, Netherlands

e-mail: j.b.schor@kub.nl

phone: 31-13-466-2222

fax: 31-13-466-2370

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Angela Chao

Juliet B. Schor

WORC, Tilburg University, The Netherlands

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Abstract

Nearly all applied work in consumer demand assumes the absence of status consumption. The validity of this assumption has not been supported through empirical inquiry which confirms the unimportance of status motivations in consumer behavior. However, it is feasible to conduct tests which differentiate between status-motivated behavior and consumer purchasing in which no status motivations are present. This paper provides such a test, which is based on the fact that social visibility is ordinarily necessary for a good to serve as a status symbol. We investigate brand buying among four cosmetics products, and find, as hypothesized, that more "status" is purchased with the more socially visible products. Specifically, we find that visible goods have a lower price-quality correlation and a pattern of brand buying favoring higher-priced brands. We also investigate differing degrees of status-consumption by income, education, race, and urban/suburban dwelling. Our results provide strong support for the existence of status-consumption and are not consistent with theories in which no status-consumption is occurring.

I. Introduction

Can consumer demand be understood primarily as a relation between individuals and goods, or are social, i.e., inter-individual, determinants of consumption crucial? Applied work in consumer demand almost invariably assumes the former. However, an impressive pantheon of economic "greats" has noted the importance of one social factor, namely relative position.¹ Despite its pedigree, this idea has been "relatively" neglected in modern economics, although it is becoming "absolutely" less so.² In recent years a number of theoretical papers have considered relative position and status-seeking. Frank (1985a,b) was an influential treatment; followed by Congleton (1989); and Rauscher (1993), who provides an interesting dynamic perspective. Status games concerning investment in capital goods are treated by Abel (1990) and Galli (1994). There have, however, been few empirical treatments of relativity in the literature on consumption. One exception is Kosicki (1987, 1990). And more recently, Neumark and Postlewaite (1995) have applied a relative income factor to trends in female labor supply.³

In this paper, we present a new approach which we hope will stimulate interest in the "relative" or "status" approach to consumption. We have devised a simple method of differentiating between theories in which consumers make purchases in order to achieve relative position (or what we will call "status") and theories in which they are purchasing intrinsic product attributes (such as quality) or non-social extrinsic attributes. Using data on purchases of women's cosmetics across differently-priced brands, we find considerable evidence of status-buying. Furthermore, theories in which there is no relative standing or status component of the purchase decision are not supported by our evidence.

II. Relative Preference or Status Theory

Modern consumer theory is quite general, and as such is compatible with a variety of specific models of consumer motivation. However, to date, applied work on consumer demand has tended to make the assumption that preferences are independent among individuals. (For example, a recent survey by Deaton (1992) does not mention interdependent preferences.)⁴ Thus utility is not modelled as a function of consumption comparisons among individuals. This difference in theoretical commitments opens the door to a variety of interesting tests.

Let us begin by defining theories of consumption based on relative standing. In a standard formulation of

relative income or consumption theory, an individual's utility depends negatively on the consumption of others.

$$U_i = f(C_i / \sum \alpha C_j) \quad f' < 0 \quad (1)$$

where U is utility, C is consumption and α is the weight applied by individual i to j 's consumption. Individual i 's utility depends on the ratio of his or her own consumption to a weighted sum of others' consumption. Of course, other formulations are possible. Utility may depend on not having less than an average level of consumption, for example.⁵

Descriptions of the status-seeking process can be found in Thorstein Veblen (1967, original 1899) and James Duesenberry (1949). Veblen believed that individuals become subject to "invidious distinctions" (pp. 16-21), which form the "conventional basis of esteem" (pp. 28-9), and "self-respect" (p. 31), thus prompting "conspicuous consumption," that is, socially visible consumption which yields status for the individual. In Duesenberry's (1949) account, the consumption of the Smiths is to "keep up with" the Joneses. Households are exposed ("demonstration effects") to the consumption patterns of those in their reference groups, and seek to replicate those patterns. Because of their close interpretations, we do not differentiate between Veblen-type consumption (consuming to achieve a superior status position) and Duesenberry-type consumption (consuming to "keep up" to some standard).⁶ In so doing, we want to stress that we do not attach any negative connotations to the term "status."⁷

Where consumption is for the purpose of gaining status or relative position (hereafter called "status consumption"), at least two preconditions must hold.⁸ First, there must be some degree of commonality in rankings among individuals concerning the relative desirability or status of products and brands. Second, such consumption must be socially visible.⁹ (Hence the terms "conspicuous consumption" and "demonstration effects.") Social visibility is important because of the moral hazard problem associated with socially non-visible goods. Moral hazard arises because individuals have an incentive to exaggerate their consumption in order to gain social position. If consumption is not externally verifiable, self-reported levels of consumption are not credible. A second issue is that self-reporting about consumption patterns (i.e., boasting) reveals the individual's concern with status, which in some contexts undermines status. (Appearing not to care too much about status is often necessary to attaining it.)

For these reasons, social visibility is a key dimension of status consumption. Casual inspection of consumption patterns suggests as much, and may well explain why households spend much more money furnishing public rooms (living and dining rooms) than private ones (bedrooms); why expensive "under-the-

hood" automotive options (four-wheel drive, anti-lock brakes) are now advertised on the outside of cars; or why the expansion of designer fashion apparel to a large and informationally-less savvy population led to the widespread use of logos. (When designer apparel was worn only by a small group of the wealthy, the identity of designers was recognizable to all participants in the status competition.) *By contrast, if utility does not depend on others' consumption, and the standard approach to consumption is correct, the level of social visibility of a product should be irrelevant in the pattern of consumer purchases.* This difference forms the basis of our test.

Proposition I: If status consumption is occurring, patterns of brand buying between similar products should differ systematically with the level of social visibility of the products such that there is more purchasing of high-priced brands when the product is more visible.

A second hypothesis is possible where data on product quality is available.

Proposition II: If status consumption is occurring, socially visible goods will have a lower correlation between price and intrinsic quality than those which are not socially visible.

III. Empirical Tests of Status Consumption

In this section we test propositions I and II, as well as a number of ancillary hypotheses about the prevalence of status consumption across various groups in the population. We have chosen women's cosmetics as the broad commodity category for our inquiry. This is for two reasons. First, in the popular literature descriptions of the industry stress the lack of intrinsic product quality and the importance of marketing and advertising. (See Allen 1981, McKnight 1989, Wolf 1991) Second, and more importantly, this was the only commodity category for which we were able to readily find sufficient detail on brand buying to carry out our test. In the following, we distinguish between "products" (particular types of cosmetics); "brands" (the name or marketer of the product) and "lines" (specific varieties of product *within* a brand). We will be looking at four products (lipstick, eyeshadow, mascara, and facial cleansers); numerous brands (eg., L'Oreal, Maybelline, Estee Lauder, Revlon); and only specific lines within brands (waterproof mascara, long-lasting lipstick).

We have used two sources of data. The first is the Mediamark Research Incorporated's Adult Personal Care Annual Report, from which we used brand buying patterns and socioeconomic/demographic information on

consumers. The second is Consumer Reports, from which we used price and product quality data by brand. We matched the two data sources by product and year. The Consumer Reports data tend to be somewhat more detailed by lines than the Mediamark data, although in cases where one line holds a large market share it will be listed individually in the Mediamark data. Where the two data sets did not match exactly, we averaged the prices of the various lines to arrive at an average brand price.

Visibility Rankings

Those who are unfamiliar with the habits of cosmetics users may be surprised to find marked differences in the level of social visibility in our four products. However, we hypothesized that consumers would identify clear differences. Our *a priori* hypothesis was that lipsticks would have the highest level of visibility, because women take lipsticks out in public, at restaurants, in meetings, on subways, airplanes, etc., as well as in "powder rooms." Facial cleansers, by contrast, are ordinarily left at home and have no public visibility. Eyeshadows and mascaras are in an intermediate category. They are mainly taken out in semi-public areas such as powder rooms. Our *a priori* ranking was confirmed in an informal survey of 20 female students at Harvard University (Table 1). Lipstick was ranked most visible by all 20 respondents; facial cleansers were ranked least visible by 18 of 20.¹⁰ Mascara was ranked second, and eyeshadow third.

Table 1 **Visibility rankings by product^{*)}**
Survey results

Respondent	Lipstick	Mascara	Eyeshadow	Facial Cleanser
1	1	2	3	4
2	1	2	3	4
3	1	2	3	4
4	1	2	4	3
5	1	2	3	4
6	1	2	3	4
7	1	2	3	4
8	1	2	3	4
9	1	2	4	3
10	1	2	3	4
11	1	2	3	4
12	1	2	3	4
13	1	2	3	4
14	1	2	3	4
15	1	2	3	4
16	1	2	3	4
17	1	2	3	4

18	1	2	3	4
19	1	2	3	4
20	1	2	3	4

*) Respondents were asked to rank the four products by level of social visibility. All respondents were female Harvard college students. 1= most visible, 4 = least visible.

Quality Rankings

Consumer Reports publishes the results of so-called product "taste-tests," using testers who are not given the identity of the brands. The method of evaluation varied by product. For lipsticks and eyeshadows, professional make-up artists evaluated the products. For mascaras, 22 women who ordinarily wear mascara used and evaluated the products. For facial cleaners, a panel of 90 women were recruited who used the products over a 10 week period. Laboratory tests were also conducted on mascaras. In all cases, testers were asked to rank the products on a variety of dimensions (eg., ease of application, various appearance categories, ease of removal, durability, smell, effect on skin.)

The results of these rankings are presented in Figure 1. All lipstick brands, ranging in price from roughly \$1.00 to \$10.00, are ranked identically, that is, with no quality differentials.¹¹ Consumer Reports also conducted a one-on-one test between Flame Glow (a low-end brand with little name recognition) and Chanel (perhaps the most prestigious of major brands), using the brand containers, but switching half the lipsticks inside. About as many women preferred Flame Glow as preferred Chanel. At the time, Flame Glow cost \$2.26 for .12 ounce (\$18.83/ounce) and Chanel cost \$14.50 for .08 ounce (\$181.24/ounce). In the eyeshadow tests, identical quality rankings also emerged for all brands. With mascaras, a .424 correlation between price and quality was found; for facial cleansers the correlation was .408.

Figure 1 about here

These results provide support for proposition II. The highly visible good (lipstick) has a zero price/quality correlation, whereas the least visible good (facial cleansers) has a positive correlation between price and quality. It seems that women demand more quality with the invisible good. The results for mascara are somewhat anomalous, in that they reveal a higher price/quality correlation than we would have expected. This may be due to the fact that mascaras were the only one of the four products to undergo laboratory testing, so that the evaluation procedures were not identical. In the mascara rankings, we can also see evidence of heteroskedasticity, with a horizontal relationship among the low-priced brands and a slight downward sloping relation in the higher-priced ones.

Patterns of Brand Buying

To assess differences in patterns of brand buying, we used the Mediamark survey. For lipsticks, the data is from 1989, and consisted of 12,573 respondents. For mascaras and lipsticks (1990) there were 12,724 respondents. And for facial cleansers (1991) 12,146 surveys were returned. The published data is only available in cross-tabulated format, that is, for each brand we know the percentage of women who bought that brand, and similarly for demographic and socioeconomic breakdowns. This format entailed limitations on the models we could estimate.

In Figure 2, we present the brand buying patterns for the four products among the entire sample of women. We used two tests to determine the existence of status consumption. First, we tested whether or not the percentage of women buying expensive brands (defined as the top three brands) increased with the visibility of the product. The percentage of women buying the top three brands of lipsticks, mascaras, eyeshadows and facial cleansers were 17.94%, 16.19%, 13.19% and 10.88% respectively. The chi-square statistic indicates significant differences by product visibility in the percentage of women buying the top three brands, with a p-value less than .0005. Second, we tested across products whether or not women within each income level bought more of the most expensive brands (defined as the top fifth of a product's brands, ranked by price). Again, the chi-square statistic is highly significant, with a p-value of less than .0005. Within each income level, the fraction of women buying an expensive visible product is significantly more than that of the less visible product.

FIGURE 2 about here

In Table 2, we present a simple regression in which the dependent variable is the weighted percentage of women buying a particular brand and the independent variable is price.¹² The coefficient on price (β_1) clearly varies by visibility (i.e., from lipsticks to facial cleansers), getting both more negative (from -.1569 to -1.569) and more significant (t-statistic goes from -.407 to -3.79). Thus, price is a significantly more important determinant of demand for the less visible goods. Indeed, for lipsticks, price is not even a significant negative determinant of quantity demanded. By contrast, it does have a significant negative impact for the less socially visible products. These regressions provide strong support for the existence of status buying in women's cosmetics products.

Table 2 Regressions of brand-buying

	Lipstick	Mascara	Eyeshadow	Facial Cleanser
Constant	6.20 (2.89)	9.27 (3.84)	9.53 (7.09)	23.85 (6.78)
β_1 (Brand price)	-.157 (-.407)	-.464 (-1.28)	-.420 (-2.62)	-1.57 (-3.79)

T-statistics are in parentheses.

Notes to Table 2

Dependent variable is weighted log of the percentage of women buying each brand. Independent variable is the price of the brand. X_1 = Brand price.

Determinants of Status Consumption

Having established the existence of status-buying, we now consider differences in the extent to which subgroups in it. The literature on status consumption contains a number of hypotheses concerning the factors which influence the "demand for status," in particular the effect of education, income, race, and urban location. Following Veblen (1967), we predict that more highly educated people are more likely to engage in status buying. This may seem counter-intuitive on account of the idea that more highly educated people should be more educated consumers, and thus more attuned to intrinsic product attributes. However, this perspective neglects the very real social benefits achieved by status. Status can be associated positively with economic returns, through signalling effects. For example, we do not see status as necessarily devoid of "utilitarian" dimensions for the individual. Status-seekers may be spending money to "signal" their success, and by implication, their own competencies. Of course, in the data we are using, we cannot distinguish between those

who desire status for its own sake and those who are merely trying to send positive "signals." Duesenberry (1949) takes a similar view of the association between income and status-seeking. More generally, the positive association between income/education and status-consumption is supported by the models of Congleton (1989) and Rauscher (1993), in which there exists both an "amplification" effect (higher status consumption by others increases the marginal return to additional status consumption for an individual and therefore encourages status consumption) and a "discouragement" effect (in which people drop out of the game on account of the extra status seeking activities of others). We hypothesize that people with lower income/education will display larger discouragement effects, and are thus, on average, less likely to engage in status consumption.

For similar reasons, (and following Duesenberry) we also predict that non-Hispanic whites do more status buying than Hispanics and Blacks. The argument about racial groups stems from the economically and socially dominant position of Caucasians in American society. Because Blacks and Caucasian Hispanics occupy, on average, a lower position on the social ladder, it is more difficult for them to achieve a given status position. Therefore, discouragement effects are more prevalent. Duesenberry found evidence that, controlling for income, Blacks save more than Whites, thereby supporting the view that less "keeping up with the Joneses" was occurring.

Finally, we expect an urban setting leads to a greater need to use visible consumption to gain status, following Veblen. This expectation is based on the idea that the social culture of urban areas is more fluid, thereby making non-consumption dimensions of status less salient. In a rural area, birth and occupation, for example, are widely known, making it harder for people to gain social status through spending money. By contrast, in an urban setting, higher levels of anonymity make consumption-driven status more possible. Furthermore, lower levels of social familiarity and knowledge also make it more imperative to use products to establish identity and status. We expect that suburban location would be intermediate between rural and urban in this regard.

We test these predictions in a series of regressions presented in Tables 3-6. (Because our data are in cross-tabulated form, we cannot do one regression with all these independent variables.) And because the data are only available as the fraction of women buying a particular brand, we used a weighted logistic regression. Our dependent variable is the logit transformation on the percentage of women who buy a particular brand. Our independent variables, in Tables 3-6, are education, income, race, and urban dwelling. The equation we have estimated is the following (say, for education):

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu \quad (2)$$

where $Y = \log np(1-p)$

p	= fraction of women buying a specific brand within a given educational level
n	= weighting by the number of women buying the brand
X_1	= price of brand
X_2	= 1 if graduated high school, 0 otherwise
X_3	= 1 if attended college, 0 otherwise
X_4	= 1 if graduated college, 0 otherwise
μ	= error term

(The omitted category is attended high school.)

In all cases, we also added interaction terms between the price and the other variables in order to determine whether the coefficient on the price term varies with the X's. If the coefficient on price becomes less negative as education rises, for example, that implies a higher level of status buying by education. In each case we performed a generalized F-test to see if the interaction terms added explanatory power to the equation.

Table 3 Brand-buying by education level

		Lipstick	Mascara	Eyeshadow	Facial Cleanser
Constant	-1.19 (-9.52)	-1.21 -.887 (-12.38) (-8.66)	-.715 -.831 (-6.37) (-4.7)	-.168 (-18.79)	-1.31 (-10.08) (-15.17)
β_1	-.098 (-3.88)	.006 .001 (.43) (.06)	-.118 -.011 (-4.96) (-.31)	.004 (.37)	-.077 (-3.12) (.60)
β_2	.942 (6.15)	.897 .578 (8.59) (7.87)	.514 .357 (.1457) (1.49)	1.35 (14.72)	1.07 (6.74) (10.05)
β_3		-.244	-.926	.432	.001 .330

	-.192 (-1.17)	-.741 (-2.1) (-8.66)	-.703 (-5.66) (-2.51)	(4.41)	(.01)	(2.56)
β_4	-.580 (-3.43)	-.414 -1.12 (-3.38) (-12.0)	-1.50 -1.02 (-8.48) (-3.3)	.263 (2.62)	-.403 (-2.35)	.165 (1.24)
β_5	-.074 (2.57)		.099 .047 (3.36) (.97)		.062 (2.13)	
β_6	.125 (4.19)		.162 -.083 (5.09) (-.15)		.092 (3.04)	
β_7	.165 (5.48)		.235 -.022 (.0328) (-.35)		.136 (4.45)	
Generalized F-Test	12.24		18.91 -.644		7.27	

T-statistics in parentheses

Notes to Table 3

Dependent variable is weighted log of the percentage of women in each educational category who buy the brand, X_1 = Brand Price, X_2 = 1 if graduated High School, 0 otherwise, X_3 = 1 if attended College, 0 otherwise, X_4 = 1 if graduated College, 0 otherwise, $X_5 = X_1 * X_2$, $X_6 = X_1 * X_3$, $X_7 = X_1 * X_4$. Omitted category is attended High School.

We begin with the education results in Table 3. We find that the level of educational attainment is a significant predictor of lipstick purchasing patterns. Considering the regression including the interaction terms, we find that these terms are significant, and indicate that having more education leads women to buy higher priced lipsticks. That is, the coefficient on price varies with education level. Evaluating the full coefficient at a lipstick price of \$1.00, we find that the full price coefficient equals -0.19 for women with a high school diploma. Among college-educated women, the coefficient on the price term is no longer negative, indicating the presence of what has been called in the literature "snob" demand, i.e., cases where a higher price induces higher demand (Leibenstein, 1950). For women who have attended college, the coefficient is 0.044, and for

women with college degrees, the price coefficient is 0.117. Once interaction effects are properly accounted for, the price coefficient rises steadily as education increases, from -.118 for women who have not graduated high school, to .117 to those with college diplomas. Thus, as price rises there is a greater "positive" contribution of price to demand.

By contrast, the facial cleansers equation produced very different results than for the other three products. In the regressions without interaction terms, the coefficient on the price term is more positive for lipsticks (.006) than for facial cleansers (.001). Furthermore, the additional explanatory power of the interaction terms is lower for mascara and eyeshadows, than for lipsticks, and there is no additional explanatory power from the interaction terms in the facial cleaners regressions. (The F-test is -.644, which is not significant at standard confidence levels.) The failure of the interaction terms to add explanatory power indicates that education level does not affect the impact of price on quantity purchased. With mascaras and eyeshadows, we also find evidence of status purchasing. The full price coefficient (evaluated at a product price of \$1.00), varies from -.077 for the lowest educational group to .059 for the highest. Similarly, for eyeshadows, the variation is from -.098 to .067. "Snob" demand consistently becomes more prevalent as educational level rises. Thus, considering the four products, we see that the extent of status buying varies with the visibility of the product.

Table 4 Brand-buying by income level

	Lipstick	Mascara	Eyeshadow	Facial Cleanser		
Constant	1.70 -2.19 (-19.3)	.072 -2.82 (1.56) (-23.5)	-0.183 -3.13 (4.05) (-9.89)	-2.21 (-18.13)	-1.82 (-20.2)	
β_1	.003 .068 (4.64)	.004 (.18) (.25)	.018 .066 (6.43) (1.09)	.006 (.77)	.073 (3.98)	.008 (1.17)
β_2	-0.373 (-2.15)	-0.722 .091 (-3.91) (.68)	.010 .431 (.37) (.98)	-0.481 (-4.5)	-0.155 (-.82)	-4.37 (-3.58)

β_3		.044	.123	-.288	-.110	-.376
	-.158	.085	.436			
	(-.93)	(2.85)	(5.40)	(-2.8)	(-.6)	(-3.15)
		(.63)	(.95)			
β_4		-.004	.095	-.137	.294	-.155
	.23	.781	1.12			
	(1.44)	(-.22)	(4.17)	(-.138)	(1.67)	(-1.36)
		(6.56)	(2.94)			
β_5		-.029	.171	.107	.578	.061
	.590	1.16	1.52			
	(3.84)	(1.81)	(7.48)	(1.13)	(3.38)	(.56)
		(10.2)	(4.09)			
β_6		.035	.198	.143	.634	.228
	.741	1.15	1.49			
	(4.96)	(2.16)	(8.58)	(1.51)	(3.73)	(2.14)
		(10.03)	(3.99)			
β_7			-.015	.027	.567	-.925
	.529	1.46	1.71			
	(3.29)	(13.1)	(-3.21)	(.28)	(3.23)	(-.81)
			(4.68)			
β_8			-.014	-.510	.429	-.38
	.3601	-.51	1.64			
	(2.07)	(.28)	(-3.64)	(.28)	(2.07)	(-3.07)
			(4.45)			
β_9			-.019		-.056	
	-.011		-.070			
	(-.49)		(-4.65)		(-1.9)	
			(-.8)			
β_{10}			-.029		-.030	
	-.034		-.072			
	(-1.49)		(-7.04)		(-1.07)	
			(-.79)			
β_{11}			-.034		-.076	
	-.062		-.069			
	(-2.87)		(-8.14)		(-2.73)	
			(-.94)			
β_{12}					-.084	
	-.091		-.072			
	(-4.19)		(-1.01)		(-3.08)	

β_{13}	-0.087 (-4.22)	-0.069 (-.96)	-0.088 (-3.24)
β_{14}	-0.113 (-4.68)	-0.050 (-.72)	-0.098 (-3.43)
β_{15}	-0.148 (-5.1)	-0.073 (-1.03)	-0.191 (-5.02)
Generalized F-Test	7.87	16.82 .20	34.33

T-statistics in parentheses.

Notes to Table 4

Dependent variable is weighted log of percentage of women in each income category who buy the brand, $X_1 = \text{Brand Price}^*$). For mascaras, eyeshadows and facial cleansers, $X_2 = 1$ if $\$60,000 < \text{income} < \$74,999$, 0 otherwise, $X_3 = 1$ if $\$50,000 < \text{income} < \$59,999$, 0 otherwise, $X_4 = 1$ if $\$40,000 < \text{income} < \$49,999$, otherwise, $X_5 = 1$ if $\$30,000 < \text{income} < \$39,999$, 0 otherwise, $X_6 = 1$ if $\$20,000 < \text{income} < \$29,999$, 0 otherwise, $X_7 = 1$ if $\$10,000 < \text{income} < \$19,999$, 0 otherwise, $X_8 = 1$ if $\text{income} < \$10,000$, 0 otherwise, $X_9 = X_1 * X_2$, $X_{10} = X_1 * X_3$, $X_{11} = X_1 * X_4$, $X_{12} = X_1 * X_5$, $X_{13} = X_1 * X_6$, $X_{14} = X_1 * X_7$, $X_{15} = X_1 * X_8$. The omitted category is income greater than \$75,000. *) In the lipstick equation, the income categories are different. They are: \$50,000-\$59,000; \$35,000-\$49,999; \$25,000-\$34,999; \$15,000-\$24,999; and less than \$15,000. Omitted category is income greater than \$60,000.

In Table 4, the income regressions, we see similar findings. Women with higher incomes do more status buying. In the regressions with interactions, the price coefficient (evaluated at a lipstick price of \$1.00) declines as income declines, from .003 (in the highest income category) to .014, to -.001, to -.011, to -.16 (for the lowest income category). This is strong evidence for the variation of status consumption by income group. Furthermore, the extent of status buying does not vary across categories for facial cleansers (unlike for the other products), where we see that the F-test indicates the interaction terms add no explanatory power to the equation. For the two intermediate products, we do find evidence of status-buying varying by income, as expected. In the mascara equation (again, evaluating the product at a \$1.00 price), we find that the price coefficient falls from .017 in the highest income group to -.118 in the lowest group. Similarly, for eyeshadows, the coefficient falls from .057 to -.08.

Table 5 Brand-buying by race

		Lipstick	Mascara	Eyeshadow		Facial Cleanser
Constant	1.99 (8.41)	1.931 2326.2 (12.26) (9.94)	1.44 2.70 (9.13) (8.83)	1.80 (4.26)	1.66 (2.82)	1.99 (10.65)
β_1	.017 (.47)	.006 -221.3 (.21) (-5.19)	.131 -302.1 (3.91) (-4.9)	-0.008 (-.14)	.019 (.2)	.017 (.75)
β_2	-4.35 (-12.2)	-4.19 -181.9 (-24.2) (-1.07)	-3.03 -356.1 (-12.6) (-.83)	-4.16 (-9.78)	-4.15 (-4.55)	-4.22 (-19.2)
β_3	-4.38 (-12.0)	-4.62 -736.1 (-24.8) (-4.27)	-4.10 -1793.9 (-15.4) (-4.02)	-3.62 (-9.0)	-3.20 (-3.74)	-4.53 (-20.1)
β_4	.026 (.47)		.309 37.71 (-5.77) (.44)		-0.000 (0.0)	
β_5	-0.029 (-.52)		-.133 217.0 (-2.58) (2.44)		-0.080 (-.58)	
Generalized F-Test	.437		16.76 .371		.201	

T-statistics in parentheses.

Notes to Table 5

Dependent variable is weighted log of the percentage of women in each racial group who buy the brand, X_1 = Brand Price, $X_2 = 1$ if Black, 0 otherwise, $X_3 = 1$ if Spanish-speaking, 0 otherwise, $X_4 = X_1 * X_2$, $X_5 = X_1 * X_3$. Omitted category is white.

Race is also a significant predictor of status buying (Table 5). Once again, the coefficient on the price term falls as the visibility of the good declines, from .006 for lipstick to -221.3 for facial cleansers. Among White women the fraction buying each brand of lipstick rises as the brand price increases. Among Black and

Hispanic women the reverse (standard) relation holds. In the equations with interaction terms, we see that status buying differs by race with lipstick, but not with facial cleansers. (Interestingly, the semi-visible products did not show race-status effects.)

Table 6 Brand-buying by location of residence

		Lipstick	Mascara	Eyeshadow	Facial Cleanser	
Constant		.359	-.569	-.666	-.602	-.4862
	-.605	-.645	-.298			
	(-5.67)	(19.48)	(-4.83)	(-4.6)	(-3.01)	(-5.12)
		(-3.98)	(-1.32)			
β_1		.002	.006	.026	-.014	.008
	.031	-.004	-.080			
	(1.95)	(.81)	(.28)	(1.28)	(.42)	(.74)
		(-.13)	(-1.7)			
β_2		.064	.087	.202	.094	.096
	.152	.193	-.196			
	(1.01)	(3.56)	(.53)	(1.47)	(.33)	(.92)
		(1.64)	(-.62)			
β_3		-.146	-.375	-.659	-.758	-.876
	-.432	-.299	-.976			
	(-2.43)	(-7.15)	(-2.02)	(-4.29)	(-2.32)	(-7.45)
		(-2.42)	(-2.95)			
β_4			.040		.020	
	-.010		.083			
	(-.47)		(1.31)		(.45)	
			(1.31)			
β_5			-.093		-.019	
	-.100		.143			
	(-3.54)		(-2.55)		(.33)	
			(2.18)			
Generalized F-Test			-21.46		.11	
	6.75		2.40			

T-statistics in parentheses.

Notes to Table 6

Dependent variable is weighted log of the percentage of women by location who buy the brand, X_1 = Brand Price, X_2 = 1 if suburban dweller, 0 otherwise, X_3 = 1 if neither city nor suburban dweller, $X_4 = X_1 * X_2$, $X_5 = X_1 * X_3$. Omitted category is urban dweller.

Finally, our results show that women who live in urban and suburban areas are more status-conscious. (Table 6). The fraction of women living in these areas who buy expensive lipsticks is higher than among women in rural locales. Again, the F-test for the interaction terms with lipsticks is highly significant, while it is not significant for facial cleansers. The results for the semi-visible products are slightly different, with eyeshadow showing status effects through the interaction terms, and mascara not. Unfortunately, we cannot say what is causing this difference.

IV. Conclusion

We believe that this research provides strong support for the existence of status concerns in purchases of women's cosmetics. In contrast to the predictions of standard consumer theory, which would not expect any systematic differences to emerge across products by the level of social visibility, we find substantial evidence of such differences. Without invoking social factors it is difficult to explain why women will pay \$181 an ounce for a lipstick which is intrinsically no different than one they can purchase for \$18 an ounce. It is unlikely that women are systematically misled by marketers. A more plausible explanation, we believe, is that socially visible goods are associated with social standing. We believe the evidence we have presented here provides a good first test of one set of products. We hope this paper stimulates further research on a wider range of products to ascertain the prevalence of this phenomenon, and a possible re-thinking of work in the area of consumer demand.

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Notes

- 1 . Smith notes the importance of relative position in The Wealth of Nations. Following his lead, we can find similar references in the work of J.S. Mill, Marx, Marshall, Pigou, Keynes, Veblen, and Milton Friedman, among others. For specific quotations, see the survey in Richard McAdams (1992, pp. 10-14).
- 2 . Indeed, even the longstanding textbook nod to James Duesenberry's relative income hypothesis as an alternative to life cycle and permanent income theories has disappeared. It has become almost ritualistic in papers on relative preferences to note the discipline's neglect of this approach. See McAdams (1992, p. 10) and Robert Frank (1985a, p. 101).
- 3 . Kosicki's approach is not decisive. He tests the proposition that savings levels should be equal across income classes, a prediction of life cycle/permanent income approaches, and does not find equality. See Frank (1985a, pp. 109-111 for a review of the evidence and George Kosicki (1987, 1990). However, this criterion is indecisive because if not all consumption is status consumption, then lower income groups could have lower marginal propensities to save, but also be engaging in less status consumption.
- 4 . There are of course exceptions, some of which focus on the impact of the income distribution on individual utility. See Arie Kapteyn and van Herwaarden (1980), Rob Alessie and Kapteyn (1991) and Nigel Tomes (1986).
- 5 . The issue of "reference groups" (i.e., the identity of the j's) is not well understood. With whom are people comparing themselves? It has been often noted that comparisons are made locally, rather than globally. In related research we are gathering empirical evidence on the constitution and dynamics of reference groups. See Schor 1997, forthcoming. See also Tefertiller 1994 on reference groups among middle-income American teens, and the impact of a national mass media on the formation of reference groups. See also Festinger 1954, Park and Lessig 1977, Bearden and Etzel 1982, and Bearden, Netemeyer and Teel 1989, among others.
- 6 . This point is not uncontroversial. For example, Lovell (1994, private communication) has argued that Veblen and what he calls the Duesenberry-Sen approach, are opposed. In Veblen's conspicuous consumption, one enjoys consuming more than others of one's reference group, whereas with Duesenberry-Sen, one suffers a loss of utility if one consumes less than others. We do not believe such an interpretation is supported by the relevant texts. Duesenberry, like Veblen, cites the "maintenance of self-esteem" as the motive for acquiring goods, "the differentiated social status" which characterizes our society (p. 28-9), and the idea that "high standards of consumption become established as criteria for high status." (p. 30). Veblen's own caveats (see note 7, and his discussion of "waste" pp., 97-101) also suggest an interpretation similar to that of Duesenberry. Furthermore, because we cannot distinguish between them in our empirical work, we have chosen not to make a distinction between consuming to gain status and consuming to avoid a loss of utility.
- 7 . In light of the perjorative meanings Veblen's terms have acquired in contemporary usage, it is worth noting that he explicitly argued against such an interpretation. Discussing the term "invidious," Veblen said: "There is no intention to extol or depreciate, or to commend or deplore any of the phenomenon which the word is used to characterize. The term is used in a technical sense as describing a comparison of persons with a view to rating and grading them in respect of relative worth or value..." (1967, p. 34).
- 8 . We do not intend to imply that all consumption is driven by relative concerns. The degree to which "relativity" matters varies across commodities. Furthermore, multiple consumption motivations for a single commodity are of course possible, indeed are probably the norm.

9 . The "public" nature of status goods has been noted. See James (1987), Bearden and Etzel (1982) and Holman (1981).

10 . The two respondents who ranked eyeshadow last said they did so because they did not know anyone who used it.

11 . The price ranges for the four products were as follows: lipstick (\$0.81 to \$10.80; mascaras \$2.88 to \$12.33; eyeshadows \$1.97 to \$15.00 and facial cleansers \$2.72 to \$17.00) The brands are only those for which we had both Mediamark and Consumer Reports data.

12 . The weight we use is $np(1-p)$ where n equals the number of women buying the particular brand of the product, and p equals the proportion of women buying the brand. This weighting allows us to account for the fact that the cheaper brands have larger market shares, by normalizing the percentages and ensuring constant variance in the errors.