Appalachian
STATE UNIVERSITY

Department of Economics Working Paper

Number 19-01 | January 2019

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Willingness Toupee

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Abstract: In this paper we tackle the hairy problem of male pattern baldness. We survey balding men and elicit their willingness to pay to move from their current sad situation to a more plentiful one. Then we comb-over the results. What's the average willingness to pay to move from a glistening cue ball to a luscious mane? About $30,000.

Keywords: mullet, skullet, comb-over, ducktail, Beatlemania, buzz cut, whiffle, pageboy, attribute non-attendance

JEL code: B12

[1] As is standard in the discipline, author order is determined by reverse Norwood Baldness Scale.

1. Introduction

Male pattern baldness is a hairy issue. The gut-wrenching suffering and panic from hair loss has been happening since the beginning of time. Of course, men have not sat passively by while their former manes wisp away like dandelion seeds. From the modern day "hair piece", or toupee, to the Neanderthal's "stone piece", men have been fighting back.[2] It is clear from the battery of products available that mask hair loss (e.g., toupee, hair-in-a-bottle), regrow hair (e.g., minoxidil or finasteride) or methods used to trick others into believing a full head of hair still exists (e.g., the comb-over), balding men are engaged in significant economic activities to fight hair loss. These efforts have market implications. In one prominent example, Homer Simpson earned a handsome promotion triggered by his new head of hair leading other men to search for the next Dimoxinil (Carilli, 2014).[3] But how much are balding men willing to pay? In this paper we get to the root of the issue.

To the authors knowledge, there is not one follicle of empirical evidence on the value balding men place on keeping or restoring their luscious locks.[4] To fill - or at least cover up - this void, we designed a choice experiment. Using a convenience sample of balding males, we start by asking each where they currently fall on the Norwood Baldness Scale (hereafter, NBS), which is an established baldness scale that ranges from the full "mop" (1) to the glistening "cue ball" (7). Then, we ask participants whether they would be willing to pay a fixed amount of money to move from their current situation to a more plentiful one. From this design we can back out the average willingness to pay for both incremental and dramatic changes in a person's hair loss situation. In other words, our study allows us to estimate the average willingness to pay to move from a current Bruce Willis (7) to a current Prince William (4). That value? A measly $15,960. We know what you're thinking at this point. What's the value of moving from a current Bruce Willis (7) to a Die Hard Bruce Willis (3) to a Moonlighting Bruce Willis (2)? The answer is $21,280 for the (7) to (3) jump and then another $5,320 for the (3) to (2) jump. Those are some serious Benjamins. (Note that on the $100 bill Benjamin Franklin is proudly donning a "skullet" - bald up top, long in the back - which literally places him off the Norwood balding chart).

In the next section we discuss the survey instrument and experimental design. We follow with a description of the empirical methodology, then we brush through the results. We end with a lighthearted conclusion (business in the front, party in the back).

2. Survey instrument and experimental design

Balding men are literally everywhere. They can be found reflecting sunlight during a day game in a baseball stadium, comparing themselves to a honeydew melon at the local supermarket or gaining a few extra seconds in the lap pool. Many live proud, unapologetically flaunting their baldness wherever they go. Others, however, try to hide in plain sight under the cover of a

[2] The "stone piece" was a block of dark slate tied around the head to achieve the appearance of a full head of hair. While there are no sources of any such thing actually taking place, the authors imagine that it must have happened.

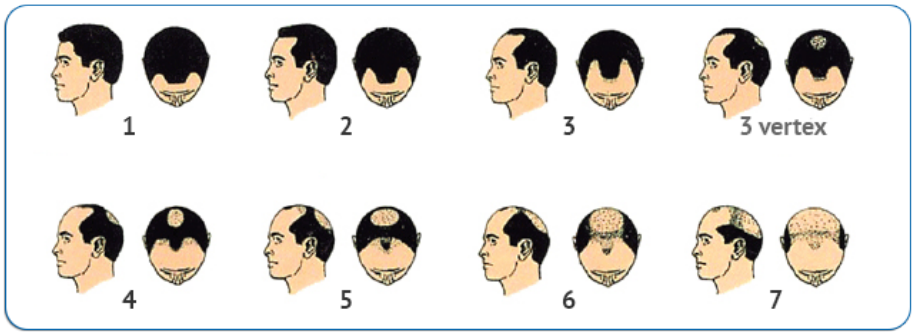
[3] "In 'Simpson and Delilah,' Homer attempts to pursue an executive position in which he doesn't have a comparative advantage. Mr. Burns confuses Homer with a young go-getter and promotes him to an executive position after Homer has managed to scam himself some Dimoxinil--a miracle cure for baldness--and grow some hair." (Carilli 2014, p. 11)

[4] It is important to note that the authors did not even bother looking for other studies.

toupee, fedora or even shake-on hair-in-a-bottle. It should be unsurprising, therefore, that bald men can also be found on the internet. And the internet is precisely where we looked for our balding men. In particular, Amazon's Mechanical Turk (MTurk) online workforce.

We recruited a sample of balding men on MTurk. We specifically targeted male workers in the United States that self-identified as having thinning and/or balding hair. Participants were paid $0.70 for completing the survey. On average, the survey took under five minutes to complete. The first question they answered was where they currently saw themselves on the NBS which is found in Figure 1.

Figure 1: The Norwood Baldness Scale (NBS)



After a participant indicated where they fell on the NBS, they were presented with a hypothetical situation. We asked them to think about a situation in which they could pay money to have a fuller head of hair. Each participant that indicated a current baldness level greater than (1) was presented with three scenarios.[5] Although it may seem like splitting hairs, our survey uses a pivot design where respondents are asked whether they would pay a price for a movement down the NBS, from their own baseline. The scenarios were randomly selected among the pool of available options. For instance, a male at baldness level (4) could be presented with options (1) through (3-vertex), so they had four possibilities. For each randomly chosen scenario, a participant was asked whether they would pay a fixed amount of money to achieve the improvement in hair coverage. When thinking about the scenario (for some, *dreaming* about the scenario) we asked them to imagine that the change is permanent. In each scenario the respondent is offered a hair restoration solution at a randomly assigned price of either $500, $5,000, $10,000, $25,000, or $50,000. An example of the willingness to pay question is presented in the appendix.[6]

In addition to the willingness to pay questions, we asked participants some other stuff. They were asked how much money they earn, their age and education levels. We also inquired about their relationship status ("single, living at home until my parents die" was an option), what kind of hair-loss products they might use and whether they've attempted any standard tricks of the trade (e.g., the "comb-over" or "brush forward").

[5] Any participant that chose (1) on the balding scale was taken to the end of the survey immediately.

[6] The full survey can be found here: https://appstate.az1.qualtrics.com/jfe/form/SV_3efCYxv60CQ9KfP

3. Male Models

Some people say that going bald is all in your head. Considering this, we assume that hair loss is an argument in the utility function. Suppose a male receives utility, v, from income, y, and personal characteristics, such as a thick head of hair, $v(y, h)$. We operationalize h to be consistent with the NBS where h ranges from the skullet-inducing, $h = 7$, to the George Clooney-like full mane, $h = 1$. The willingness to pay for an increase in coverage is $v(y - WTP, \Delta h) = v(y, 0)$,where $\Delta h = h^* - h'$ is the improvement in coverage, h^* is the NBS baseline and h' is the randomly assigned NBS endpoint, $h^* > h'$.

We estimate the willingness to pay for a one-time treatment that would lead to a personal change in the NBS with two logit models.[7] The mixed logit (MXL) allows preference heterogeneity in the estimated utility parameters. This is an explicit acknowledgement that balding men go through various stages (e.g., worry, confusion, unfortunate averting behaviors) that may lead to differences in preferences towards reversal of hair loss.

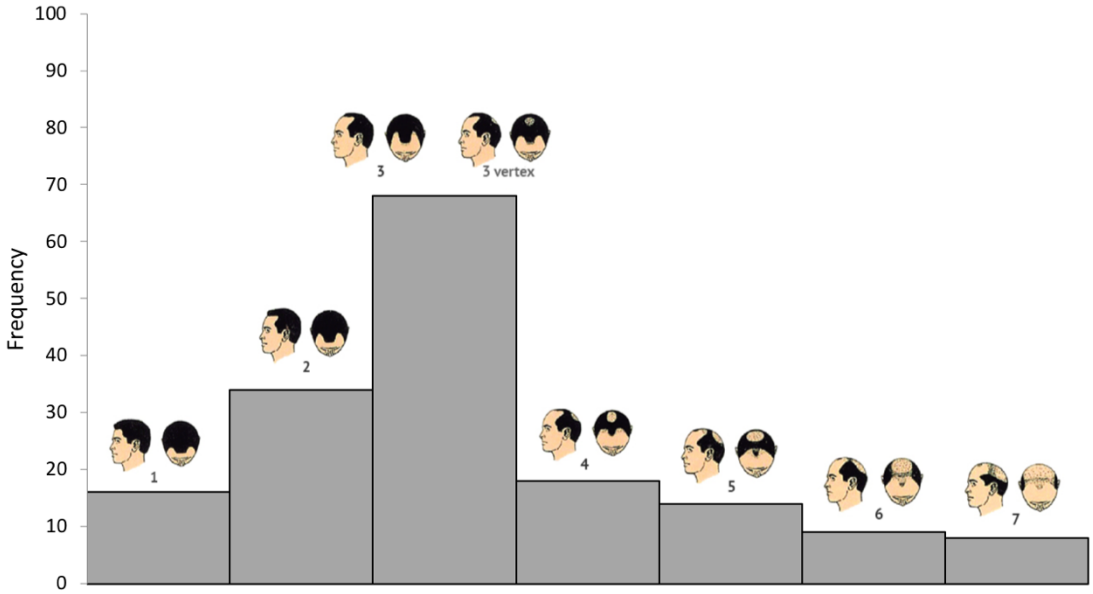
Another empirical concern is that balding men will behave strategically in an online survey. In a desperate attempt to mitigate hair loss some men may ignore the randomly assigned price in order to maximize the chance that this miracle product will be brought to market. Another type of response behavior might be to ignore the level of hair change; that is, these guys might not care how much of an improvement they get as long as it is positive. To consider this behavior we estimate the equality constrained latent class model (ECLC).

4. Results

Our sample consisted of 167 respondents from MTurk. Figure 1 shows the distribution of respondents by their current state of balding. Note that those who chose level 1 (16 of 167) are not balding or thinning and were taken to the end of the survey. Those respondents did not answer willingness to pay or any other survey questions and were dropped from the analysis, leaving us with $n = 151$.

[7] Both of these models can be found in the NLogit manual (www.limdep.com) or via Google Scholar. They're legit but we really don't want to add any references besides the Simpsons book.

Figure 2: Distribution of current balding conditions for the sample of 167 respondents



Our first cut into the data analysis is some summary statistics. Of the 151 male respondents, 71% are between 18 and 35 years of age, 24% are between 36 and 55 and 5% are 56 or over. It turns out that 23% of our balding sample wear hats to hide the truth (tricky in the shower), 26% brush their hair forward to hide a receding hairline (very presidential) and a whopping 36% have tried the notorious comb-over to mask their hair loss.

Although balding men may lack confidence in front of the mirror, they certainly appear confident with their answers. As is now common in the non-market valuation literature, we asked respondents how certain they were of their responses to the willingness to pay questions. In total, only 5% were "not certain at all", 34% would "pinky swear on it", 25% would "swear on their mother's life" and 35% would "swear on the Holy Bible (King James edition)".

While the comb-over is clearly irrational, balding men behave rationally in our hypothetical markets (Table 1). In both models as the price increases the likelihood of saying yes decreases. Likewise, as the effectiveness of the hair restoration product (i.e., scope) increases the likelihood of saying yes increases. In both models we include the baseline NBS interacted with the alternative specific constant. The coefficient on this variable is positive which suggests that as the NBS increases (i.e., more skin, less hair) the respondent is more likely to purchase the product no matter the price or effectiveness of the treatment. This result is not surprising.

The MXL model estimates a considerable amount of preference heterogeneity.[8] The standard deviations are about equal to the mean coefficients. This result could also be an indication of the angst and confusion among balding men. The ECLC model provides another interpretation of preference heterogeneity. About one third of the respondents ignored the price of the treatment

[8] We estimated the MXL model with 500 Halton draws and normal distributions for the cost and scope variables.

and another third ignored the scope of the improvement. Ignoring price and scope effects is something we can't ignore.

The willingness to pay for a one unit improvement in the NBS is $5,324 from the mixed logit model[9] and $5,812 from the latent class model. To put this result into context, going from 3 (or 3-vertex) on the NBS to the full mane is worth more than $10,000 to these desperate men.

5. Conclusion

Some things in life money can't buy. Unfortunately, hair isn't one of them. Balding men are willing to pay considerable amounts of money for an improvement in coverage. These results have significant implications for participants in a market economy. There are obvious incentives for innovation in the hair care industry. Government subsidies towards hair growing technology programs would be welfare-enhancing. Government programs that address the causes of balding, such as stress and aging, and that provide information about behaviors that could lead to balding, such as the tight ponytail and smoking, are needed.

This research suggests an infinite number of layers and extensions. Future research could compare the values of gains versus losses. Is the willingness to pay for additional turf less than the willingness to accept being stripped of golden locks, as has been found in valuation studies of other goods and services? Future research could also consider compensatory facial hair and mitigation of back, ear and nose hair.

References

Carilli, Anthony M., "Scarcity, Specialization, and Squishees," Chapter 1 in Homer economicus: The Simpsons and economics. Joshua Hall, ed., Stanford University Press, 2014.

[9] Referee #2 may try to claim that you cannot estimate WTP from a mixed logit model with a price parameter distribution that includes negative values because these respondents' WTP will be undefined. Since distributions that constrain WTP to the positive realm do not perform as well statistically as the normal (we didn't really check this) and (likely) generate goofy WTP estimates, we choose to present WTP estimated with the mean coefficients. The gullible, er, reasonable, reader will just go along with it since the MXL WTP number is so close to the ECLC WTP estimate and this lends reliability to our data.

Table 1. Numbers in a table

	Mixed Logit		Equality Constrained Latent Class	
	Coefficient	SE	Coefficient	SE
Cost	-0.303	0.083	-0.251	0.081
Scope	1.613	0.467	1.462	0.252
ASC x NBS	0.452	0.163	0.309	0.100
Standard deviations				
Cost	0.343	0.092		
Scope	1.641	0.454		
Class 1 (full attendance)			0.32	
Class 2 (insensitivity to scope)			0.37	
Class 3 (hypothetical bias)			0.32	
Pseudo R-squared	0.262		0.24	
Willingness Toupee (in thousands of dollars)	$5.32	1.41	$5.81	2.07

Note: Similar results can be obtained with linear probability models but that will never get your paper published in *Economic Inquiry*.

Appendix

Survey text preceding willingness to pay questions

We now want you to think of a hypothetical situation in which you could pay money to have a fuller head of hair. The situation is that you could pay a one-time fee to improve hair coverage. If your hair is currently grey, it would still be grey. If your hair hasn't greyed, it still could. But you would buy a risk-free product that would give a fuller head of hair.

When answering the question of how much you would pay in this hypothetical situation, you have to be realistic. You would either need to use your disposable income (cash you have on hand) or use credit that you could reasonably get. To make it easy, we are going to present you with an amount of money and you can either say YES - I would be willing to pay that amount for a fuller head of hair, or NO - I would not be willing to pay that amount for a fuller head of hair.

We will ask you this question 3 times, varying the level of hair coverage improvement and cost. Please treat each question separately.

Figure A1: Example willingness to pay question from survey