Topic 7
Multiple Regression (Part B)
Application

Beauty and the Labor Market

Are good-looking people paid more in the labor market?

Daniel S. Hamermesh and Jeff E. Biddle (1994) "Beauty and the labor market," *American Economic Review*, vol.84 (5), pp.1174-1194.

Article available on JSTOR.

What are the top journals in Economics? American Economic Review, Econometrica,…

Does beauty matter in the labor market?

(1) Is a person's physical appearance related to the person's earnings?

(2) If we learn that differences in earnings are related to physical appearances, do we have evidence of discrimination?

Common-sense definition of discrimination:

If an individual is treated differently because of the person's attribute unrelated to the situation, in contrast to the treatment received by another individual in the same circumstances.

In (labor) economics: equal productivity but unequal pay.

Productivity and wages

- What does Econ theory say?
  - Profit maximizing firm pays workers wages (W) = marginal value of product ($MP_L \times P$).
  - A person's labor productivity determines wage.

- If beauty does not bring productivity and employers are not *discriminative*, then we would expect no premium or penalty associated with looks (for equally productive workers).

Data

The 1977 Quality of Employment Survey (QES)
The 1971 Quality of American Life Survey (QAL)
The 1981 Canadian Quality of Life Study (QOL)

What variables do these datasets have?

1. Measure of a person's look
2. Work and income variables
3. Demographic variables
4. Education variables

Descriptive Statistics

TABLE 2—DISTRIBUTION OF LOOKS: QUALITY OF EMPLOYMENT SURVEY (QES), 1977; QUALITY OF AMERICAN LIFE, (QAL), 1971; CANADIAN QUALITY OF LIFE (QOL), 1977, 1979, AND 1981 (PERCENTAGE DISTRIBUTIONS)

	QES		QAL		QOL (pooled)	
Category	Men	Women	Men	Women	Men	Women
1) Strikingly beautiful or handsome	1.4	2.1	2.9	2.9	2.5	2.5
2) Above average for age (good looking)	26.5	30.4	24.2	28.1	32.0	31.7
3) Average for age	59.7	52.1	60.4	51.5	57.9	56.8
4) Below average for age (quite plain)	11.4	13.7	10.8	15.2	7.2	8.3
5) Homely	1.0	1.7	1.7	2.3	0.4	0.7
N:	959	539	864	1,194	3,804	5,464

Econometric Model

We would like to run a regression of log hourly wage on some measures of beauty:

$$\ln w_i = \beta_0 + \beta_1 X_i + u_i$$

We use log of hourly wage as the dependent variable.

We want to check whether $\beta_1 = 0$ or not.

If $\beta_1 \neq 0$, do we have evidence of discrimination?

Econometric Model

How to “control” for differences in productivity?

Independent variables: beauty ratings, weight, height, marital status, race, education (dummies), region, experience, experience squared, city size, industry, union membership, etc.

$$\ln w_i = \beta_0 + \beta_1 BA_i + \beta_2 AA_i + \beta_3 Obese_i + \beta_4 Overweight_i + \cdots + u_i$$

BA: below average

AA: above average

Regression Results

TABLE 3—THE IMPACT OF LOOKS ON EMPLOYEES' EARNINGS: QES, 1977

	Men		Women	
Variable	(i)	(ii)	(iii)	(iv)
Looks:				
Below average	−0.164	−0.162	−0.124	−0.107
	(0.046)	(0.046)	(0.066)	(0.071)
Above average	0.016	0.010	0.039	0.035
	(0.033)	(0.034)	(0.048)	(0.049)
Obese		0.119		−0.122
		(0.172)		(0.134)
Overweight		−0.024		−0.016
		(0.038)		(0.058)
Tall		0.027		0.104
		(0.045)		(0.114)
Short		−0.105		−0.017
		(0.060)		(0.124)
$\bar{R}^2$:	0.403	0.404	0.330	0.327
p on F statistic for beauty variables:	0.001	0.001	0.069	0.173
N:	700	700	409	409

Notes: The dependent variable is log(hourly earnings); standard errors are shown in parentheses. The equations here also include continuous and indicator variables measuring actual experience (and its square), union membership, health status, marital status, race, years of vocational school, and region, and vectors of indicator variables for educational attainment, tenure with the firm, plant size, city size, and industry. The regressions exclude observations for which data were not available to form these measures and for which weekly hours worked < 20, hourly earnings $\$1$, and age > 64 or age < 18.

Conclusion of the paper

- Beauty matters in the labor market
- The estimates
  - More attractive people are paid more.
    - Good looking men are paid about 1.0% -1.6% more
    - Good looking women are paid about 3.5%-3.9% more
  - Less attractive are paid less
    - Men in below average category are paid around 16% less .
    - Women in below average category are paid around 10%-12% less.
- Significance
    - The coefficient of “below average” for men is significant
    - The coefficients of “below average” and “above average” are jointly significant for men.

Does Instructor's beauty matter?

Daniel S. Hamermesh and Amy Parker (2005) "Beauty in the classroom: instructors' pulchritude and putative pedagogical productivity," *Economics of Education Review*, vol.24, pp368-376.

Does a professor's beauty predict what he/she get in his/her course/instructor evaluation?

What will predict my course/instructor evaluation?

Descriptive statistics

Table 1
Descriptive statistics, courses, instructors and evaluations

Variable	All	Lower division	Upper division
Course evaluation	4.022 (0.525)	4.060 (0.563)	3.993 (0.493)
Instructor evaluation	4.217 (0.540)	4.243 (0.609)	4.196 (0.481)
Number of students	55.18 (75.07)	76.50 (109.29)	44.24 (45.54)
Percent evaluating	74.43	73.52	74.89
Female	0.359	0.300	0.405
Minority	0.099	0.110	0.090
Non-native English	0.037	0.007	0.060
Tenure track	0.851	0.828	0.869
Lower division	0.339	—	—
One credit	0.029	—	—
Number of courses	463	157	306
Number of faculty	94	42	79

Note: Means with standard deviations in parentheses. All statistics except for those describing the number of students, the percent evaluating the instructor and the lower–upper division distinction are weighted by the number of students completing the course evaluation forms.

Course evaluation and Beauty

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Table 3
Weighted least-squares estimates of the determinants of class ratings

Variable	All	Males	Females	Lower division	Upper division
Composite standardized beauty	0.275 (0.059)	0.384 (0.076)	0.128 (0.064)	0.359 (0.092)	0.166 (0.061)
Female	−0.239 (0.085)	—	—	−0.345 (0.133)	−0.093 (0.104)
Minority	−0.249 (0.112)	0.060 (0.101)	−0.260 (0.139)	−0.288 (0.156)	−0.231 (0.107)
Non-native English	−0.253 (0.134)	−0.427 (0.143)	−0.262 (0.151)	−0.374 (0.141)	−0.286 (0.131)
Tenure track	−0.136 (0.094)	−0.056 (0.089)	−0.041 (0.133)	−0.187 (0.141)	0.005 (0.119)
Lower division	−0.046 (0.111)	0.005 (0.129)	−0.228 (0.164)	—	—
One-credit course	0.687 (0.166)	0.768 (0.119)	0.517 (0.232)	0.792 (0.101)	—
R^2	.279	.359	.162	.510	.126
N courses	463	268	195	157	306
N faculty	94	54	40	42	79

Note: Robust standard errors in parentheses here and in Table 4.

Let's compare Xun Lu (a male non-native English speaking Asian) to the other Econ Professor, who is a male native-English speaking White tenured professor. I need to have a beauty rating of 1.82 std. [i.e., (0.249 + 0.253)/0.275 = 0.502/0.275] higher than him to do just as well in course evaluation. VERY CHALLENGING!!!