# Why Beauty Matters

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# Overview

# Introduction

- Hamermesh and Biddle (1994)
- Beauty affect wage in three channels:
  - Confidence
  - Visual stereotype
  - Oral stereotype

## Theoretical Framework

$$A = \alpha x + \eta \tag{1}$$

$A$ is worker's productivity which is a function of an observable resume variable $x$ and an unobservable component $\eta$.

$$C = \eta + \pi B + \epsilon_C \quad \epsilon_C \sim N\left(0, \sigma_C^2\right) \tag{2}$$

$C$ is a signal a worker receives of her own productivity; which we call her *Confidence*

$$\tilde{C} = C + \epsilon_{\tilde{C}} = \eta + \pi B + \left(\epsilon_C + \epsilon_{\tilde{C}}\right) \tag{3}$$

$\tilde{C}$ is a signal of worker's productivity which employer can observe under oral communication.

# Theoretical Framework

$$w^* = \alpha x + \delta T_O * \tilde{C} \tag{4}$$

$w^*$ is the employer's estimate of the workers productivity.

$$\hat{w} = w^* + \beta_V T_V * B + \beta_O T_O * S \tag{5}$$

$$S = B + \epsilon_S \tag{6}$$

$\hat{w}$ is the employers actual estimate and $S$ is communication and social skills which are also a function of beauty.

- Each experimental session includes 5 workers and 5 employers.
- All participants submit their basic labor market characteristics and a digital photograph of them.
- Each worker j is then asked for an estimate $C_j$ of how many mazes of the next level of difficulty he expects to complete during a 15 minute, a measure of worker confidence. He receives a piece rate of 100 points per solved maze minus 40 points for each maze that he mispredicted.

$$\Pi_j = 100 \times A_j - 40 \times |C_j - A_j| + \sum_{i=1}^{5} W_{ij} \qquad (7)$$

- Each worker $j$ receives five actual wages $W_{ij}$ :
    - with probability 0.8, employer $i$'s estimate, $w_{ij}$; $W_{ij} = 100w_{ij}$
    - with probability 0.2, the average estimate $\bar{w}$, $W_{ij} = 100\bar{w}$
- Before the employer decides on her 5 estimates but after she has seen all the workers, she is told which of her estimates will contribute to the workers earnings.
- The exact timing of this randomization is important for the design because it allows us to test for some types of direct taste-based discrimination.

- Each worker is then matched with 5 different employers.
- All employers see the same online resume of each worker but they differ in the mode of interaction with the worker:
  - B
  - V
  - O
  - VO
  - FTF
- The task of each employer i is to estimate the expected productivity $w_{ij}$ of each worker $j$ in 15 minutes. Employer $i$ faces a penalty of 40 points for each mispredicted maze of worker $j$.

$$\Pi_i = 4000 - \sum_{j=1}^{5} 40 \times |w_{ij} - A_j| \qquad (8)$$

$$w_{ij} = \alpha X_j + \alpha_P P_j + \beta B_j + \delta C_j + \tau S_{ij} + \vartheta_B S_{ij} * B_j + \vartheta_C S_{ij} * C_j + \psi A_i + \zeta_i + \epsilon_{ij} \quad (9)$$

- $X_j$ is a vector of all observable job market characteristics and $P_j$ is his projected performance based on his practice time.
- $\beta$ and $\delta$ capture the visual/oral stereotype channels and confidence channel respectively.
- $\vartheta_B$ and $\vartheta_C$ are positive if there is taste-based discrimination in favor of the physically-attractive or the confident.
- $\psi$ indicate whether employers have information that improves their productivity estimate but which is not yet captured by worker characteristics ($X_j$, $P_j$, $B_j$, $C_j$).

# Data Description
Subject Pool

- They conducted 33 experimental sessions at three different university campuses from August 2002 to March 2003.
- The participants did not know each other prior to the experiment or could see or communicate with each other upon arrival to the lab.
- 100 points = 0.25 Peso

- The evaluators were 50 high school students from Tucuman.
- They construct the variable BEAUTY as the mean over all raters centered beauty ratings.
- $\tilde{r}_{ij} = r_{ij} - \hat{r}_i$

They first verify that physical attractiveness does not raise actual productivity, So they regress measured log-productivity $A_j$ on all resume variables $X_j$ and physical attractiveness:

$$A_j = \theta X_j + \phi B_j + \epsilon_j \tag{10}$$

▸ Table 3

As you can see the coefficient on beauty is not significant.

They then show that beauty does raise the workers productivity estimates.
They regress confidence on resume variables $X_j$ and beauty $B_j$.

$$C_j = \lambda X_j + \mu P_j + \xi A_j + \pi B_j + \epsilon_j \tag{11}$$

▶ Table 3

Table 3: The impact of practice performance and beauty on maze solving ability and confidence

| Variable | LNACTUAL | | LNESTIMATED | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| AGE | 0.081 | 0.038 | 0.181$^*$ | 0.018 | 0.018 |
| | (0.065) | (0.064) | (0.074) | (0.060) | (0.060) |
| AGE*AGE | -0.002$^\dagger$ | -0.001 | -0.003$^*$ | 0.000 | 0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| MALE | 0.331$^{**}$ | 0.303$^{**}$ | 0.221$^*$ | 0.015 | 0.015 |
| | (0.086) | (0.081) | (0.097) | (0.080) | (0.081) |
| UNIVERSITY2 | -0.113 | -0.088 | -0.026 | 0.035 | 0.036 |
| | (0.143) | (0.139) | (0.163) | (0.127) | (0.128) |
| UNIVERSITY3 | 0.042 | 0.115 | -0.358 | -0.183 | -0.184 |
| | (0.201) | (0.197) | (0.229) | (0.179) | (0.180) |
| INTERNET | 0.158$^\dagger$ | 0.136$^\dagger$ | 0.089 | 0.042 | 0.042 |
| | (0.083) | (0.080) | (0.094) | (0.074) | (0.075) |
| TEAMSPORT | 0.062 | 0.054 | 0.133 | 0.127 | 0.128 |
| | (0.088) | (0.085) | (0.101) | (0.078) | (0.079) |
| PREVJOBS | 0.057 | 0.052 | 0.012 | -0.003 | -0.003 |
| | (0.037) | (0.036) | (0.042) | (0.033) | (0.033) |
| LNACTUAL | | | | 0.177$^*$ | 0.177$^*$ |
| | | | | (0.078) | (0.079) |
| LNPROJECTED | | 0.160$^{**}$ | | 0.429$^{**}$ | 0.429$^{**}$ |
| | | (0.054) | | (0.051) | (0.051) |
| BEAUTY | -0.034 | | 0.162$^{**}$ | 0.135$^{**}$ | 0.133$^{**}$ |
| | (0.042) | | (0.048) | (0.038) | (0.051) |
| BEAUTY*MALE | | | | | 0.002 |

They also show that beauty does raise the employers productivity estimates.

$$w_{ij} = \alpha X_j + \alpha_P P_j + \beta B_j + \tau S_{ij} + \vartheta S_{ij} * B_j + \psi A_j + \zeta_i + \epsilon_{ij} \qquad (12)$$

▸ Table 4

# Decomposing the Beauty Premium

- A one percent increase in confidence increases wages by about 0.2 percent in treatments O and VO and 0.3 percent in treatment FTF.
- One standard deviation in beauty increases confidence by about 13 percent, In treatment $O$ a one percent increase in confidence increases wages by 0.20 percent. Therefore, the total increase in wages of a one standard deviation increase in beauty which is transmitted through the confidence channel is $13 \cdot 0.20 = 2.6$ percent.
- The residual beauty premium after controlling for confidence in treatment O is 8.7 percent for a one standard deviation increase in beauty.

▸ Table 4

Table 4: Gross and decomposed beauty premia in treatments (B) to (FTF)

| Variable | Gross beauty premia | | | | | Decomposed beauty premia with worker confidence | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (B) | (V) | (O) | (VO) | (FTF) | (B) | (V) | (O) | (VO) | (FTF) |
| AGE | 0.009 | 0.007 | -0.014 | 0.088* | -0.121* | 0.011 | -0.002 | -0.023 | 0.081* | -0.138** |
| | (0.047) | (0.042) | (0.038) | (0.040) | (0.048) | (0.048) | (0.043) | (0.036) | (0.039) | (0.046) |
| AGE*AGE | 0.000 | 0.000 | 0.000 | -0.002* | 0.002* | 0.000 | 0.000 | 0.000 | -0.001* | 0.002* |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| MALE | 0.050 | 0.069 | 0.130* | 0.180** | 0.083 | 0.052 | 0.054 | 0.120* | 0.173** | 0.085 |
| | (0.071) | (0.064) | (0.057) | (0.059) | (0.071) | (0.071) | (0.066) | (0.053) | (0.057) | (0.068) |
| LNPROJECTED | 0.403** | 0.397** | 0.407** | 0.375** | 0.372** | 0.414** | 0.386** | 0.322** | 0.302** | 0.298** |
| | (0.043) | (0.038) | (0.035) | (0.036) | (0.043) | (0.053) | (0.046) | (0.039) | (0.044) | (0.050) |
| LNACTUAL | -0.038 | 0.010 | -0.014 | 0.095† | -0.017 | -0.033 | 0.014 | -0.049 | 0.064 | -0.046 |
| | (0.063) | (0.057) | (0.051) | (0.056) | (0.064) | (0.065) | (0.059) | (0.050) | (0.055) | (0.062) |
| BEAUTY | 0.017 | 0.131** | 0.129** | 0.124** | 0.167** | 0.018 | 0.114* | 0.087* | 0.098** | 0.121** |
| | (0.040) | (0.042) | (0.034) | (0.036) | (0.043) | (0.042) | (0.045) | (0.034) | (0.037) | (0.043) |
| SETWAGE | -0.010 | -0.072 | 0.098* | -0.046 | 0.033 | 0.052 | 0.106 | 0.059 | -0.023 | 0.555** |
| | (0.055) | (0.052) | (0.046) | (0.048) | (0.057) | (0.207) | (0.206) | (0.151) | (0.176) | (0.207) |
| SETWAGE*BEAUTY | -0.058 | -0.099† | 0.005 | 0.022 | -0.044 | -0.053 | -0.088 | 0.022 | 0.013 | 0.002 |
| | (0.057) | (0.053) | (0.048) | (0.050) | (0.058) | (0.058) | (0.055) | (0.046) | (0.051) | (0.058) |
| LNESTIMATED | | | | | | -0.004 | 0.100 | 0.205** | 0.186** | 0.328** |
| | | | | | | (0.098) | (0.094) | (0.064) | (0.068) | (0.097) |
| SETWAGE*LNESTIMATED | | | | | | -0.034 | -0.094 | 0.025 | -0.009 | -0.282** |
| | | | | | | (0.110) | (0.108) | (0.078) | (0.091) | (0.107) |

# Decomposing the Beauty Premium

Table 5: Contribution of confidence channel to gross beauty premium in treatments O, VO and FTF

| Treatment | Beauty Premium (controlled for confidence) | Confidence Channel | Gross Beauty Premium |
|-----------|---------------------------------|--------------------|----------------------|
| **O**     | 8.7                             | 2.6                | 12.8                 |
| **VO**    | 9.8                             | 2.4                | 12.3                 |
| **FTF**   | 12.1                            | 4.3                | 16.7                 |

# Conclusion

- One important caveat is that they only model the interview process.
- Some policies which can be extrapolate from this experiment are:
  - blind interview procedures such as telephone interviews can reduce the beauty premium.
  - The beauty premium would decline even more strongly by preventing oral interaction between employer and employee.
- But such a policy would likely decrease the quality of job matches along other dimensions because employers learn valuable private information during the interview stage.

# The End!