DEPARTMENT OF ECONOMICS WORKING PAPER SERIES

Mirror, mirror on the wall: The effect of time spent grooming on earnings

Jayoti Das, Stephen B. DeLoach
Elon University

Working Paper 2009-02

2075 Campus Box
Elon, NC 27244
Phone: (336) 278-5951
Fax: (336) 278-5952

Abstract

To most economists, personal grooming is a non-market activity. The standard view is that time spent in non-market activities is counterproductive as it reduces work effort and job commitment. But grooming may be different. Grooming provides an important source of communication about workers, their values and personalities. There is reason to believe that certain productive personality traits may be inferred on the basis of personal grooming. In this paper, we use data from the American Time Use survey's pooled cross-section 2003-2007 to investigate the effect of additional time spent grooming on earnings. The results show that the effect of grooming on earnings differs significantly by gender and race.

JEL Codes: J3, J7

Keywords: Human Capital Theory, College Major, Earnings

1. Introduction

Every day workers take time to shower, style their hair, select clothes and get dressed. Others spend additional time to shave, trim nails, apply makeup, polish shoes and iron clothes. Such personal grooming is both time consuming and socially valuable. Sociologists and anthropologists tell us that the way we groom communicates a significant amount of information about our desires, ambitions and place in society (Wax 1957). These non-verbal cues contribute to others' perceptions of our values and form the basis for expectations about our behavior. While this may lead to efficient social stratification at the cultural level, it is unclear whether such time-consuming activities are valuable in the labor market.

On one level, personal grooming can simply be thought of as another category of non-market activity workers engage in on a daily basis. With the exception of schooling, time spent on typical non-market activities such as housework and child rearing is expected to decrease productivity and earnings (Becker 1965). The assumption is that these activities reduce work effort and create disruptions in employment status. In this sense, time spent on non-market activities is either a proxy for, or cause of, lower levels of job commitment. Recent evidence appears to support this interpretation. Controlling for standard Mincerian labor market characteristics, a number of studies have shown a negative relationship between non-market activities and earnings (Hersch 1991, Hersch and Stratton 1996, Hersch and Stratton 2002). But what about the time workers spend on personal grooming?

In many ways, time spent grooming may be an investment into one's appearance. As a result, grooming may offer a way for workers to augment their physical appearance to mitigate (or enhance) the well-known beauty effect.[1] According to the standard beauty premium argument, beautiful workers may be relatively productive because customers prefer to deal with attractive

representatives (Hamermesh and Biddle 1994). Mobius and Rosenblat (2006) suggest that attractive workers are also likely to be more confident and possess better communication skills.

Alternatively, rather than augmenting physical appearance, grooming itself may provide important market signals about the individual. These could be non-beauty-related characteristics that employers find valuable. For example, a well-groomed worker may be more likely to be organized, pay attention to detail, or be dedicated to the job.[2] As a result, time spent grooming could be interpreted as a rational investment in one's reputation in the same way that professional certifications signal quality. Thus, unlike the traditional view of non-market activities, increased time spent on grooming may be associated with higher, not lower earnings.

The purpose of this paper is to examine the relationship between earnings and the amount of time workers spend grooming. We also investigate whether grooming has quantitatively similar effects across gender and across race. In Section 2, we begin by reviewing the social science literature on the importance of grooming. This leads directly to the formulation of our econometric model in Section 3. We describe the data in Section 4. The results from the various models estimated are discussed in Section 5, followed by concluding remarks in Section 6.

2. Why Do We Groom?

While the economics literature has focused almost exclusively on the effect of innate beauty on market outcomes, other disciplines have long considered the grooming aspect of physical appearance to be important to all manners of social and economic life.

Wax (1957) defines grooming as the "manipulation of one's superficial physical structure so as to make a desired impression upon others." (Wax, 1957, p. 588) These manipulations include bathing, shaving, plucking, styling hair, deodorizing, painting nails, applying makeup, etc. Such

practices are common among all human beings, though the exact nature differs across countries based on culture and custom.

In today's world both men and women invest both time and money in "looking good." To sociologists, appearance is symbolic and contextual. It reveals one's age, gender, power, sexuality, and religion. It is at the very heart of understanding identity in society. Wax (1957) argues that grooming should not just be viewed as a service of sexuality, but rather it should be viewed primarily as a means to denote the status and role of the person in relationship to their intended audience. Bloch and Richins (1992) add that adornments like makeup, hairstyle, and facial hair all alter one's own perceptions of physical attractiveness as well as the perceptions of others.

Appearance pervades all social interactions, including work. Businesses have long recognized the importance of what the literature refers to as "personal branding." In the absence of complete information, a more attractive, well-groomed employee provides information about the product or service they represent. In this sense, appearance is a legitimate evaluative criterion for customers and employers, alike. For example, in the case of services that are intangible, quality is often difficult to evaluate. This is especially true for complex technical, legal and financial services. In such cases, a seller's appearance allows buyers to make inferences about the ultimate quality of the service (Zeithaml, Perasurman and Berry 1985).

The literature in social psychology is more specific about why appearance may be so highly valued in the market. In general, one's appearance plays a key role in the interpersonal communication process through perception and image formation. These signals are indicative of personality traits and personal motivation. One widely accepted model of personality categorizes individual differences in social and emotional spheres into the following five factors: extraversion,

agreeableness, conscientiousness, neuroticism, and openness (Goldberg 1981, Costa and McCrae 1996). The most important of these for the workplace are arguably conscientiousness and agreeableness.[3] Conscientiousness encompasses factors such as competence, orderliness, and self-discipline, while agreeableness is associated with trust, straightforwardness, and compliance. Langlois, Kalakanis, Rubenstein, Larson, Hallam, and Smoot (2000) find that attractive people are generally rated more favorably in terms of interpersonal and occupational competence (conscientiousness). According to Peak (1986), well-dressed people are perceived to be relatively mature, sincere and dependable (agreeable).

While the discussion thus far suggests a positive effect of grooming on earnings by indirectly signaling positive characteristics of workers, the existing economics literature would suggest somewhat more direct mechanisms for thinking about the effect of time spent grooming. Unlike the previously mentioned literature, these economic effects could easily be positive or negative.

If grooming enhances one's physical appearance, then earnings could rise due to the so-called "beauty effect" (Hamermesh, et. al 2002). Of course the beauty effect could lead to higher earnings due to outright biases in the labor market, but it could also conceivably affect productivity. If appearance improves one's feeling of self worth and esteem, we'd expect a positive beauty effect on wages (Mobius and Rosenblat 2006). Waddell's (2006) recent study of young people confirms this as well. Recent evidence from workers in Shanghai seems to support this line of reasoning. Hamermesh, Meng and Zhang (2002) found that evidence that of a small, but positive "primping" effect on wages. The more money workers spend for stylish clothes, etc., the higher their wages.

Of course, grooming requires an investment in non-market time. The classic argument

put forth by Becker (1965) implies that increases in non-market activities lead to a direct decrease in productivity on the job. This effect has been confirmed in numerous studies looking at the effects of housework on wages (Hersch 1991, Hersch and Stratton 1996, Hersch and Stratton 2002). Thus it is possible that additional investments in time spent grooming may actually decrease, rather than increase earnings.

Based on the discussion thus far, whether the net effect of increases in time spent grooming on earnings is positive or negative is theoretically indeterminate. What is clear is that grooming is likely to be important, perhaps even more than inherent beauty itself. While beauty is largely determined by predetermined genetic mappings, grooming is behavioral. This is precisely why grooming may provide such powerful labor market signals.

3. Structural Model

In the context of labor economics, grooming can be thought of as a proxy for unobservable human capital characteristics not found in standard models of earnings determination. Typically, earnings are a direct function of the standard human capital characteristics (X_1), and occupation and industry controls (X_2), $W = f(X_1, X_2)$. In addition to human capital (e.g., education and experience), earnings are also affected by personality traits such as conscientiousness and agreeableness. To the extent to which grooming signals productive personality traits, we can write $W = f(X_1, X_2, G)$.

The earnings regression for an individual i of gender type j is given by:

$$\ln W_{ji} = X_{1ji}\Gamma_{1j} + X_{2ji}\Gamma_{2j} + \beta_j \ln G_{ji} + U_{ji} \quad (1)$$

The indicator *j* represents the four different groups to which we will focus our analysis. They include minority men, non-minority men, minority women and non-minority women. $\ln W$ is the log of weekly earnings for both males and females working full-time. X_1 is the matrix of the standard Mincerian human capital determinants, like age and education levels as well as demographic characteristics such as race and marital status. X_2 represents the matrix of controls for location, industry and occupation. G represents the time spent on personal grooming. In general, this represents the time (minutes) spent by workers washing, dressing and grooming themselves. Thus, β represents the marginal returns in weekly earnings to time spent grooming. Note that by introducing grooming time in its log form, we are allowing for diminishing returns, though we will also test for decreasing returns in subsequent variants of the model.

As discussed in the previous section, time spent grooming may affect earnings either positively or negatively. There are two possible reasons to expect $\beta > 0$. First, it could directly enhance one's physical appearance and increase earnings. Second, grooming may signal personal behaviors or traits that employers are likely to find productive, such as conscientiousness, etc. Alternatively, if grooming time represents a significant commitment to non-market time, it is possible that $\beta < 0$.

Complicating the problem of identifying the size and direction of the grooming effect is the likelihood that the time one chooses to allocate to grooming is endogenous to earnings. As suggested in the literature, grooming habits are determined within the context of the culture. For example, in the workplace, culture varies from job to job, and industry to industry. Obviously, part of this relates to the level of authority, and as a result, earnings. It is easy to imagine that some workers, like executives or other managers, might spend more time grooming simply because of the professional expectations associated with their positions. Thus, there is good

reason to expect that individuals who earn more also groom more. On the other hand, for a highly paid executive the opportunity costs of her time are quite high. Thus, it is also possible that highly-paid workers need not spend as much time grooming as their peers.

Regardless of the direction of the effect, the estimate of β will be biased and inconsistent if grooming is endogenous to earnings. If higher earnings results in more grooming, then β will be biased upward. But if increases in earnings cause less grooming, then β will be biased downward. In order to account for the possibility that grooming is endogenous, it is necessary to specify a structural grooming equation. This is given as follows:

$$\ln G_{ji} = I_{ji}\Gamma_{3j} + \alpha_j \ln W_{ji} + E_{ji} \tag{2}$$

I represents the matrix of exogenous variables that determine the amount of time one spends grooming. As the social science literature suggests, these could be thought of as personal traits or activities that reflects one's motivation to groom. There are two types of factors we consider. These are (1) personality-related characteristics and (2) other activities associated with one's social life. For example, the more time one spends with family, the less time available for personal grooming. This is analogous to traditional arguments for the effect of non-market time on weekly earnings (Hersch 1991, Hersch and Stratton 1996, Hersch and Stratton 2002). Likewise, individuals who spend more time relaxing at home are less likely to be concerned with their appearances. On the other hand, we expect "social butterflies" who spend more time going out to dinner, clubs, etc., to invest considerably more time in grooming.

4. Data

The data come from the American Time Use Survey (ATUS) questionnaire for 2003-2007. The ATUS annually interviews a sub-set of people from the nationally representative Current

Population Survey (CPS). This interview takes place between 2 to 5 months after the last CPS interview and individuals in the ATUS can be matched to their CPS reports on certain labor market characteristics and demographics. The ATUS micro data files from which our data come include the Respondent, Roster, Summary and Activity files. The ATUS has recently made comparable weights available across all the available cross-sections from 2003-07. This allows us to dramatically increase our sample sizes so that separate regressions can be run across race and gender lines.

The sample consists of full-time workers (more than 35 hours a week), ages 15-65. Because of measurement error in the reporting of weekly earnings, we further restrict the sample to include only those workers who report average weekly earnings of at least $100. This gives is a total of 32,642 workers in our final sample. We further stratify the sample by gender and race. For convenience, we have defined "minority" workers to include non-whites and Hispanics (most Hispanics self-identify as white). Thus, the four sub-samples are non-minority (non-Hispanic white) men (12,346), minority men (4,716), non-minority (non-Hispanic white) women (10,824) and minority women (4,756).

The dependent variable in the earnings equation is drawn from the ATUS Respondent file. The construction of this series is somewhat complicated since respondents can report earnings on an hourly, weekly, bi-weekly, monthly, or annual basis. The Bureau of Labor Statistics recommends the use of weekly earnings (TRERNWA) rather than hourly earnings (TRERNHLY) since hourly earnings are available only for respondents who are paid by the hour. We use the log of weekly earnings for full time workers (EARNINGS) as the dependent variable in earnings equation (1).

The standard labor market characteristics (X_1, X_2) in the earnings equation (1) are found in

the ATUS Respondent file. These include age (AGE), age-squared (AGE^2), and marital status (MARRIED). The level of education (NOHIGH, HIGHONLY, SOMECOLL, COLLEGE) is created from the variable PEEDUCA. Controls for occupation (10 one-digit-level occupation classifications based on TRMJOCC1 variable) and industry (13 one-digit-level industry classifications based on TRMJIND1 variable) ,geographic region (GEREG), metropolitan area (METRO), and ATUS survey year (TUYEAR) are also included.

Time use data used to estimate the grooming equation (2) are constructed from series found in the ATUS Summary, Respondent and Activity files. The ATUS collects data on what activities people engage in and how much time they spend in each activity during the day surveyed. These data about daily activities are collected from all segments of the population over 15 years of age and residing in the United States, excluding active military personnel and people residing in institutions such as nursing homes and prisons. Respondents are interviewed only once and report their activities for the 24-hour period from 4 a.m. on the day before the interview until 4 a.m. on the day of the interview (their diary day). The key question pertaining to all time activities is as follows:

> "Now I'd like to find out how you spent your time yesterday, [yesterday's day and date], from 4:00 in the morning until 4:00 am this morning. I'll need to know where you were and who else was with you. If an activity is too personal, there's no need to mention it. So let's begin. Yesterday [previous weekday] at 4:00 AM, what were you doing? What did you do next? and so on."

Respondents are then asked how long they spent on each activity, noting duration (minutes) as well as the start and stop time for the activity. Note only an individual's *primary* activities are reported. The ATUS also collects information on who was in the room/who accompanied the respondent during each activity (except for sleeping, grooming or working at one's job). This is important for our purposes since one's grooming habits are likely to differ

depending on the extent and type of daily social activities, as these reflect both personality traits and personal commitments. Activities are assigned a six-digit code. The first two digits represented the major activity category (e.g., personal care), the next two digits denote the second-level of detail (e.g., grooming), and the last two digits denote the third-tier level of detail (e.g., washing).

Time spent grooming (GROOMING) is constructed from the ATUS Summary file. It includes how much time is spent washing and dressing oneself, including brushing, shaving, getting dressed, laying and changing clothes, combing hair, gargling, applying moisturizers, etc.[4] To dissect the possible grooming effects on earnings, we would ideally like to be able to look at the effect of the time spent on grooming prior to work (as opposed to the total time spent grooming). The argument is that the time spent grooming immediately prior to work should better proxy on-the-job beauty, where the total time spent grooming more closely proxies personality characteristics as discussed in the previous section. While the ATUS Activity file allows us to estimate the grooming time done prior to the first "work-related activity" of the day, the type and location of this "work-related activity" is unknown. More importantly, since such a large proportion of the surveys are done on the weekends or other non-working days, the use of such a measure severely limits the sample sizes, especially for minority workers. Because of these short-comings, we have limited our analysis to the broadest definition of grooming in this study.

4.1. Instruments

The ATUS Summary and Respondent files also provide information on other activities that are likely to be correlated with grooming patterns. This is essential in finding valid instruments in which to use in the IV (2SLS) estimation to follow. Of course, many activities will

themselves be endogenously related to earnings. Only econometric testing can determine which of the possible candidate instruments discussed below are suitable for each of the four sub-samples estimated in the following section. The data discussed in this section are those that we have found to be valid instruments for at least one of the specifications.[5]

Our general strategy in thinking about possible instruments is to think about activities that are either highly public (requiring more grooming) or highly private (requiring less grooming). One example of a public activity that often requires more grooming is time spent participating in religious activities (RELIGIOUS). In addition to being spiritual, participation in religious services is highly social. Our proxies for those activities that tend to be relatively private come from the so-called "who with" variables in the ATUS. These data do not provide aggregate minute spent on any one specific activity, but rather the amount of time the respondent spent with other people (or not). Theoretically, grooming patterns are likely to differ depending on whom they plan to interact with during the day. For example, clearly the more time one spends alone (ALONE) the less grooming time required. In addition, the time respondents spend with their family (FAMILY) or partner (SIGOTHER) is likely to require differing amounts of grooming If the preponderance of these interactions are done in private, then we would expect a negative relationship between this time and grooming.

Finally, the level of detail a respondent provides in their diary day is likely to be of significant interest. Recall that one of the strongest arguments for the effect of grooming on earnings is that personal grooming provides a signal about a worker's conscientiousness and attention to detail. If so, then the number of activities one reports in their time-use diary (ACTIVITYNUM) should be positively related to grooming time. Another rationale for the use of such an instrument stems from the very nature of the surveys themselves. Measurement is a

legitimate concern here. The more activities one reports on their diary, the more likely they have accurately recorded their grooming time. Again, we would expect these two to be positively correlated.

4.2. Summary Statistics

Table 1 shows the summary statistics for some key variables and instruments by gender and race.[6] There are some interesting findings that shed light on our sample and on the relative time use of workers. First, 50 percent of minority men and 38 percent of minority women identify themselves as Hispanic. Not surprisingly, women spend far more time grooming than do men. Non-minority women spend on average more than 15 minutes a day than non-minority men and minority women spend about 17 minutes more per day than minority men. In addition, minorities of both sexes spend more time grooming than their peers. Though women spend more time with their families than men, they spend significantly less time with their partners. This is probably due to sample selection bias as we are only looking at working women. Across racial lines, minorities spend more time in religious activities and less time with family than non-minorities. Finally, women in the sample reported more activities during their diary day than did men, with non-minority women reporting the most on average. This is consistent with expectations as women are stereotypically more detail-oriented than men.

[TABLE 1 ABOUT HERE]

There is strong evidence that measurement error exists in the grooming variable. There are a relatively large number of respondents who report zero minutes grooming on their diary day. In the final sample, 13.4 percent of minority women, 14.4 percent of non-minority women, 21.5 percent of minority men and 22.1 percent of non-minority men reported zero time spent grooming.

Given that grooming includes such activities as getting dressed and brushing ones teeth, it is difficult to imagine that full time workers could literally do *no* grooming whatsoever. While part of this is likely to be measurement error, under-reporting of grooming may also be related to the day of the week respondents are surveyed. Not surprisingly, the grooming habits of full-time workers are likely to be considerably different on the weekends than on weekdays. Fortunately, this can be controlled for through the use of instrumental variables estimation.

The consequence of ignoring measurement error is non-trial. In the presence of random measurement error, the OLS estimate of the coefficient on grooming in the earnings regression will be biased towards zero. This alone suggests the importance of finding valid instruments for grooming, since IV estimation is a standard remedy for measurement error.

5. Econometric Estimation

As previously discussed, there are two problems with using OLS to estimate the earnings equation: (1) the possible endogeneity of grooming and (2) the suspected measurement error in grooming. If either problem is present, the OLS estimates will be biased and inconsistent. In such cases, however, the structural model (equations 1 and 2) can be consistently estimated using IV estimation. Specifically, we use two-stage least squared (2SLS). As suggested by the ATUS, all models (OLS and 2SLS) use sample weights (TUFNWGTP) to estimate the standard errors. In addition, all models are estimated using Heckman's correction for sample selection bias.[7] While there is no convenient test for measurement error, we do test for endogeneity using Davidson and Mackinnon's (1993) version of the Hausman test.

To estimate the model using IV, we follow recommendations outlined in Baum, Schaffer and Stillman (2003). There are two issues related to the IVs that determine the validity of the

inferences from the structural model. One is the problem of weak instruments and the second is validity of the instruments themselves. To measure the relative strength of the IVs, we calculate the Partial R^2 and associated F-statistic suggested by Bound, Jaeger and Baker (1995). For large sample sizes, Staiger and Stock (1997) suggest that any F-statistic below 10 should be considered weak. Of course, for the IVs to be valid instruments, they cannot be directly correlated with earnings. While there are a number of alternative tests for this, most are not robust to heteroscedasticity. It is for this reason we report Hansen's (1982) J-statistic (distributed χ^2) to test the over-identifying restrictions. Results from the first-stage regressions are summarized in Table 2.

[TABLE 2 ABOUT HERE]

To facilitate direct comparison, both OLS and IV estimates are summarized in Table 3. For ease of presentation, controls for occupation, industry, metropolitan and geographical location, and sample year have been omitted from Table 3.

[TABLE 3 ABOUT HERE]

5.1. Regression Diagnostics

Before analyzing the grooming effect, it is important to verify the appropriateness of the model in general. As evidenced by results from Davidson and Mackinnon's (1993) version of the Hausman test, the time workers report for grooming is endogenous to earnings for all sub-samples except for non-minority men. As a result, the OLS estimates are biased and inconsistent for minority men, and both samples of women. For the non-minority men, however, the OLS are only biased if the measurement error is large. As noted previously, the presence of a large proportion of respondents reporting zero grooming minutes (over 22 percent for non-minority

men) leads us to believe that measurement error is likely to be a problem for these men. Therefore, because of the strong evidence of both endogeneity and measurement error in grooming time variable, the preferred estimates are those generated by the IV model.

It is important to note that the IVs for all four sub-samples are valid. The final set of IVs that meet all the criteria explained above for each of four sub-samples is given in Table 2. Though not reported in Table 2, IVs also include dummy variables for the day of the week, since people are likely to groom differently depending on the day of the week (casual Fridays, weekends, etc.). The IVs appear to be quite satisfactory. The partial R^2 for each is low, but all four sets of IVs are statistically significant and exceed the minimal criteria defined by Staiger and Stock's (1997) based on the F-test. According to J-statistic, we fail to reject the over-identifying restrictions. That is, the IVs in the final model directly affect grooming time, but do not directly affect weekly earnings.

In addition to meeting the econometric requirements, it is also encouraging that the results from the grooming equation are consistent with expectations. The amount of time spent dedicated to family life (FAMILY, SIGOTHER) negatively affects grooming. On the other hand, time spent in religious activities (RELIGIOUS) is positively related to grooming time. Time spent alone (ALONE) is also significantly negative for minority women. Not surprisingly, grooming on holidays (HOLIDAY) is significantly lower than on non-holidays. Interestingly, the number of activities reported in the diary day (ACTIVITYNUM) is positive and significant for the two minority samples. This provides some indirect evidence that reported grooming time is positively related to personality traits like conscientiousness. For example, a more conscientious worker is more likely to keep copious notes about their diary day, thus increase the number of reported activities. At the same time, they report more grooming time. What is not clear is

whether it is that these conscientious workers actually *do* groom more than their peers; or, it is just possible that they *report* more grooming time than their peers.

Finally, the standard theoretical predictions with respect to the determinants of earnings are robust to the specification and to the estimation method used. The returns to age are significant and positive, increasing in the early years and diminishing in later years. The returns to education are fairly consistent across the models. The only surprising finding has to do with the returns to marriage. Previous studies (Korenman and Neumark 1991) have typically found that marriage positively affects men's, not women's, earnings. However, in our results, even married non-minority women earn more than their unmarried counterparts.

5.2. Grooming Effect

Now that we have established the validity of the IV models we can turn our attention to interpreting the results with respect to the effect of grooming on earnings. As explained above, there is strong evidence that returns to grooming are biased and inconsistent in OLS. Because of the endogeneity of grooming with respect to earnings, we would expect that the OLS estimates are biased upward if workers who earn more tend to groom more due to their status or authority. This is precisely what is seen in three of the four models.

In the OLS regressions grooming appears contribute positively to earnings. However, in all cases except for minority men, results from the IV regressions show that extra time spent grooming is likely to negatively affect earnings. However, this negative effect is only statistically significant for non-minority women. In fact, for non-minority men the effect is practically zero. But that is not the case for women. If a non-minority woman doubles her grooming time (approximately another 45 minutes), her earnings decrease an average of 3.4 percent. The

direction of this effect is consistent with the literature on the negative effects of non-market time on women's earnings. However, the size of this effect is surprisingly large compared to the marginal effect of an extra hour spent on housework (Hersch 1991). The reason may have to do with the negative stereotypes associated with an "overly groomed" woman in the workplace. Note that while not significant at standard levels, the negative coefficient on grooming for minority women is not dissimilar to that of their non-minority female peers.

Easily the most intriguing effect is found with minority men. In this case, the IV estimates increase the estimated returns to grooming over the biased OLS estimates. This would seem to indicate that measurement error in this sub-sample is a relatively large problem (even more so than endogeneity). When grooming time is instrumented, the effect becomes positive and significant at the 0.05 level. A doubling of daily grooming time (approximately 40 more minutes) leads to nearly a 4 percent increase in average earnings, all else equal. To put that in perspective, that is half the size of the returns to marriage for these minority men.

At first blush it may seem surprising that grooming time has such a large, positive effect on the earnings of minority men. Though seemingly counter-intuitive, this is broadly consistent with other evidence on the effect of appearance in the workplace. For example, in their seminal study, Hamermesh and Biddle (1994) find that the beauty premium is substantially larger for men. A similar effect has recently been found by Hamermesh and Parker (2005). So perhaps these findings simply suggest that time investments made in improving one's appearance through daily grooming are merely reinforcing or mitigating the male-biased beauty returns. However, the fact that this does not hold for non-minority men suggests there may be a more plausible explanation.

An alternative explanation is that the grooming effect may be working to mitigate popular stereotypes of minority men in the workplace. We have previously argued (Section 2) that

grooming behavior may serve as a signal for unobservable personality traits such as agreeableness and conscientiousness. So what are the prior expectations regarding the presence of these traits in minority men? Suppose that employers assume that women and non-minority men are relatively more agreeable and conscientious than minority men. Marginal increases in their grooming would do little to signal these traits at the margin (and in fact, may trigger other negative stereotypes, like vanity). On the other hand, a minority man who appears to be relatively better-groomed than his cohort could provide a strong signal to counter the negative stereotypes.

This explanation seems intuitive. Even more than their non-minority peers, minority men are commonly stereotyped by their dress, physical appearance and behavior. Historically, such behavior has often been referred to (derogatorily) as "acting white" (Austen-Smith and Fryer 2005). These results seem to suggest that "grooming white" so to speak is economically rational. If minority men believe they are scrutinized more for their appearance than white men, they may be willing to invest more time in grooming to counter that perception. As they do, they are likely to counteract the pre-existing cultural biases that contribute to the large earnings discrepancy based on race.

5.3. Omitted Beauty and its Effects on Grooming

One shortcoming of this study stems from the lack of data on beauty. The implicit assumption made in the econometric model is that grooming and beauty are uncorrelated. If this assumption is false, then our estimates of the effect of grooming on earnings would be biased. The question then becomes: is this omitted-variable bias likely to over- or under-estimate the grooming effect?

The main concern, obviously, is whether the omission of beauty results in a spurious,

positive correlation between grooming and weekly earnings. Given that we found no grooming effect for non-minority men and negative grooming effects for women, this concern seems unfounded. If omitted beauty is confounding these results, we should have found positive and significant effects across all the models. So if the omitted beauty variable is causing a spurious positive correlation between grooming and earnings, then it must be that beauty and grooming are positively correlated *only* for minority men. This seems highly unlikely.

If anything, the economics would suggest the opposite. According to the literature, appearance acts as a signal for personality traits valued in the workplace. If this is true, it is conceivable that the relationship between grooming and innate physical beauty could be negative. For example, suppose that workers rationally choose to invest in time spent grooming in an effort to obtain the preferred market signal. Furthermore, assume that attractiveness does not affect the actual productivity of the worker. In such a case, workers exogenously endowed with high levels of beauty would actually require less grooming time to obtain the signal than their less-beautiful counterparts. Recall that Mobius and Rosenblat (2006) argue beautiful workers earn more because they are more confident. Again, this would seem to imply that beautiful workers need not waste time grooming since they are more confident to begin with. Thus, one could easily argue that the omission of beauty is likely to *under*-estimate the magnitude of the grooming effect found in this paper.

6. Conclusion

The fact that grooming is likely to be important in the workplace is terribly novel. Nevertheless, this is the first paper to quantify the returns to such an important personal time investment. The literature suggests that one reason grooming matters is because of the

underlying personality traits and values that it signals. Of all the ways in which workers spend their non-market time, grooming may be one of the better ways to signal such traits to employers since grooming is always directly observable. Unlike a well-groomed worker signaling their commitment to an employer, workers who are unable to maintain their appearance may be inadvertently signaling the use of their non-market time, and consequently, their priorities.

This paper makes important contributes to both our general understanding about the relationship between physical appearance and earnings and to the importance of how workers use their non-market time. Rather than merely augmenting the well-known beauty effect, there is reason to believe that grooming affects labor market outcomes quite independently of beauty. What is most interesting is the complexity with which grooming appears to affect earnings. For women, the evidence suggests that grooming time signals negative rather than positive worker attributes. Indeed, additional time spent grooming is found to decrease earnings considerably more than even housework. For minority men, however, increased grooming time has an unambiguously positive and large effect on their earnings. While we cannot offer a definite explanation at this point, it may be that grooming helps to counter negative stereotypes regarding minority men's agreeableness or conscientiousness. Whatever the reason, these results clearly show that many workers have a strong incentive to think more about their grooming patterns and the underlying skills and traits it signals.

In the end, this paper presents more questions than it answers. We have hypothesized about several possible explanations capable of accounting for the different effects of grooming on earnings that appear to exist across gender and race. Future research and surveys capable of simultaneously examining both worker behavior and objective perceptions of personality along the lines of French, *et al* (2009) are needed to decipher these kinds of complex workplace effects.

7. References

American Time Use Survey. 2005. [internet: http://www.bls.gov/tus/].

Austen-Smith, D. and R.G. Fryer. 2005. An Economic Analysis of 'Acting White'. Quarterly Journal of Economics, 120, no. 2: 551-83.

Baum, F.C., Schaffer, M.E., and Stillman, S. 2003. Instrumental variables and GMM: Estimation and testing. Boston College Working Papers in Economics 545, Boston College Department of Economics.

Becker, G.S. 1965. A Theory of the Allocation of Time. Economic Journal, 75, no. 299: 493-517.

Bloch, P.H., and Richins, M.L. 1992. You look `mahvelous': the pursuit of beauty and the marketing concept. Psychology and Marketing, 9:3-15.

Bound, J., Jaeger, D.A., and Baker, R. 1995. Problems with instrumental variables estimation when correlation between the instruments and the endogenous explanatory variable is weak. Journal of the American Statistical Association, 90:443-450.

Davidson, R. and Mackinnon, J.G. 1993. Estimation and Inference in Econometrics, New York: Oxford University Press, 236-42.

French, M.T., Robins, P.K., Homer, J.F. and L.M. Tapsell. 2009. Effects of physical attractiveness, personality, and grooming on academic performance in high school. Labour Economics, 16: 373–382.

Goldberg, L.R. 1981. Language and individual differences: The search for universals in personality lexicons. In L. Wheeler (Ed.), Review of personality and social psychology, Vol. 2. Beverly Hills, CA: Sage, 41-65.

Hamermesh, D.S., and Biddle, J.E. 1994. Beauty and the Labor Market. American Economic Review, 84, no. 5: 1174-1194.

Hamermesh, D.S., Meng, D., and Zhang, J. 2002. Dress for success - does primping pay?. Labor Economics, 9: 361-373.

Hamermesh, D.S., and Parker, A. 2005. Beauty in the Classroom: Instructors' Pulchritude and Putative Pedagogical Productivity. Economics of Education Review, 24, no. 4: 369-376.

Hansen, L. 1982. Large sample properties of generalized method of moments estimators. Econometrica, 5, no.3: 1029-1054.

Heckman, James. "Sample selection Bias as a Specification Error." Econometrica, 1979, 47, no. 1: 153-161.

Hersch, J. 1991. The Impact of Nonmarket Work on Wages. American Economic Review, 89, no. 2: 157-160.

Hersch, J., and Stratton, L.S. 1996. Housework, Fixed Effects, and Wages of Married Workers. Journal of Human Resources, 32, no. 2: 285-308.

Hersch. J., and Stratton, L.S. 2002. Housework and Wages. Journal of Human Resources, 37, no.1: 217-229.

Korenman, S. and Neumark, D. 1991. Does Marriage Really Make Men More Productive? The Journal of Human Resources, 26, No. 2: 282-307.

Langlois, J.H., Kalakanis, L., Rubenstein, A.J., Larson, A., Hallam, M., and Smoot, M. 2000. Maxims or Myths of Beauty? A Meta-Analytic and Theoretical Review. Psychological Bulletin, 126, no. 3: 390-423.

McCrae, R. R., & Costa, P. T., Jr. 1996. Toward a new generation of personality theories: Theoretical contexts for the five-factor model. In J. S. Wiggins (Ed.), The five-factor model of personality: Theoretical perspectives, New York: Guilford, 51-87.

Mobius, M.M. and Rosenblat, T.S. 2006. Why beauty matters. American Economic Review, 96, no. 1: 222-235.

Mueller, G. and Plug, E.J.S. 2006. Estimating the Effect of Personality on Male and Female Earnings, Industrial & Labor Relations Review, 60, no. 1, 3-22.

Peak, S.L. 1986. Effects of garment styles on the perceptions of personal traits. Clothing and Textiles Research Journal, 5, no. 1:26-29.

Staiger, D., and Stock, J.H. 1997. Instrumental Regression with weak instruments. Econometrica, 65, no. 3: 557-586.

Waddell, Glen R. 2006. "Labor-Market Consequences of Poor Attitude and Low Self-Esteem in Youth," Economic Inquiry, 44, no. 1:69-97.

Wax, M. 1957. Themes in Cosmetics and Grooming. The American Journal of Sociology, 62, no. 6: 588-593.

Zeithaml, V.A., Perasurman, A., and Berry, L.L. 1985. Problems and strategies in services marketing. Journal of Marketing, 49, no. 2: 24-26.

Table 1: Summary Statistics

Sample:	**Non-minority Men**		**Minority Men**		**Non-minority Women**		**Minority Women**	
	Mean	**St dev**	**Mean**	**St dev**	**Mean**	**St dev**	**Mean**	**St dev**
EARNINGS	$1,091.03	$649.22	$804.11	$558.57	$805.19	$514.78	$670.58	$464.48
GROOMING	32.08	27.36	37.18	32.13	47.44	34.07	54.78	41.38
RELIGIOUS	7.79	33.63	10.91	44.59	7.86	31.77	15.88	54.36
SIGOTHER	225.66	255.27	186.98	250.35	172.90	236.07	112.70	210.38
FAMILY	309.18	285.46	266.48	278.35	316.44	279.24	291.41	278.26
ALONE	231.10	204.55	238.24	218.96	242.79	205.37	241.41	211.57
ACTIVITYNUM	18.79	7.06	17.33	6.67	21.71	7.94	19.72	7.78
Sample size	12,346		4,716		10,824		4,756	

Notes:

All time variables are measured in minutes reported during diary day

Earnings are typical weekly earnings from one's primary job

Table 2: Instrumental Variables Regressions

Sample:	**Non-minority Men**	**Minority Men**	**Non-minority Women**	**Minority Women**
HOLIDAY	-0.455***	-0.031	-0.269*	-
	(.170)	(.247)	(.156)	
RELIGIOUS/100	-	0.346***	0.694***	0.202***
		(.059)	(.046)	(.038)
SIGOTHER/100	-	-	-	-0.107***
				(.014)
FAMILY/100	-0.096***	-0.116***	-0.105***	-
	(.009)	(.014)	(.009)	
ALONE/100	-	-	-	-0.153***
				(.016)
ACTIVITYNUM	-	0.067***	-	0.035***
		(.004)		(.004)
Day of the week				
Controls included	*yes*	*yes*	*yes*	*no*
Sample size	12,346	4,716	10,824	4,756
F	80.40***	56.43***	70.47***	57.10***
Bound, *et al's* Partial R^2	0.070	0.128	0.079	0.085
Hansen's J	3.46 (p=.84)	8.27 (p=.51)	5.24 (p=.73)	4.68 (p=.20)

Notes:
Dependent variable is the log of grooming (lnGROOMING).
, ** and * represent statistical significance at the 0.10, 0.05 and 0.01 levels, respectively.*

Table 3: Weekly Earnings Regressions

Sample:	**Non-minority Men**		**Minority Men**		**Non-minority Women**		**Minority Women**	
Method:	**OLS**	**IV**	**OLS**	**IV**	**OLS**	**IV**	**OLS**	**IV**
LnGROOMING	0.001	-0.007	0.007	0.038**	0.002	-0.034**	0.009**	-0.027
	(0.002)	(0.013)	(0.004)	(0.016)	(0.003)	(0.013)	(0.004)	(0.021)
AGE	0.107***	0.023***	0.041***	0.043**	0.049***	0.049***	0.019**	0.018*
	(0.011)	(0.013)	(0.014)	(0.020)	(0.004)	(0.005)	(0.009)	(0.011)
$AGE^2/100$	-0.122***	-0.104***	-0.044**	-0.047*	-0.049***	-0.047***	-0.015	-0.014
	(0.013)	(0.002)	(0.018)	(0.002)	(0.004)	(0.005)	(0.011)	(0.013)
HISPANIC	-	-	-0.069**	-0.052	-	-	-0.068***	-0.072***
			(0.026)	(0.033)			(0.015)	(0.020)
NOHIGH	-0.299***	-0.247***	-0.123***	-0.104***	-0.161***	-0.172***	-0.105***	-0.103***
	(0.044)	(0.051)	(0.026)	(0.035)	(0.031)	(0.040)	(0.035)	(0.038)
SOMECOLL	0.115***	0.100***	0.099***	0.092***	0.096***	0.098***	0.088***	0.053**
	(0.013)	(0.015)	(0.021)	(0.026)	(0.012)	(0.015)	(0.020)	(0.026)
COLLEGE	0.377***	0.364***	0.361***	0.382***	0.424***	0.416***	0.412***	0.352***
	(0.016)	(0.020)	(0.029)	(0.040)	(0.014)	(0.019)	(0.029)	(0.038)
MARRIED	0.198***	0.195***	0.066***	0.079**	0.041***	0.038**	0.034	0.031
	(0.015)	(0.019)	(0.026)	(0.040)	(0.012)	(0.015)	(0.021)	(0.025)
$\hat{\lambda}$	0.420***	0.343***	-0.037	0.050	-0.061**	-0.051	-0.162**	-0.205**
	(0.098)	(0.122)	(0.120)	(0.177)	(0.028)	(0.034)	(0.079)	(0.092)
Sample size	12,346	12,346	4,716	4,716	10,824	10,824	4,756	4,756
R^2	0.425	0.440	0.409	0.407	0.419	0.413	0.460	0.455
Davidson-Mackinnon	1.34		7.85***		3.08*		6.44**	

Notes:
All models include controls for occupation, industry, geographic and metropolitan location, and ATUS survey year.
, ** and * represent statistical significance at the 0.10, 0.05 and 0.01 levels, respectively.*
Numbers in parentheses are weighted standard errors.

Notes

[1] While it is clear that physical attractiveness matters, it is not clear how much control workers have over how they look. Hamermesh, Meng and Zhang (2002) focus on whether beauty-enhancing investments positively affect earnings. Using data from a 1996 survey of Chinese workers in Shanghai, they find that spending on beauty related products such as clothing and cosmetics have only a small but positive effect on workers' earnings.

[2] In a recent article about academic performance in high schools, French, Robins, Homer and Tapsell (2009) found that better-groomed students earned higher grades. Interestingly, they found no beauty effect in GPAs after controlling for grooming and personality. They argue that grooming sends a signal of compliance. Students who present themselves as better-groomed are showing that they are interested in conforming to teacher/adult expectations and thus will be willing to spend more time studying.

[3] However, recent evidence by Mueller and Plug (2006) suggest these rewards may differ by gender. Using data from workers who graduated high school in Wisconsin in 1957, they find that while women were rewarded positively for conscientiousness, men's wages actually decreased with the level of agreeableness.

[4] See http://www.bls.gov/tus/lexicons.htm for detailed information on the ATUS definitions that are used to construct all the time use variables used in this study.

[5] Additional time use variables were considered as possible instruments for grooming (e.g., time spent with friends, going out, etc…) but were ultimately found to poor instruments either because of a lack of correlation with grooming or because of a violation of the over-identifying restrictions.

[6] The standard labor market statistics reveal nothing surprising. On average workers are 39 to 42 years old, depending on the sub-sample. Non-minority women are the oldest and minority are the youngest on average. Considerably more men than women in this sample are married. 68 percent of non-minority men and 59 percent of minority men are married, but only 55 percent of the non-minority and 40 percent of minority women are married. Of non-minority men, 5 percent have not graduated high school, 28 percent have some college education and 40 percent have a college degree. Of minority men, 21 percent do not have a high school diploma, 25 percent have some college and only 27 percent have a college degree. Of non-minority women, only about 3 percent have not finished high school, roughly 32 percent have only some college and about 41 percent are college graduates. Of minority women, 13 percent have no high school diploma, 30 percent have some college education and 30 percent have a college degree. The earnings differentials in this sample also appear to be consistent with existing literature.

[7] The instrument used for sample selection bias is the total number of children under 18 in the household. All exogenous variables in the wage equation are also included in the estimation of λ.