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## **Does Attractiveness Increase Sales Productivity?**

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### *Abstract*

Previous studies found individuals' attractiveness or beauty is positively correlated with job success. Is this success due to attractiveness alone, or does attractiveness induce greater productivity? This study was conducted to measure the effects of attractiveness on sales productivity. Data from an undergraduate sales class at Purdue University were used to measure the impact of individuals' attractiveness on sales revenue. Regression analysis was used with sales revenue as the dependent variable and attractiveness measures as independent variables, along with other variables. An asymmetric impact of attractiveness exists for males and females. More attractive females have higher sales revenues, but beauty is unrelated to sales performance for males.

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## Does Attractiveness Increase Sales Productivity?

It is a common belief that people with attractive looks have an easier time in life. This belief was demonstrated in an episode of *The Simpson's* titled "Simpson and Delilah." In this episode we find Homer, one of the main characters, as an overweight bald man in a dead-end job. Homer decides to purchase a miracle cream to re-grow his hair. After using the drug Homer grows a flowing mane of hair, reminiscent of a 1970's rock band lead singer. Due to Homer's new look his life instantly improves. He gains the admiration of his family and coworkers, and is promptly selected for a job promotion purely on his looks. However, all does not end happily. After all of his cream is used up Homer cannot afford another bottle. His hair falls out and he becomes the bald man he once was. Homer instantly loses credibility at work and is demoted back to his dead-end job. In this story we find that Homer was equally effective at his job before and after he had hair, his coworkers just assumed he was ineffective because he lacked attractiveness. Through this story we can develop the "Homer Hypothesis." This is the hypothesis that, although attractiveness may lead to greater job success, productivity is *not* linked to a person's attractiveness.

Though a fictional story, Homer's experience is not so far-fetched according to recent studies comparing earnings and attractiveness. In *Beauty, Productivity, and Discrimination: Lawyer's Looks and Lucre* (Biddle, Hamermesh) the authors find that better looking attorneys who graduated in the 1970s

earned more after five years of practice, an effect that grew with experience. In *The Effects of Physical Attractiveness on Job-Related Outcomes: A Meta-Analysis of Experimental Studies* (Hosoda, Stone-Romero, and Coats) the authors researched the effect of physical attractiveness on a variety of job-related outcomes; including promotions, salary, etc. They concluded that there is a positive correlation between physical attractiveness and a host of positive job outcomes. This correlation is referred to throughout as the attractiveness premium.

The benefits of being attractive have been documented in numerous other settings. In *Physical Appearance and Earnings: Further Evidence* (French) the author reviews numerous studies on earnings, concluding that significant earnings premiums for attractiveness exist for women, but not for men. According to Hamermesh and Parker in their paper, *Beauty in the Classroom: Instructor's Pulchritude and Putative Pedagogical Productivity*, it was found that professors who were deemed to be in the upper echelon of beauty generally received better teaching evaluations.

While these studies provide valuable information on how attractiveness is correlated with many positive job outcomes, they fail to determine whether preferential treatment is given solely due to attractiveness, or whether attractiveness is correlated with worker productivity. For example, consider a salesperson. It is plausible that a more attractive salesperson may generate greater sales than an otherwise identical person. In this case, the attractiveness

premium is not caused by the person's attractiveness itself, but by the greater productivity it generates. Attractive people would then have a comparative advantage in sales. The Homer Hypothesis would not be true in this case because attractiveness induces greater productivity. Just as a price premium in an economy directs resources toward their most valuable use, the attractiveness premium ensures sales functions are performed by the most capable individuals.

Sales data from an undergraduate class at Purdue University are employed to test whether more attractive individuals generate higher sales, holding constant other individual characteristics. To the extent that a more attractive face generates greater sales, attractiveness is a casual factor of productivity and the Homer Hypothesis is rejected.

### **Objectives**

We are not used to categorizing attractiveness as an indicator of productivity along with intelligence, education, innate skills, and work ethic. The purpose of the present article is to perform an empirical test of whether attractiveness causes increased productivity in the sales sector. Previous studies only measured how attractiveness affects salary growth and other job outcomes, not productivity directly. The data used in this study have the advantage that they measure productivity directly. The Homer Hypothesis states that attractiveness is *not* related to productivity. This study uses the Purdue data to test the Homer

Hypothesis by determining whether greater attractiveness leads to greater sales productivity.

### **Data and Methods**

In order to conduct this research two data sets were required, sales data and attractiveness rankings for each sales person. The sales data were collected from a Purdue University undergraduate agricultural sales class, which required 53 students to participate in a project where they conducted actual sales. The students in this class were asked to fill out a survey prior to completing their sales project. The information taken from this survey included: credit hours taken, whether they were employed, if they wanted a career in sales, and their gender. The students then each attempted to sell Cutco knives over the course of the semester as part of the class project. The students were not graded on the amount of sales compared to their classmates, however, they had to sell a set amount to pass the project. The students were able to keep any profit made when they sold the knives. At the end of the term, data were collected on how many sales were made, as well as the dollar amount of sales, which will form the dependent variable in a subsequent regression.

Along with the survey and sales data is a picture of each student in the class. In order to determine the attractiveness of each student, an undergraduate agricultural economics class at Oklahoma State University, of approximately 40 students, was used to rank each salesperson on a scale of one



to ten, with ten being the most attractive. The representation of males and females were roughly equal in this class, and each person rated salespeople of both genders. A variable for attractiveness is constructed as shown in Figure 1 for each salesperson. Summary statistics on the survey, sales, and attractiveness data are shown in Table 1.

Regression analysis is used to measure the impact of attractiveness on sales revenue. The first regression assumes a symmetric impact for males and females, and is specified as:

$$(1) \hat{Y} = a_0 + a_1(Shours) + a_2(Job) + a_3(Jobsales) + a_4(Female) + a_5(Attract)$$

The second regression allows an asymmetric mapping of attractiveness to sales, and is specified as:

(2)

$$\hat{Y} = a_0 + a_1(Shours) + a_2(Job) + a_3(Jobsales) + a_4(Female) + a_5(Attract) + a_6(Female)(Attract)$$

Finally a third regression is used, using the model in (2) but removing one particularly attractive female to test the robustness of the regression.

## Results

The results of the first regression, shown in Table 2, reveal that *Job* and *Female* are significant variables while attractiveness is insignificant at the 5% level. The *Job* variable has a test-statistic of -3.60 and a coefficient of -581.50, which shows that having a job outside of selling knives reduced the final sales volume

for that person. The *Female* variable, with a test-statistic of 2.85 and a coefficient of 550.96, shows that females sold more than men in this study, holding attractiveness constant. Finally, the attractiveness variable is insignificant with a test-statistic of 1.63, suggesting that being more attractive does not affect sales productivity.

Perhaps the assumption that attractiveness impacts sales for males and females the same is not accurate? Regression equation (2) allows an asymmetric impact for males and females through the interaction term  $(Female)(Attract)$ . The results, shown in Table 3, indicate that *Job* and the interaction variable are statistically significant. These results solidify *Job* as a determining factor on how the salespeople did over the semester with a test-statistic of -3.79 and a coefficient of -592.71. However, this result deviates from the first regression in that attractiveness when applied solely to females produces a significant result, due to a t-statistic of 2.02 and a coefficient of 287.41.

To determine the differential impact of attractiveness on sales across genders, the derivative of sales revenues with respect to attractiveness is taken.

$$(3) \quad \frac{\Delta Sales}{\Delta Attract} = -82.29 + Female(287.4)$$

For males, this derivative is

$$(4) \quad -82.29 + 0(287.4) = -82.29$$

However, the coefficient -82.29 is insignificant, so attractiveness in males does not affect their ability to generate sales revenue. When the equation is calculated for female salespeople it yields

$$(5) \quad -82.29 + 1(287.4) = 205.11$$

Coupled with a significant t-stat for 287.4, this shows that females will earn more as they become more attractive.

The final regression was used to determine the effect one female who scored particularly well in the attractiveness test had on the regression results. This sample is not large, so it is interesting whether the finding that attractiveness increases sales productivity for females hinges on one particular female. Thus the regression in (2) was estimated again excluding this female salesperson. The results, shown in Figure 4, tell us that in fact this salesperson did drive the attractiveness findings, since the *(Female)(Attractiveness)* variable's t-statistic dropped to 1.32. This signifies that the results are largely driven by one person. However, this does not mean the results in Table 3 are not valid. This one attractive female is just as deserving to be included in the sample as another other person. It does imply that a larger sample would be preferred before these results are taken too seriously.

## **Conclusion**

The results provide evidence that attractiveness affects sales productivity. Although there were some limitations, such as a sample size of 53 which led to one observation driving most of the results, the data do provide some implications that could assist sales companies and salespeople. Companies should work to find people who are considered attractive to put in sales positions in order to increase job efficiency. Also, female salespeople should consider their appearance seriously, just as a computer programmer considers her intellect seriously. A salesperson should spend the extra money on a makeover, new suit, or other upgrade to appearance, in order to maximize their selling potential, so long as the cost of increasing beauty does not outweigh the attractiveness premium.

Results indicate that the Homer Hypothesis is true in the case of males, because we find that attractiveness had no effect on how productive males were in producing sales revenue. However, the Homer Hypothesis is rejected when applied to females, as we find that attractiveness is directly related to the amount of sales revenue they produce.

## References

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### Figure 1. Construction of Attractiveness Variable

First, the average attractiveness is calculated for each ranker,

$$\bar{A}_i = \frac{\sum_j A_{ij}}{\#salespeople}$$

where  $A_{ij}$  = person  $i$ 's ranking of salesperson  $j$

Then the value of the ranking minus the average ranking across rankers was found to create the attractiveness variable for each salesperson.

$$Attract_j = \frac{\sum_i (A_{ij} - \bar{A}_i)}{\#peopleranking}$$

Finally to facilitate estimation in Microsoft Excel, the value of  $Attract_j$  was increased by one for all  $j$ .

$Attract_j$  = attractiveness variable of person  $j$

**Table 1: Summary Statistics (Sample Size = 53)**

<b>Variable</b>	<b>Description</b>	<b>Mean</b>	<b>Standard Deviation</b>
<i>Sales Revenues</i>	Revenues from Sales	508.09	617.77
<i>Shours</i>	Credit hours taken	16.43	27.83
<i>Job</i>	Dummy variable for currently employed	0.62	156.48
<i>Jobsales</i>	Interest in Sales Career (scale 1-7)	5.74	39.52
<i>Female</i>	Dummy variable	0.39	216.89
<i>Attract</i>	See Figure 1	1	1.19
<i>(Female)(Attract)</i>	Interaction term	0.66	142.09

**Table 2: Regression Results Without Female Interaction Variable  
(dependent variable = sales revenues)**

<b>Independent Variables</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>Test-Statistic</b>
<i>Intercept</i>	912.61	530.68	1.72
<i>Shours</i>	-13.02	26.73	-0.49
<i>Job</i>	-581.50	161.45	-3.60
<i>Jobsales</i>	-28.21	40.78	-0.69
<i>Female</i>	550.96	193.04	2.85
<i>Attract</i>	114.99	70.73	1.63



**Table 3: Regression Results With Female Interaction Variable  
(dependent variable = sales revenues)**

<b>Independent Variables</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>Test-Statistic</b>
<i>Intercept</i>	661.42	528.83	1.25
<i>Shours</i>	7.57	27.82	0.27
<i>Job</i>	-592.70	156.48	-3.78
<i>Jobsales</i>	-25.51	39.51	-0.65
<i>Female</i>	328.67	216.89	1.52
<i>Attract</i>	-82.29	119.19	-0.69
<i>(Female)(Attract)</i>	287.40	142.09	2.02

**Table 4: Regression Results Table Without Most Attractive Female  
(dependent variable = sales revenues)**

<b>Independent Variables</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>Test-Statistic</b>
<i>Intercept</i>	592.96	520.40	1.14
<i>Shours</i>	5.64	27.32	0.21
<i>Job</i>	-534.95	157.35	-3.40
<i>Jobsales</i>	-12.98	39.49	-0.33
<i>Female</i>	402.21	217.27	1.85
<i>Attract</i>	-78.58	116.95	-0.67
<i>(Female)(Attract)</i>	197.06	149.50	1.32