

Now you see it, now you don't: the vanishing beauty premium

ONLINE APPENDIX NOT FOR PUBLICATION

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A. Summary statistics

Table A1 tabulates the number of sessions with each possible task combination.

Table A1: *Summary of sessions and treatments*

| Task in round 1 | Task in round 2 | Number of sessions |
|---------------------------|-----------------|--------------------|
| Data analysis | Data analysis | 8 |
| Data entry | Data analysis | 4 |
| Bargaining | Data analysis | 3 |
| Data analysis | Data entry | 4 |
| Data entry | Data entry | 7 |
| Bargaining | Data entry | 4 |
| Data analysis | Bargaining | 3 |
| Data entry | Bargaining | 4 |
| Bargaining | Bargaining | 8 |
| Total number of sessions: | | 45 |

Table A2 provides summary statistics on subject attractiveness and other characteristics for employers and workers. There are no statistically significant differences in attractiveness between employers and workers in our sample. Employers are, on average, marginally more skilled in typing and communications and are significantly more likely to be female than workers. There are no statistically significant differences in any of the other individual characteristics, on average.

Table A2: *Summary statistics of attractiveness and other subject characteristics*

| | Employers | | Workers | |
|--|-----------|--------|---------|--------|
| | Average | # Obs. | Average | # Obs. |
| Demeaned Attractiveness Rating | -0.008 | 180 | 0.001 | 178 |
| <i>Panel 1: Resume Characteristics</i> | | | | |
| Analytical Skills | 1.62 | 180 | 1.62 | 178 |
| Typing Skills | 1.57* | 180 | 1.48* | 178 |
| Communication Skills | 1.69* | 180 | 1.61* | 178 |
| Resume GPA | 2.52 | 180 | 2.53 | 178 |
| <i>Panel 2: Other Characteristics</i> | | | | |
| Exact GPA | 3.52 | 164 | 3.53 | 157 |
| Major | 2.17 | 180 | 2.15 | 178 |
| Share Native English Speakers | 0.85 | 168 | 0.84 | 166 |
| Gender | 0.65** | 180 | 0.56** | 178 |
| Age | 20.91 | 164 | 20.92 | 163 |
| Share Asian | 0.23 | 180 | 0.24 | 178 |
| Share Black | 0.18 | 180 | 0.20 | 178 |
| Share Hispanic | 0.07 | 180 | 0.08 | 178 |
| Share White | 0.63 | 180 | 0.59 | 178 |
| Share Multiracial or Other | 0.03 | 180 | 0.03 | 178 |

Notes: Skills are measured on a scale of 0–2, with 2 representing excellent. Resume GPA is measured on a scale of 0–3, with 3 representing the range 3.5–4.0. Major is 1 for Humanities; 2 for Social Sciences; 3 for Natural Sciences. Gender is 0 for male and 1 for female. Race shares add up to over 100% because some subjects identified with more than one race. Numbers of observations vary because subjects were given the choice to skip questionnaire questions. Significance levels based on t-tests of differences between employers and workers: * 10 percent, ** 5 percent.

Table A3: Summary statistics of experimental outcomes by task and gender

| | Data Analysis | Data Entry | Bargaining |
|--|---------------|------------|------------|
| <i>Panel 1: Point Averages for Round 1</i> | | | |
| <i>Employers</i> | | | |
| Wage Bid | 23.2 | 27.7 | 28.5 |
| Average Prediction | 53.2 | 72.5 | 63.3 |
| Payoff | 84.2 | 92.5 | 74.9 |
| Observations | 60 | 60 | 60 |
| <i>Workers</i> | | | |
| Own Prediction | 50.7 | 89.2 | 63.7 |
| Performance | 35.8 | 89.5 | 67.2 |
| Payoff | 71.0 | 107.5 | 93.1 |
| Observations | 59 | 59 | 60 |
| <i>Panel 2: Point Averages for Round 2</i> | | | |
| <i>Employers</i> | | | |
| Wage Bid | 22.7 | 31.0 | 28.5 |
| Average Prediction | 45.1 | 81.1 | 64.8 |
| Payoff | 91.4 | 90.6 | 71.8 |
| Observations | 60 | 60 | 60 |
| <i>Workers</i> | | | |
| Own Prediction | 50.2 | 98.1 | 66.8 |
| Performance | 50.3 | 85.6 | 65.8 |
| Payoff | 79.3 | 112.3 | 92.5 |
| Observations | 59 | 59 | 60 |

B. Additional analysis

Second round analysis

Table A4 shows the relationship between the employer expectation of worker performance in round 2 and attractiveness. After observing actual performance, employers no longer expect the most attractive workers to have a performance advantage on average or in any of the tasks, including bargaining.

Table A4: *Relationship between employer performance expectations and attractiveness in round 2*

| Outcome variable: | Natural logarithm of employer performance prediction in round 2 | | | | | | | |
|---------------------------|---|--------------------|-------------------------|------------------|----------------------|------------------|----------------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis [45.1] | | Data Entry [81.1] | | Bargaining [64.8] | |
| Attractiveness of worker | -0.010 (0.029) | | 0.033 (0.042) | | -0.037 (0.261) | | -0.105 (0.067) | |
| Attractiveness quintiles: | | | | | | | | |
| 2nd | | 0.131 (0.113) | | 0.146 (0.139) | | 0.208 (0.128) | | -0.076 (0.377) |
| 3rd | | 0.003 (0.109) | | 0.053 (0.166) | | 0.002 (0.075) | | -0.002 (0.261) |
| 4th | | 0.227** (0.115) | | 0.244 (0.150) | | 0.115 (0.136) | | 0.373 (0.328) |
| Top attractiveness: 5th | | -0.068 (0.115) | | 0.177 (0.165) | | 0.059 (0.186) | | -0.351 (0.223) |
| F-test p-value | | [0.086] | | [0.211] | | [0.428] | | [0.122] |
| Observations | 712 | 712 | 240 | 240 | 236 | 236 | 236 | 236 |
| R-squared | 0.64 | 0.65 | 0.57 | 0.58 | 0.56 | 0.57 | 0.68 | 0.71 |

Notes: Round 2 data only. Mean predicted performance (in points) for each task is reported in brackets below the task type. The attractiveness coefficient is interpreted as the effect of a one standard deviation change in beauty on the outcome variable. The p-values for the F-tests of joint differences of the coefficients on the attractiveness quintiles are reported in brackets below the estimates. All regressions include employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table A5 shows the employer expectations in the second round are correct: more attractive workers do not perform better than their less attractive counterparts in any of the tasks.

Table A5: *Relationship between a worker attractiveness and performance in round 2*

| Outcome variable: | Natural logarithm of worker performance in round 2 | | | | | | | |
|---------------------------|--|---------------------|-------------------------|------------------|----------------------|------------------|----------------------|------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis [50.3] | | Data Entry [85.6] | | Bargaining [65.8] | |
| Attractiveness of worker | 0.003 (0.056) | | -0.028 (0.100) | | 0.136 (0.131) | | 0.071 (0.137) | |
| Attractiveness quintiles: | | | | | | | | |
| 2nd | | 0.414*** (0.152) | | 0.137 (0.276) | | 0.658 (0.559) | | 0.545 (0.655) |
| 3rd | | 0.217 (0.176) | | 0.059 (0.308) | | 0.295 (0.455) | | 0.633 (0.619) |
| 4th | | 0.125 (0.173) | | 0.269 (0.312) | | 0.343 (0.540) | | 0.039 (0.590) |
| Top attractiveness: 5th | | 0.109 (0.219) | | 0.02 (0.345) | | 0.195 (0.382) | | 0.404 (0.449) |
| F-test p-value | | [0.113] | | [0.855] | | [0.728] | | [0.784] |
| Observations | 178 | 178 | 60 | 60 | 59 | 59 | 59 | 59 |
| R-squared | 0.37 | 0.39 | 0.60 | 0.62 | 0.36 | 0.38 | 0.65 | 0.67 |

Notes: Round 2 data only. Mean worker performance (in points) for each task is reported in brackets below the task type. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. The p-values for the F-tests of joint differences on the coefficients of attractiveness quintiles are reported in brackets below the estimates. All regressions include date fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. Specifications (7) and (8) include an indicator for whether a trade was possible and control for the average difference between buyer value and seller cost across the three bargaining rounds. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table A6 documents that the correct employer beliefs in the second round are influenced by observed worker performance in the first round. Attractiveness remains unimportant for performance predictions in the second round, whether or not the task was the same as the first-round task. When we pool the data, past performance in any of the three tasks is a significant determinant of employer performance expectations (Column 2). In data analysis (Column 4), past performance has the largest impact on beliefs when the first round task was also data analysis. However, high performance in data entry also significantly increases expected performance in the sound round. In data entry (Column 6), past performance is only significant when the first round task was also data entry. Finally, high performance in both bargaining and data analysis, but not in data entry, predicts significantly higher expected performance in bargaining (Column 8).

Table A6: *The impact of past performance on employer prediction in round 2*

| Outcome variable: | Natural logarithm of employer prediction in round 2 | | | | | | | |
|--|---|---------------------|------------------|---------------------|-------------------|---------------------|-------------------|---------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis | | Data Entry | | Bargaining | |
| Attractiveness of worker & same task in round 2 | -0.005 (0.047) | -0.032 (0.029) | 0.002 (0.051) | -0.033 (0.029) | 0.046 (0.076) | -0.011 (0.047) | -0.091 (0.069) | -0.070 (0.051) |
| Attractiveness of worker & different task in round 2 | -0.015 (0.037) | 0.018 (0.031) | 0.053 (0.047) | 0.025 (0.020) | -0.034 (0.058) | -0.024 (0.060) | -0.174 (0.153) | 0.014 (0.108) |
| Performance in round 1 & Data Analysis in round 1 | | 0.514*** (0.112) | | 0.574*** (0.137) | | 0.200 (0.149) | | 0.695 (0.494) |
| Performance in round 1 & Data Entry in round 1 | | 0.536*** (0.066) | | 0.404*** (0.036) | | 0.701*** (0.071) | | 0.577*** (0.209) |
| Performance in round 1 & Bargaining in round 1 | | 0.477*** (0.084) | | 0.248* (0.126) | | 0.189 (0.129) | | 0.536*** (0.105) |
| Observations | 712 | 712 | 236 | 236 | 240 | 240 | 236 | 236 |

Notes: Round 2 data only. The attractiveness coefficients should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include employer fixed effects, indicators for whether the second-round task was the same as the first-round task, student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table 7 in the paper shows that, in the second round, the beauty premium disappears from all tasks, including bargaining, when we pool the data. However, workers in the 4th attractiveness quintile receive significantly higher wage bids than those in the bottom quintile on average and in data analysis. Workers in the top attractiveness quintile receive a marginally significant premium. Once we control for the rank of the employer performance prediction in the second round in Table A7, most of this remaining beauty premium disappears and remains only marginally significant for the most attractive workers in data analysis.

Table A7: Relationship between an employer bid in round 2 and worker attractiveness, conditional on expectations

| Outcome variable: | Natural logarithm of employer wage bid in round 2 | | | | | | | |
|---------------------------|---|------------------|------------------|-------------------|------------------|-------------------|------------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis | | Data Entry | | Bargaining | |
| Attractiveness of worker | 0.069 (0.055) | | 0.121 (0.103) | | 0.093 (0.171) | | 0.029 (0.094) | |
| Attractiveness quintiles: | | | | | | | | |
| 2nd | | 0.186 (0.224) | | 0.496 (0.452) | | -0.105 (0.588) | | 0.582 (0.502) |
| 3rd | | 0.093 (0.193) | | 0.543 (0.561) | | 0.195 (0.453) | | -0.094 (0.251) |
| 4th | | 0.075 (0.176) | | 0.55 (0.367) | | 0.033 (0.599) | | 0.024 (0.382) |
| Top attractiveness: 5th | | 0.252 (0.164) | | 0.660* (0.382) | | 0.035 (0.582) | | 0.223 (0.255) |
| F-test p-value | | [0.612] | | [0.483] | | [0.933] | | [0.691] |
| Observations | 712 | 712 | 240 | 240 | 236 | 236 | 236 | 236 |
| R-squared | 0.59 | 0.59 | 0.71 | 0.71 | 0.51 | 0.51 | 0.64 | 0.65 |

Notes: Round 2 data only. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include employer's performance prediction rank, employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Recall that we find a beauty penalty in the bargaining task in the second round for attractive workers whose second-round task was different from the first-round task relative to comparably attractive workers whose first-round task was bargaining (Table 8, Column 7). This beauty penalty becomes only marginally significant once we control for past performance interacted with task indicators. Recall also that Table A6 shows that past performance significantly affects employer performance predictions. Table A8 demonstrates that, once we control for employer prediction rank in addition to past performance interacted with the first-round task, the beauty penalty in bargaining that we find in Table 8 disappears (Column 8).

Table A8: Relationship between employer wage bid and attractiveness in round 2 decomposed by whether task was the same or different than the first-round task, conditional on employer performance prediction rank

| Outcome variable: | Natural logarithm of employer wage bid in round 2 | | | | | | | |
|--|---|---------------------|------------------|---------------------|-------------------|--------------------|-------------------|--------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis | | Data Entry | | Bargaining | |
| Attractiveness of worker & same task in round 2 | 0.068 (0.078) | 0.069 (0.083) | 0.170 (0.172) | 0.112 (0.161) | -0.279 (0.296) | -0.221 (0.281) | 0.100 (0.100) | 0.118 (0.096) |
| Attractiveness of worker & different task in round 2 | 0.070 (0.073) | 0.083 (0.068) | 0.090 (0.128) | 0.055 (0.097) | 0.276 (0.203) | 0.314 (0.215) | -0.283 (0.207) | -0.252 (0.230) |
| F-test p-value (equality) | [0.981] | [0.892] | [0.715] | [0.755] | [0.115] | [0.129] | [0.087] | [0.121] |
| Performance in round 1 & Data Analysis in round 1 | | 0.296 (0.334) | | 1.025** (0.490) | | 0.006 (0.986) | | 0.624 (0.915) |
| Performance in round 1 & Data Entry in round 1 | | 0.082 (0.289) | | 0.111 (0.434) | | 0.338 (0.502) | | 0.011 (0.685) |
| Performance in round 1 & Bargaining in round 1 | | 0.396*** (0.111) | | 0.695*** (0.186) | | 0.651** (0.301) | | 0.307** (0.146) |
| Observations | 712 | 712 | 240 | 240 | 236 | 236 | 236 | 236 |

Notes: Round 2 data only. The attractiveness coefficients should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include employer prediction rank, employer fixed effects, indicators for whether the second-round task was the same as the first-round task, student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10 percent, ** 5 percent, *** 1 percent.

Analysis of the relationship between attractiveness and worker confidence

Another possible explanation for the beauty premium in the first round is that more attractive individuals are more confident in the bargaining task (Mobius and Rosenblat, 2006). To test this hypothesis, we regress the worker's performance prediction error (defined as the worker's own performance prediction minus that worker's actual performance in a given task) on the average beauty rating or on the indicator that the beauty rating belongs to a given quintile, controlling for actual performance. In all specifications, we control for date fixed effects and worker resume characteristics.

Table A9 reports the resulting estimates and shows that there is no positive significant relationship between beauty and confidence in our data. In fact, relatively more attractive subjects in the second quintile underestimate their performance compared to those in the bottom quintile of attractiveness in the pooled data. Thus, confidence cannot explain the beauty premium we find in the bargaining task in the first round. This result is different from the findings of Mobius and Rosenblat (2006), who find the confidence channel to be an important mechanism behind the beauty premium.

Table A9: Relationship between a worker's performance prediction error and attractiveness in round 1

| Outcome variable: | Worker performance prediction error in round 1 | | | | | | | |
|---------------------------|--|-----------|---------------|----------|------------|----------|------------|----------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis | | Data Entry | | Bargaining | |
| Attractiveness of worker | -0.332 | | -2.027 | | 17.384 | | 0.597 | |
| | (3.789) | | (4.581) | | (12.278) | | (7.771) | |
| Attractiveness quintiles: | | | | | | | | |
| 2nd | | -24.218** | | 0.319 | | 2.569 | | -34.798 |
| | | (11.855) | | (10.832) | | (46.849) | | (35.711) |
| 3rd | | -3.402 | | -17.219 | | 59.103 | | -13.756 |
| | | (14.223) | | (11.645) | | (55.569) | | (37.430) |
| 4th | | -19.696 | | 0.157 | | 19.485 | | -29.264 |
| | | (11.987) | | (10.605) | | (50.271) | | (43.373) |
| Top attractiveness: 5th | | -7.021 | | 4.14 | | 38.797 | | -17.075 |
| | | (13.887) | | (13.762) | | (42.552) | | (28.645) |
| Observations | 178 | 178 | 59 | 59 | 59 | 59 | 60 | 60 |

Notes: Round 1 data only. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include date fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. Specifications (7) and (8) include an indicator for whether a trade was possible and control for the average difference between buyer value and seller cost across the three bargaining rounds. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

C. Linear specifications

As a robustness check, we present the results of our analysis of the effect of attractiveness on employer wage bids, employer predictions, and worker performance using the linear specification.

Table A10: *Relationship between an employer bid in round 1 and worker attractiveness*

| Outcome variable: | Employer's wage bid in round 1 | | | | | | | |
|---------------------------|--------------------------------|---------|---------------|---------|------------|---------|------------|-----------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis | | Data Entry | | Bargaining | |
| | [26.5] | | [23.2] | | [27.7] | | [28.5] | |
| Attractiveness of worker | 2.478** | | 2.180 | | -0.160 | | 5.527*** | |
| | (1.015) | | (1.942) | | (2.000) | | (1.968) | |
| Attractiveness quintiles: | | | | | | | | |
| 2nd | | 4.588 | | 1.224 | | 11.553 | | 18.999** |
| | | (3.717) | | (4.605) | | (7.490) | | (8.747) |
| 3rd | | 4.189 | | 5.249 | | 10.117 | | 9.134 |
| | | (3.563) | | (5.025) | | (8.417) | | (8.405) |
| 4th | | 8.192** | | 8.887* | | 14.221* | | 13.438** |
| | | (3.401) | | (4.616) | | (8.268) | | (6.062) |
| Top attractiveness: 5th | | 7.038** | | 4.094 | | 1.349 | | 21.810*** |
| | | (3.478) | | (5.159) | | (7.662) | | (6.695) |
| Observations | 712 | 712 | 236 | 236 | 236 | 236 | 240 | 240 |

Notes: Round 1 data only. Mean wage bids (in points) for each task are reported in brackets below the task type. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table A10 (levels equivalent of Table 3 in the paper) confirms that employers offer significantly higher wages to relatively attractive individuals in bargaining (Column 7) but not in the other two tasks (Columns 3 and 5) in the first round. Workers in quintile 4 (moderately attractive), receive higher wages than those in the bottom quintile in all tasks (Columns 4 and 6), but the effect is strongest in bargaining (Column 8). Workers in the top attractiveness quintile receive a significant beauty premium when we pool the data and in bargaining (Columns 2 and 8).

Table A11 (levels equivalent of Table 4 in the paper) shows that employers expect more attractive workers to outperform their less attractive counterparts in bargaining (Columns 7 and 8), but not in the other two tasks (Columns 3-6).

Table A11: *Relationship between employer performance expectations and worker attractiveness in round 1*

| Outcome variable: | Employer performance prediction in round 1 | | | | | | | |
|---------------------------|--|---------|---------------|---------|------------|---------|------------|----------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis | | Data Entry | | Bargaining | |
| | [63.0] | | [53.2] | | [72.5] | | [63.3] | |
| Attractiveness of worker | 1.076* | | -0.044 | | -2.806 | | 2.430** | |
| | (0.641) | | (0.940) | | (6.323) | | (1.126) | |
| Attractiveness quintiles: | | | | | | | | |
| 2nd | | 1.359 | | 4.053 | | 1.788 | | 6.725 |
| | | (2.311) | | (2.717) | | (3.088) | | (4.456) |
| 3rd | | 0.973 | | 3.165 | | 0.486 | | -0.183 |
| | | (2.069) | | (2.236) | | (3.506) | | (3.954) |
| 4th | | 2.084 | | 3.425 | | 0.558 | | 7.834** |
| | | (1.980) | | (2.292) | | (2.706) | | (3.745) |
| Top attractiveness: 5th | | 3.124 | | 0.482 | | -1.632 | | 9.858*** |
| | | (2.015) | | (2.728) | | (1.797) | | (3.593) |
| Observations | 712 | 712 | 236 | 236 | 236 | 236 | 240 | 240 |

Notes: Round 1 data only. Mean predicted performance (in points) for each task is reported in brackets below the task type. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In Table A4, specifications (7) and (8) include an indicator for whether a trade was possible and control for the average difference between buyer value and seller cost across the three bargaining rounds. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table A12 (levels equivalent of Table 5 in the paper) also confirms that employer expectations are incorrect in the bargaining task: there is no significant effect of beauty on performance in any of the tasks in the first round.

Table A12: *Relationship between a worker attractiveness and performance in round 1*

| Outcome variable: | Worker performance in round 1 | | | | | | | |
|---------------------------|-------------------------------|---------|---------------|---------|------------|----------|------------|----------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis | | Data Entry | | Bargaining | |
| | [64.2] | | [35.8] | | [89.5] | | [64.2] | |
| Attractiveness of worker | -0.823 | | 0.724 | | -7.890 | | 1.733 | |
| | (2.493) | | (1.649) | | (5.288) | | (5.343) | |
| Attractiveness quintiles: | | | | | | | | |
| 2nd | | 3.349 | | 7.492 | | -22.144 | | -1.475 |
| | | (8.280) | | (6.454) | | (20.186) | | (16.815) |
| 3rd | | 0.516 | | 6.201 | | -32.955* | | 10.824 |
| | | (9.011) | | (5.859) | | (19.310) | | (28.036) |
| 4th | | 7.393 | | 0.809 | | -24.74 | | 19.168 |
| | | (7.981) | | (5.808) | | (21.989) | | (25.669) |
| Top attractiveness: 5th | | -2.51 | | 5.091 | | -40.670* | | 10.087 |
| | | (9.842) | | (6.240) | | (20.810) | | (16.632) |
| Observations | 178 | 178 | 59 | 59 | 59 | 59 | 60 | 60 |

Notes: Round 1 data only. Mean worker performance (in points) for each task is reported in brackets below the task type. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include date fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. Specifications (7) and (8) include an indicator for whether a trade was possible and control for the average difference between buyer value and seller cost across the three bargaining rounds. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table A13 (levels equivalent of Table 6 in the paper) confirms that the beauty premium disappears in bargaining once we properly control for the employers' predictions.

Table A13: *Separating statistical from taste-based discrimination*

| Outcome variable: | Employer's wage bid in round 1 | | | | | | | |
|---------------------------|--------------------------------|---------|---------------|---------|------------|---------|------------|---------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis | | Data Entry | | Bargaining | |
| Attractiveness of worker | 1.235 | | 1.216 | | -0.114 | | 2.264 | |
| | (0.890) | | (1.875) | | (1.858) | | (1.987) | |
| Attractiveness quintiles: | | | | | | | | |
| 2nd | | 4.756 | | -1.000 | | 10.292 | | 11.199 |
| | | (3.350) | | (3.058) | | (7.621) | | (7.082) |
| 3rd | | 3.48 | | 5.136* | | 6.341 | | 9.767 |
| | | (3.182) | | (2.967) | | (8.071) | | (7.076) |
| 4th | | 6.516** | | 5.904 | | 10.421 | | 5.092 |
| | | (2.675) | | (3.860) | | (8.238) | | (5.387) |
| Top attractiveness: 5th | | 4.585 | | 1.665 | | 4.029 | | 8.177 |
| | | (2.889) | | (4.476) | | (7.656) | | (6.082) |
| Observations | 712 | 712 | 236 | 236 | 236 | 236 | 240 | 240 |

Notes: Round 1 data only. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include employer's performance prediction rank, employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Tables A14 and A15 (levels equivalents of Tables 7 and 8 in the paper) show that the second round analysis is qualitatively similar when we use linear specifications.

Table A14: *Relationship between an employer bid in round 2 and worker attractiveness*

| Outcome variable: | Employer's wage bid in round 2 | | | | | | | |
|---------------------------|--------------------------------|----------|-------------------------|----------|----------------------|----------|----------------------|----------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks [27.4] | | Data Analysis [22.7] | | Data Entry [30.1] | | Bargaining [28.5] | |
| Attractiveness of worker | 2.777* | | 2.407 | | 5.114 | | 1.044 | |
| | (1.571) | | (2.553) | | (3.519) | | (2.391) | |
| Attractiveness quintiles: | | | | | | | | |
| 2nd | | 11.010** | | 15.654 | | 18.591* | | 6.492 |
| | | (5.399) | | (10.107) | | (10.143) | | (12.065) |
| 3rd | | 3.298 | | 16.824 | | 6.732 | | 3.732 |
| | | (4.831) | | (10.409) | | (8.408) | | (7.660) |
| 4th | | 11.909** | | 21.699** | | 20.463 | | 8.642 |
| | | (5.118) | | (9.180) | | (13.115) | | (9.383) |
| Top attractiveness: 5th | | 11.254** | | 15.854* | | 16.185 | | 5.61 |
| | | (5.343) | | (8.986) | | (11.502) | | (7.682) |
| Observations | 712 | 712 | 240 | 240 | 236 | 236 | 236 | 236 |

Notes: Round 2 data only. Mean wage bids (in points) for each task are reported in brackets below the task type. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Table A15: *The impact of learning on the beauty premium in the second round*

| Outcome variable: | Employer wage bid in round 2 | | | | | | | |
|--|------------------------------|----------|---------------|----------|------------|----------|------------|----------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | | Data Analysis | | Data Entry | | Bargaining | |
| Attractiveness of worker & same task in round 2 | 4.373* | 2.760 | 0.513 | -1.684 | 3.925 | -1.112 | 3.474 | 3.692* |
| | (2.534) | (1.908) | (3.333) | (2.683) | (8.687) | (5.445) | (2.585) | (2.005) |
| Attractiveness of worker & different task in round 2 | 1.140 | 2.772* | 3.604 | 2.792 | 5.718 | 6.498* | -10.408* | -3.944 |
| | (1.919) | (1.608) | (3.347) | (2.365) | (3.726) | (3.869) | (5.440) | (4.204) |
| Performance in round 1 & Data Analysis in round 1 | | 0.963*** | | 0.988*** | | 0.573 | | 1.227** |
| | | (0.202) | | (0.209) | | (0.510) | | (0.570) |
| Performance in round 1 & Data Entry in round 1 | | 0.380*** | | 0.234*** | | 0.717*** | | 0.318*** |
| | | (0.087) | | (0.084) | | (0.170) | | (0.091) |
| Performance in round 1 & Bargaining in round 1 | | 0.330*** | | 0.151 | | 0.272** | | 0.361*** |
| | | (0.069) | | (0.115) | | (0.108) | | (0.083) |
| Observations | 712 | 712 | 236 | 236 | 240 | 240 | 236 | 236 |

Notes: Round 2 data only. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. All regressions include employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

D. Bidding behavior

In order to prevent bankruptcy, total employer bids on workers in a given round of our experiment could not exceed a pre-specified maximum amount (125 or 175 points, depending on the session). In this section, we investigate whether the beauty premium differs when the maximum bid is binding. The inclusion of the date fixed effects accounts for the possibility that changing the maximum total bid from 125 to 175 in the later sessions may have resulted in higher subsequent wage bids on average. However, it does not account for the strategic implications of the binding of the maximum bid rule. For example, consider a subject for whom the sum of the optimal bids based on rational expectations of performance exceeded the limit. For such an employer, increasing the bid on one worker necessarily decreases the bid on some other worker. On the other hand, an employer for whom the sum of the optimal bids does not exceed the limit would not have to allocate wage bids in this “zero-sum” way. Thus, the strategic implications of the bidding environment would be different for these two employers. In order to explore the effects of the bidding strategies on the beauty premium, Table A16 decomposes the effects according to whether the maximum bid was binding for a given employer.

When we do not control for the employer performance predictions (Columns 1–4), the effect of bid-binding on the beauty premium differs by task. When we pool the data (Column 1) and in bargaining (Column 4), the positive beauty premium exists only when the total bid maximum does not bind. This suggests that employers offer higher wages to more attractive workers when they do not face a budget constraint. However, the F-test shows that none of the coefficients on the interaction terms are significantly different from each other, including in bargaining. This suggests that the maximum bid limit does not significantly affect the existence of the beauty premium (or lack thereof).

Table A16: *Effects of strategic bidding on the existence of the beauty premium*

| Outcome variable: | Natural logarithm of employer wage bid in round 1 | | | | | | | |
|---|---|------------------|-------------------|---------------------|-------------------|------------------|-------------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | Data Analysis | Data Entry | Barg. | All Tasks | Data Analysis | Data Entry | Barg. |
| Attractiveness of worker | | | | | | | | |
| if max bid binds | 0.128 (0.231) | 0.773 (0.598) | -0.359 (0.615) | -0.004 (0.274) | -0.007 (0.260) | 0.501 (0.570) | -0.147 (0.532) | -0.127 (0.341) |
| if max bid does not bind | 0.167** (0.070) | 0.085 (0.136) | 0.020 (0.103) | 0.350*** (0.104) | 0.110* (0.057) | 0.055 (0.135) | 0.007 (0.092) | 0.170* (0.099) |
| F-test p-value (equality) | [0.876] | [0.277] | [0.530] | [0.212] | [0.668] | [0.456] | [0.766] | [0.387] |
| Employer's performance prediction rank included | No | No | No | No | Yes | Yes | Yes | Yes |
| Observations | 712 | 236 | 236 | 240 | 712 | 236 | 236 | 240 |

Notes: Round 1 data only. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. The p-values for the F-tests of the coefficients on the bid binding interactions are reported in brackets below the estimates. All regressions include a dummy for total maximum bid binding, employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

When we include employer performance predictions in Columns 5–8, the beauty premium binding decreases in magnitude and becomes only marginally significant in pooled data and in bargaining (Columns 5 and 8). This supports our main result that there is statistical discrimination based on biased beliefs about performance in our setting. An F-test reveals that the coefficients on the interaction terms are not statistically different from one another in any specification.

E. Gender differences in the beauty premium

Table A17 decomposes the employer wage bid by worker gender in both rounds.

Table A17: *Relationship between an employer bid in round 1 and worker attractiveness by gender of worker*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---------|----------|---------|---------|---------|----------|---------|---------|
| | All | Data | Data | | All | Data | Data | |
| | Tasks | Analysis | Entry | Barg. | Tasks | Analysis | Entry | Barg. |
| <i>Panel 1: Outcome Variable: Natural logarithm of employer wage bid in round 1</i> | | | | | | | | |
| Attractiveness of worker | | | | | | | | |
| if female | 0.133* | 0.223 | -0.034 | 0.267 | 0.100 | 0.210 | -0.028 | 0.136 |
| | (0.078) | (0.152) | (0.128) | (0.123) | (0.070) | (0.147) | (0.121) | (0.127) |
| if male | 0.201* | 0.038 | 0.154 | 0.263 | 0.082 | -0.057 | 0.107 | 0.042 |
| | (0.120) | (0.185) | (0.279) | (0.198) | (0.110) | (0.180) | (0.248) | (0.209) |
| F-test p-value (equality) | [0.648] | [0.396] | [0.575] | [0.987] | [0.891] | [0.198] | [0.663] | [0.691] |
| Observations | 712 | 236 | 236 | 240 | 712 | 236 | 236 | 240 |
| <i>Panel 2: Outcome Variable: Natural logarithm of employer wage bid in round 2</i> | | | | | | | | |
| Attractiveness of worker | | | | | | | | |
| if female | 0.165 | 0.197 | 0.506** | 0.058 | 0.087 | 0.107 | 0.100 | 0.060 |
| | (0.114) | (0.200) | (0.234) | (0.141) | (0.078) | (0.117) | (0.174) | (0.116) |
| if male | 0.032 | 0.139 | -0.198 | -0.125 | 0.042 | 0.133 | 0.083 | -0.113 |
| | (0.137) | (0.193) | (0.306) | (0.375) | (0.094) | (0.144) | (0.306) | (0.289) |
| F-test p-value (equality) | [0.496] | [0.790] | [0.071] | [0.672] | [0.729] | [0.881] | [0.96] | [0.614] |
| Observations | 712 | 240 | 236 | 236 | 712 | 240 | 236 | 236 |
| Employer's performance prediction rank included | No | No | No | No | Yes | Yes | Yes | Yes |

Notes: Round 1 data only. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. The p-values for the F-tests of the coefficients on the interactions with worker gender are reported in brackets below the estimates. All regressions include employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Columns 1–4 in both tables do not control for the employer's performance prediction and show that there is no systematic variation in the beauty premium by gender in any of the tasks and when we pool the data in the first round. Controlling for the prediction does not change this finding (Panel 1, Columns 5–8). However, in round 2, we find that more attractive female

workers receive wage bids that are marginally higher than wages received by more attractive male workers in data entry. The effect disappears once we control for the employer performance prediction (Panel 2, Columns 5–8) which suggests that the observed premium was due to statistical discrimination.

Table A18 estimates the relationship between the employer prediction and attractiveness by gender in both rounds. The F-tests for equality of coefficients on gender interactions show that there the effect of beauty on employer predictions does not vary by gender in the first round in the pooled data, data analysis or data entry (Columns 1-3). We find that more attractive male workers are expected to outperform more attractive female workers in bargaining.¹ More attractive female workers are expected to outperform the more attractive male workers in the second round in data entry. This finding is consistent with the gender-specific beauty premium in this task in the second round (Table A17, Panel 2, Column 3).

Table A18: *Relationship between employer performance prediction and worker attractiveness by gender of worker*

| Outcome variable: | Natural logarithm of employer performance prediction in round 1 | | | | Natural logarithm of employer performance prediction in round 2 | | | |
|---------------------------|---|-------------------------|----------------------|---------------------|---|-------------------------|----------------------|-------------------|
| | (1) All Tasks | (2) Data Analysis | (3) Data Entry | (4) Barg. | (5) All Tasks | (6) Data Analysis | (7) Data Entry | (8) Barg. |
| Attractiveness of worker | | | | | | | | |
| if female | 0.005 (0.015) | -0.008 (0.020) | -0.006 (0.025) | 0.002 (0.021) | -0.017 (0.039) | 0.027 (0.046) | 0.105** (0.046) | -0.092 (0.062) |
| if male | 0.059 (0.040) | 0.000 (0.032) | -0.093 (0.078) | 0.089*** (0.016) | 0.001 (0.056) | 0.039 (0.058) | -0.164** (0.062) | -0.161 (0.232) |
| F-test p-value (equality) | [0.245] | [0.825] | [0.203] | [0.009] | [0.812] | [0.844] | [0.003] | [0.777] |
| Observations | 712 | 236 | 236 | 240 | 712 | 240 | 236 | 236 |

Notes: The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. The p-values for the F-tests of the coefficients on the interactions with worker gender are reported in brackets below the estimates. All regressions include employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses, with the exception of specification (4) which clusters by employer. Significance levels: * 10 percent, ** 5 percent, *** 1 percent.

¹ However, the F-test for equality of coefficient is based on the regression specification that clusters standard errors by employer, rather than the two-way clustering we employ in all other specifications. This is due to an insufficient number of clusters required to calculate a robust covariance matrix in this specification. If we do not cluster standard errors, the two coefficients on interactions with gender are not significantly different from one another. Furthermore, the range of the two coefficients in bargaining (Column 4) is actually greater in absolute value than the range in data entry (Column 3) which suggests that were we to perform the relevant F-test with two-way clustering, we may have found no difference.

Table A19 shows that there is no gender-specific relationship between worker performance and beauty in any task and in either round.

Table A19: Relationship between worker performance and worker attractiveness by gender of worker

| Outcome variable: | Natural logarithm of worker performance in round 1 | | | | Natural logarithm of worker performance in round 2 | | | |
|---------------------------|--|-------------------------|----------------------|-------------------|--|-------------------------|----------------------|------------------|
| | (1) All Tasks | (2) Data Analysis | (3) Data Entry | (4) Barg. | (5) All Tasks | (6) Data Analysis | (7) Data Entry | (8) Barg. |
| Attractiveness of worker | | | | | | | | |
| if female | -0.016 (0.065) | -0.011 (0.083) | -0.079 (0.090) | -0.180 (0.187) | 0.033 (0.086) | -0.025 (0.159) | -0.002 (0.169) | 0.025 (0.152) |
| if male | 0.023 (0.079) | -0.051 (0.074) | -0.270* (0.149) | 0.209 (0.207) | -0.036 (0.089) | -0.040 (0.118) | 0.333 (0.320) | 0.271 (0.341) |
| F-test p-value (equality) | [0.713] | [0.711] | [0.248] | [0.132] | [0.609] | [0.933] | [0.423] | [0.524] |
| Observations | 178 | 59 | 59 | 60 | 178 | 60 | 59 | 59 |

Notes: The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on worker performance. The p-values for the F-tests of equality of the coefficients on the interactions with worker gender are reported in brackets below the estimates. All regressions include date fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. Specifications (7) and (8) include an indicator for whether a trade was possible and control for the average difference between buyer value and seller cost across the three bargaining rounds. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors in parentheses. Significance levels: * 10 percent, ** 5 percent, *** 1 percent.

F. The effect of changing the order of information shown to employers

In the experiment, we vary the order in which the employers see worker information. In some sessions, employers first see the pictures of the four prospective workers and have to click on a link below the picture to see a particular worker's resume. In other sessions, the resume information is shown to the employers first and they have to click on a link to see a particular worker's picture. Table A20 demonstrates the effect of this treatment on the beauty premium.

Table A20: Relationship between an employer bid in round 1 and worker attractiveness by information order

| Outcome variable: | Natural logarithm of employer wage bid in round 1 | | | | | | | |
|--|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | All Tasks | Data Analysis | Data Entry | Barg. | All Tasks | Data Analysis | Data Entry | Barg. |
| Attractiveness of worker | | | | | | | | |
| if picture shown first | 0.071 (0.076) | -0.012 (0.162) | 0.050 (0.128) | 0.187 (0.122) | 0.039 (0.078) | -0.022 (0.148) | 0.027 (0.132) | 0.025 (0.177) |
| if resume shown first | 0.294** (0.126) | 0.345 (0.261) | -0.074 (0.149) | 0.399* (0.214) | 0.173* (0.101) | 0.237 (0.253) | -0.042 (0.105) | 0.222 (0.187) |
| F-test p-value (equality) | [0.160] | [0.290] | [0.506] | [0.392] | [0.320] | [0.409] | [0.672] | [0.464] |
| Employer's performance prediction rank included | No | No | No | No | Yes | Yes | Yes | Yes |
| Observations | 712 | 236 | 236 | 240 | 712 | 236 | 236 | 240 |

Notes: Round 1 data only. The attractiveness coefficient should be interpreted as the effect of a one standard deviation change in beauty on the outcome variable. The p-values for the F-tests of the coefficients on the interactions are reported in brackets below the estimates. All regressions include employer fixed effects, indicators for student status (graduate or undergraduate), major, GPA range, self-reported abilities, race, and gender. In cases where we pool the data across multiple tasks, we also include a task fixed effect. Robust standard errors are clustered by employer and worker in parentheses. Significance levels: * 10%, ** 5%, *** 1%.

Columns 1 and 4 show a significant effect of attractiveness on the wage bid in the pooled data and in bargaining exists only when the resume is shown to the employer first and they must click on the link to see the worker picture. However, an F-test reveals that the coefficients on the interaction terms are not statistically different from one another in either specification. This implies that the order in which information is presented to the employer does not have a significant impact of the wage offer decision. The results are similar when we control for the employer performance prediction rank in Columns 5 – 8.

G. Rating sessions

Procedure and instructions

All pictures were rated by at least 25 female and 25 male raters. Raters were students at a college in another state and were pre-screened to ensure that they were not familiar with students from the college of interest.

Raters were shown pictures of each student and asked to rate her physical appearance on a 1–10 point scale. Five of the numbers had descriptions indicating the level of attractiveness corresponding to that number (see experimental instructions on the next page). Raters were instructed to choose the numbers without descriptions if they felt the student’s appearance fell between the two descriptions.

Each rater was shown four sets of about 100 photos. The order of the photos within each set was randomized for each rater. In early stages of the experiment, we compared the means and standard deviations of ratings across sets to see if having subjects rate 400 pictures led to fatigue. There was no significant difference in either the means or standard deviations of ratings for earlier and later sets, which led us to conclude that 400 pictures was not an excessive amount. We did not use data from three raters who chose 1’s 40% or more percent of the time. The “1” option was the closest to the “Next” button. Thus, these subjects were most likely trying to get through the experiment as quickly as possible.

Rater pool descriptive statistics

Each rating session lasted between forty minutes and one hour, including the reading of the instructions and payment. Raters were paid a show-up fee of \$5 and an additional \$7 payment for completing the task of rating all photos and providing demographic information. Table A21 summarizes our rater pool.

Table A21: *Number of raters in each gender and race category*

| | Male | Female |
|------------------|------|--------|
| White | 30 | 39 |
| Asian | 32 | 32 |
| Black | 5 | 8 |
| Hispanic | 7 | 8 |
| Native American | 0 | 0 |
| Pacific Islander | 0 | 3 |
| Total | 66 | 80 |

Notes: The sum of the number of raters by each race category exceeds the total number of males in column 1 and the total number of females in column 2 because some raters identified with more than one race.

Instructions for the experiment

You are about to participate in an experiment involving the perception of appearance. Once the experiment begins, you will see a photograph of an individual along with the following prompt:

Rate this person's physical appearance using the following scale:

- 10 strikingly handsome or beautiful
- 9
- 8 good-looking (above average for age and sex)
- 7
- 6 average looks for age and sex
- 5
- 4 quite plain (below average for age and sex)
- 3
- 2 homely
- 1

Choose the number that best corresponds to your evaluation. Choose the numbers without descriptive text (1, 3, 5, 7, and 9) if you feel the person's appearance falls in between the descriptions found in the adjacent numbers.

After you have chosen a number, click "Next". You will then see another photograph and be asked to repeat the procedure. Continue selecting the number you feel best reflects your assessment of the individual's appearance until you are told to stop.

Instructions for the experiment: Part I

You are about to participate in an experiment involving employer-worker matching in the labor market. This experiment is part of a research project financed by Wellesley College and Harvard University.

Please read the following instructions very carefully. You will receive all the information you require for participation in the experiment. If you follow these instructions, you will have an opportunity to earn real money that will be paid to you, privately and in cash, at the end.

Communication between participants is absolutely forbidden during the experiment unless instructed otherwise by the experimenters! Violations of these rules will force us to stop the experiment. If you have any concerns or do not understand something, please raise your hand quietly and wait for one of the experimenters to come to you.

Your payment in this experiment will be calculated in points at first. The total point score you earn during the experiment will be converted to US Dollars at the end of the experiment using the following exchange rate:

10 points = \$0.40

At the end, you will be paid the dollar equivalent of points you earned during the experiment plus a \$10 show-up fee in **cash**.

Stage 1: Resume

You will now fill out a pre-experiment questionnaire which will be the basis for building your resume. Once you answered all the questions, press the “submit” button. Based on your answers, the experimenters will generate your resume. This may take a few minutes, so please be patient. Note that your resume may be viewed by other participants during the course of the experiment.

Instructions for the experiment: Round I

The remainder of the experiment consists of **2 rounds**.

Employers and Workers:

You have been randomly assigned to one of the following roles: **employer** or **worker**. Your role is written in bold at the top of these instructions pages. You will remain in the same role for the duration of the experiment.

Employers

Employers will start each round with an endowment of 125 points that they may keep or use to “hire” workers, who will perform a task described below. To “hire” workers, employers will submit fixed wage offers. The better the “hired” worker(s) perform(s) the task, the more points the employer will earn.

Note that the task may or may not change between rounds. The description of the task given below applies to this round only. Instructions for the second round task will be provided once the first round task is completed. However, the “hiring” process will remain the same in both rounds.

In each round, employers will see pictures of all workers on the right computer monitor. To see a particular worker’s resume, the employer will click on the text box below the worker’s picture. To return to the worker’s picture, the employer will click on the text box again.

Performance Prediction

Next, employers will be asked to make a prediction for the performance of *each* worker. The prediction will be subject to a prediction penalty. For each token earned by the worker above or below the prediction, we will subtract 0.25 points from the employer’s total payoff. When the number of tokens earned (Y) is exactly equal to the prediction, the employer will not lose any points. So, the estimate that is the closest to reality will result in the highest earnings. In pilot trials for this task, the average number of tokens earned was 75 (see task description below for more detail). The prediction penalty for employers will be based on his or her total prediction error for the workers’ performance.

The employer’s estimates will not be revealed to any other subject at any point during the experiment.

“Hiring” Workers

Next, employers will have 3 minutes to make all the wage offers. Employers will make wage offers on the left computer monitor. Note that a given employer may offer equal wages to two or more workers. However, the total value of the offers cannot exceed his or her endowment of 125 points. An offer of zero (0) is equivalent to an unwillingness to hire that worker.

Based on the wage offers, each employer may be matched with one or more worker(s). If more than one employer tries to hire (offers a non-zero wage to) the same worker, the employer with

the highest wage offer will hire that worker. Ties will be resolved by a random draw. There is a possibility that an employer will not be matched to any worker. In that case, his or her earnings for that round will be equal to the endowment of 125 points.

Although the employer with the highest wage offer for a particular worker will “hire” that person, he or she will only have to pay the worker the second highest wage (W) offered to that worker.

Example:

| | Employer 1 Offers | Employer 2 Offers | Employer 3 Offers |
|----------|-------------------|-------------------|-------------------|
| Worker 1 | 70 points | 40 points | 10 points |
| Worker 2 | 30 points | 30 points | 37 points |
| Worker 3 | 0 points | 0 points | 35 points |

Outcome of employer-worker matching for employers:

- Employer 1 hires Worker 1 and pays a wage of 40 points, keeping 125 – 40 points.
- Employer 2 does not hire anyone, keeping 125 points.
- Employer 3 hires Workers 2 and 3 and pays them wages of 30 and 0 points, respectively, keeping 125 – 30 points.

Outcome of employer-worker matching for workers:

- Worker 1 is hired by Employer 1 and receives a wage of 40 points.
- Worker 2 is hired by Employer 3 and receives a wage of 30 points.
- Worker 3 is hired by Employer 3 and receives a wage of 0 points.

Upon completion of the task, the employer will earn a payoff based on the performance of the worker(s) he or she hired (if any) and the wage he or she paid to the worker(s), as determined by the above procedure.

Workers

Workers will start each round with an endowment of 25 points.

Performance Prediction

Workers will first estimate the number of tokens they expect to earn in the task. Workers will be asked to make a prediction only for their *own* performance. The prediction will be subject to a prediction penalty. For each token earned by the worker above or below his or her prediction, we will subtract 0.25 points from the worker’s total payoff. When the number of tokens earned (Y) is exactly equal to the prediction, the worker will not lose any points. So, the estimate that is the closest to reality will result in the highest earnings. In pilot trials for this task, the average number of tokens earned was 75 (see task description below for more detail). The prediction penalty for workers will be based on the prediction error for his or her own performance.

The worker’s estimates will not be revealed to any other subject at any point during the experiment.

Getting “Hired” by an Employer

Then, workers will wait until they are matched to an employer (if any). Each worker will then engage in a bargaining task with another worker, as described below. Upon completion of the task, workers will be informed of the fixed wage (W) paid by their employer (if any). Workers will also get a summary of their earnings in the bargaining task. All wages and additional payoffs based on performance will be paid at the end of the experiment.

Tasks:

Employers

Employers do not have any further tasks beyond offering the workers’ wages and predicting worker performance, as described above. During the task completion phase, the employers are free to read or engage in other quiet activities. Do not use the lab computer until instructed again by us.

Workers

Each worker will be randomly chosen to be either a buyer or a seller. The task of the seller will be to sell a “widget” to a buyer for as much as possible, at a price that is at or above the cost to the seller. The task of the buyer will be to buy a “widget” for as little as possible, at a price that is at or below the buyer’s assigned value of the widget.

Bargaining Task

Read the following carefully to understand the nature of the workers’ task.

Sellers

The goal of each seller is to sell a virtual widget for as much as possible, provided the price of the widget is greater than the cost of providing it. Widget cost, C , will be randomly assigned to each seller at the beginning of each bargaining period. This cost can range from 0 to 80. The cost will be deducted from the sale price if the seller sells the widget. For example, if a seller sells the widget for price P , the number of tokens earned by him or her in that bargaining period will be $Y = P - C$. A seller cannot offer or agree to sell the widget for a price smaller than C . If the seller does not agree to sell the widget before the time runs out, he or she will receive 0 tokens in that bargaining period.

Buyers

The goal of each buyer is to buy a widget as cheaply as possible, provided the price of the widget does not exceed its value to the buyer. Widget value, V , will be randomly assigned to each buyer at the beginning of each bargaining period. This value can range from 50 to 130. The sale price will be deducted from the value if the buyer buys the widget. For example, if the buyer buys the widget for price P , the number of tokens earned in that bargaining period will be $Y = V - P$. A buyer cannot offer or agree to buy the widget for a price greater than V . If the buyer does not agree to buy the widget before the time runs out, he or she will receive 0 tokens in that bargaining period.

Bargaining procedure

Once the task begins, workers will see a screen that will notify them whether they are a buyer or a seller. Sellers will see their cost of providing the widget. Buyers will see their value from buying a widget. After viewing this information, workers should click “Next” (the private cost or value of the widget will also be displayed on the next screen).

| | | |
|--|--------|--------------------------|
| Period | 1 of 1 | Remaining time [sec]: 17 |
| <p>You are about to start the bargaining task.</p> <p>You are a seller.</p> <p>Your cost for the widget is 55.</p> <p>The seller will make the first offer.</p> <p>The buyer can then either accept the seller's offer or make a counter-offer to the seller.</p> <p>The players will take turns in this way until an offer has been accepted or until the time runs out.</p> <p>Please click 'Next' to begin.</p> | | |
| <input type="button" value="Next"/> | | |

| | | |
|--|--------|--------------------------|
| Period | 1 of 1 | Remaining time [sec]: 27 |
| <p>You are about to start the bargaining task.</p> <p>You are a buyer.</p> <p>Your value for the widget is 89.</p> <p>The seller will make the first offer.</p> <p>The buyer can then either accept the seller's offer or make a counter-offer to the seller.</p> <p>The players will take turns in this way until an offer has been accepted or until the time runs out.</p> <p>Please click 'Next' to begin.</p> | | |
| <input type="button" value="Next"/> | | |

Each seller will then see a photograph of the buyer they are bargaining with and each buyer will see a photograph of the seller. There will also be an interface for entering and accepting offers. Each bargaining pair will consist of one buyer and one seller.

The seller will begin the bargaining by entering a number of tokens for which he or she would like to sell the widget into the box marked "Offer" and clicking "Submit offer".

| | | |
|---|--|--------------------------|
| Period | 1 of 1 | Remaining time [sec]: 88 |
| It is your turn to make an offer. Please enter a price for which you would be willing to sell the widget. | | |
| <div style="border: 1px solid black; width: 200px; height: 100px; margin: 0 auto; text-align: center; padding: 10px;">Picture of your bargaining partner</div> | BUYER'S OFFERS | |
| | Offer: <input style="width: 100%;" type="text"/> | |
| | <input type="button" value="Accept Offer"/> | |
| YOU ARE A SELLER Your bargaining partner's picture is above. The cost of the widget for you is: 55 Enter a price for which you would be willing to sell the widget Offer: <input style="width: 50px;" type="text"/> | YOUR OFFERS | |
| | Offer: <input style="width: 100%;" type="text"/> | |
| | <input type="button" value="Submit Offer"/> | |

| | | |
|--|---|--------------------------|
| Period | 1 of 1 | Remaining time [sec]: 78 |
| It is now the buyer's turn. Please wait. | | |
| <div style="border: 1px solid black; width: 200px; height: 100px; margin: 0 auto; text-align: center; padding: 10px;">Picture of your bargaining partner</div> | BUYER'S OFFERS | |
| | Offer: <input style="width: 100%;" type="text"/> | |
| | <input type="button" value="Accept Offer"/> | |
| YOU ARE A SELLER Your bargaining partner's picture is above. The cost of the widget for you is: 55 Enter a price for which you would be willing to sell the widget Offer: <input style="width: 50px;" type="text" value="80"/> | YOUR OFFERS | |
| | Offer: <input style="width: 100%;" type="text" value="90"/> | |
| | <input type="button" value="Submit Offer"/> | |

The offer will then be visible to the buyer. At this point, the buyer will have two choices. He or she can accept the offer by first clicking on the actual offer amount on the screen and then clicking “Accept Offer.” Alternatively, he or she can reject the offer by entering a counteroffer into the offer box and clicking “Submit offer”.

The screenshot shows a bargaining interface with the following elements:

- Period:** 1 of 1
- Remaining time [sec]:** 66
- Message:** It is now the seller's turn. Please wait.
- Picture of your bargaining partner:** A placeholder box containing the text "Picture of your bargaining partner".
- YOU ARE A BUYER:** Your bargaining partner's picture is above. The value of the widget for you is: 89.
- Offer Input:** Enter a price for which you would be willing to buy the widget. Offer:
- Submit Offer:** A red button at the bottom right of the buyer's section.
- SELLER'S OFFERS:** Offer: 90
- Accept Offer:** A red button next to the seller's offer.
- YOUR OFFERS:** Offer: 70

If the seller's offer is rejected and a counteroffer is made, the counteroffer will then be visible to the seller who will have the same choices as the buyer. He or she can accept the offer by first clicking on the actual offer amount on the screen and then clicking “Accept Offer.” Alternatively, he or she can reject the offer by entering a counteroffer into the offer box and clicking “Submit offer”.

Period 1 of 1 Remaining time (sec): 46

The buyer has made an offer. Please accept the offer or make a counter-offer.

Picture of your bargaining partner

YOU ARE A SELLER

Your bargaining partner's picture is above.

The cost of the widget for you is: 55

Enter a price for which you would be willing to sell the widget

Offer:

BUYER'S OFFERS

Offer: 70

YOUR OFFERS

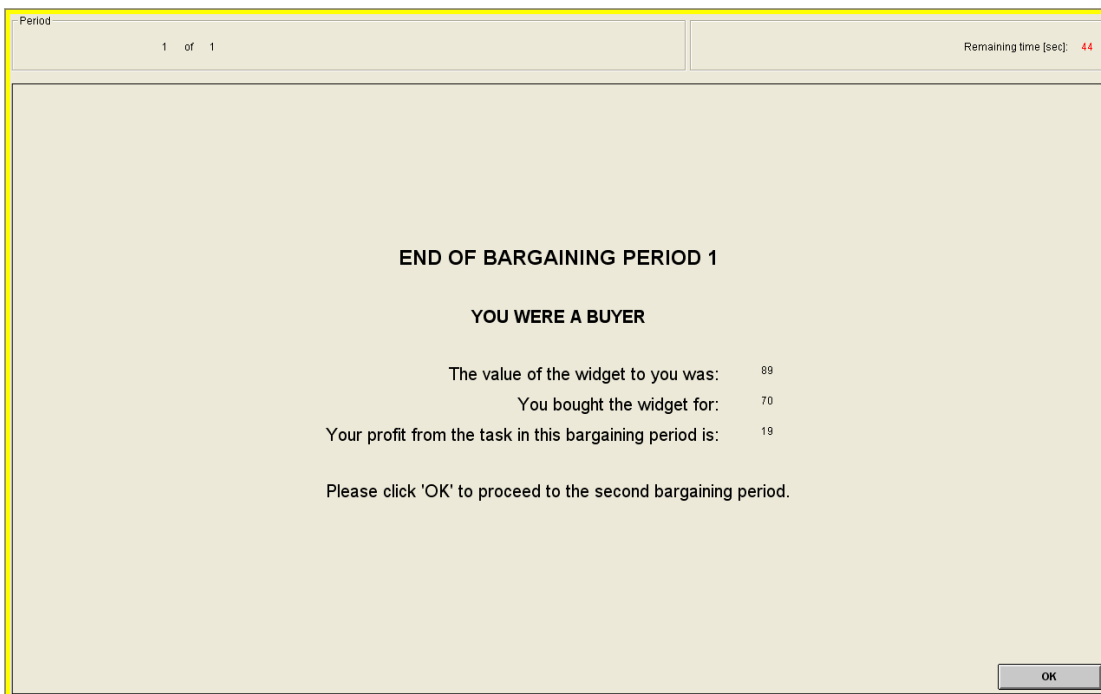
Offer: 90

This procedure will continue until an offer is accepted by either the buyer or the seller or until 90 seconds pass, whichever comes first. If an offer to sell/buy the widget for price P is accepted, the number of tokens earned by the seller will be $Y = P - C$. The number of tokens earned by the buyer will be $V - P$. If time runs out before any offer is accepted, both buyer and seller will have earned 0 tokens.

Period 1 of 1 Remaining time (sec): 38

You have completed a transaction.

Please click 'OK' to view the results from this bargaining period.



Throughout the bargaining process, a buyer will not know the seller's cost of providing the widget, and a seller will not know the buyer's value of owning a widget.

There will be a total of 3 bargaining periods. A given worker may be matched with the same worker in subsequent periods. The worker's role as buyer or seller will be randomly assigned and may change in subsequent periods.

Within-Round Payoffs:

Notation Legend

125: initial employer endowment

25: initial worker endowment

Y: number of tokens earned by worker

W: wage paid to worker (second highest wage offered to worker)

Prediction Penalty (for employers): 0.25 times the total error in predicting the performance of workers

Prediction Penalty (for workers): 0.25 times the error in predicting own performance

The payoffs for each round will be calculated as follows:

Employer who hired no workers:

$$\text{EmployerPayoff}_{\text{Round}T} = 125 - \text{Prediction Penalty}$$

Employer who hired one worker:

$$\text{EmployerPayoff}_{\text{Round}T} = 125 + (1/3) * Y - W - \text{Prediction Penalty}$$

Employer who hired two or more workers:

$$\text{EmployerPayoff}_{\text{Round}T} = 125 + (1/3) * Y(1) - W(1) + (1/3) * Y(2) - W(2) + \dots - \text{Prediction Penalty}$$

$(1/3) * Y(1) - W(1)$ are the net earnings from the first “hired” worker, $(1/3) * Y(2) - W(2)$ are the net earnings from the second “hired” worker, and “...” represents the net earnings from the rest (if any) “hired” workers.

Workers:

$$\text{WorkerPayoff}_{\text{Round}T} = 25 + (2/3) * Y + W - \text{Prediction Penalty}$$

Example: Employer hires one worker. The second-highest wage offered to the worker is $W = 40$. Number of earned tokens (Y) in round $T = 45$; Worker’s prediction of Y is 40; Employer’s total prediction error is 6. The employer’s payoff in round T is _____. The worker’s payoff in round T is _____.

Rounds:

There will be 2 rounds consisting of wage offers made by employers to hire workers, performance predictions by the employer and worker, and subsequent task completion by the worker.

After the first round, each employer will receive the following information:

- Total number of tokens earned by each worker, even if the employer did not hire him or her.
- Own payoff for the round

Each worker will receive the following information:

- Total number of tokens he or she earned
- Own payoff for the round

The final payoff for the experiment will be calculated as follows:

Final payoff (\$) = $\text{Payoff}_{\text{Round1}}(\text{points}) * 0.04(\$/\text{point}) + \text{Payoff}_{\text{Round2}}(\text{points}) * 0.04(\$/\text{point}) +$
Show-up fee (\$10)

Instructions for the experiment: Round I

Are there any questions?

The remainder of the experiment consists of **2 rounds**.

Employers and Workers:

You have been randomly assigned to one of the following roles: **employer** or **worker**. Your role is written in bold at the top of these instructions pages. You will remain in the same role for the duration of the experiment.

Employers

Employers will start each round with an endowment of 125 points that they may keep or use to “hire” workers, who will perform a task described below. To “hire” workers, employers will submit fixed wage offers. The better the “hired” worker(s) perform(s) the task, the more points the employer will earn.

Note that the task may or may not change between rounds. The description of the task given below applies to this round only. Instructions for the second round task will be provided once the first round task is completed. However, the “hiring” process will remain the same in both rounds.

In each round, employers will see pictures of all workers on the right computer monitor. To see a particular worker’s resume, the employer will click on the text box below the worker’s picture. To return to the worker’s picture, the employer will click on the text box again.

Performance Prediction

Next, employers will be asked to make a prediction for the performance of *each* worker. The prediction will be subject to a prediction penalty. For each question answered correctly by the worker above or below the prediction, we will subtract 1.25 points from the employer’s total payoff. When the number of questions answered correctly (Y) is exactly equal to the prediction, the employer will not lose any points. So, the estimate that is the closest to reality will result in the highest earnings. In pilot trials for this task, the average number of questions answered correctly was 8 (see task description below for more detail). The prediction penalty for employers will be based on his or her total prediction error for the workers’ performance.

The employer’s estimates will not be revealed to any other subject at any point during the experiment.

“Hiring” Workers

Next, employers will have 3 minutes to make all the wage offers. Employers will make wage offers on the left computer monitor. Note that a given employer may offer equal wages to two or more workers. However, the total value of the offers cannot exceed his or her endowment of 125 points. An offer of zero (0) is equivalent to an unwillingness to hire that worker.

Based on the wage offers, each employer may be matched with one or more worker(s). If more than one employer tries to hire (offers a non-zero wage to) the same worker, the employer with the highest wage offer will hire that worker. Ties will be resolved by a random draw. There is a possibility that an employer will not be matched to any worker. In that case, his or her earnings for that round will be equal to the endowment of 125 points.

Although the employer with the highest wage offer for a particular worker will “hire” that person, he or she will only have to pay the worker the second highest wage (W) offered to that worker.

Example:

| | Employer 1 Offers | Employer 2 Offers | Employer 3 Offers |
|----------|-------------------|-------------------|-------------------|
| Worker 1 | 70 points | 40 points | 10 points |
| Worker 2 | 30 points | 30 points | 37 points |
| Worker 3 | 0 points | 0 points | 35 points |

Outcome of employer-worker matching for employers:

- Employer 1 hires Worker 1 and pays a wage of 40 points, keeping 125 – 40 points.
- Employer 2 does not hire anyone, keeping 125 points.
- Employer 3 hires Workers 2 and 3 and pays them wages of 30 and 0 points, respectively, keeping 125 – 30 points.

Outcome of employer-worker matching for workers:

- Worker 1 is hired by Employer 1 and receives a wage of 40 points.
- Worker 2 is hired by Employer 3 and receives a wage of 30 points.
- Worker 3 is hired by Employer 3 and receives a wage of 0 points.

Upon completion of the task, the employer will earn a payoff based on the performance of the worker(s) he or she hired (if any) and the wage he or she paid to the worker(s), as determined by the above procedure.

Workers

Workers will start each round with an endowment of 25 points.

Performance Prediction

Workers will first estimate the number of questions they expect to answer correctly in the task. Workers will be asked to make a prediction only for their *own* performance. The prediction will be subject to a prediction penalty. For each question correctly answered by the worker above or below the prediction, we will subtract 1.25 points from the worker’s total payoff. When the number of questions answered correctly (Y) is exactly equal to the prediction, the worker will not lose any points. So, the estimate that is the closest to reality will result in the highest earnings. In pilot trials for this task, the average number of questions answered correctly was 8

(see task description below for more detail). The prediction penalty for workers will be based on the prediction error for his or her own performance.

The worker's estimates will not be revealed to any other subject at any point during the experiment.

Getting "Hired" by an Employer

Then, workers will wait until they are matched to an employer (if any). Each worker will then answer a series of analytical questions about several data tables, described below. Upon completion of the task, workers will be informed of the fixed wage (W) paid by their employer (if any). Workers will also get a summary of their earnings in the data evaluation task. All wages and additional payoffs based on performance will be paid at the end of the experiment.

Tasks:

Employers

Employers do not have any further tasks beyond offering the workers' wages and predicting worker performance, as described above. During the task completion phase, the employers are free to read or engage in other quiet activities. Do not use the lab computer until instructed again by us.

Workers

The workers will have 12 minutes to answer as many questions as possible correctly. There is a total of 30 questions. Workers will have 6 minutes for the first 15 questions and 6 minutes for the second 15 questions. Workers will be paid 5 points per correctly answered question.

Sample Data Evaluation Task

Read the following carefully to understand the nature of the workers' task.

Below is a sample table of the kind of data workers will be asked to evaluate. The workers' task will be to answer a series of questions about the data. A physical copy of the actual data has been placed face down on the workers' desks. Workers should not look at the data until the task begins. Some questions may require mathematical calculations. Calculators can be found on your desk. Workers are to pay attention to rounding instructions and answer units whenever applicable. Workers should not round answers unless otherwise specified.

Workers will have a total of 12 minutes to answer as many questions as possible correctly. There is no penalty for answering a question incorrectly. There are no time limits per question. Some questions are more difficult than others, but the questions are not arranged in any particular order.

Sample questions and answers:

Question 1: In which year did real income in the Russian Federation increase the most, in relative terms?

Answer 1: 2000

Explanation 1: real incomes went up by 111% in the year 2000 (row 1, column 5), the largest relative increase for that measure.

Question 2: How many instances are there of positive real wage growth in Ivanovskaya Oblast?

Answer 2: 2

Explanation 2: Real wages grew (were more than 100 percent of previous year's wages) in 1996 and 2000.

Question 3: What were the real pensions in Ryazanskaya Oblast in 1997, as a percent of 1994 pensions (rounded to the nearest percentage point)?

Answer 3: 84

Explanation 3: To find the answer, multiply the percentages (as fractions) for Ryazanskaya Oblast in the years 1995, 1996, and 1997. The calculation is $0.73 \times 1.12 \times 1.03 = 0.842128$ or 84% when rounded to the nearest percentage point.

The explanations above are for information only. Workers will not be asked to provide an explanation during the data evaluation task, only a numeric answer.

4. Population Living Standard

4.1 Changes in Income

| | Real income (percent of previous year) | | | | | Real wages (percent of previous year) | | | | | Real pensions (percent of previous year) | | | | |
|---------------------------------|--|------------|------------|-----------|------------|---------------------------------------|------------|------------|-----------|------------|--|------------|------------|-----------|------------|
| | 1995 | 1996 | 1997 | 1999 | 2000 | 1995 | 1996 | 1997 | 1999 | 2000 | 1995 | 1996 | 1997 | 1999 | 2000 |
| Russian Federation | 84 | 101 | 106 | 87 | 111 | 72 | 106 | 105 | 78 | 121 | 87 | 108 | 103 | 95 | 131 |
| Central Federal Region | | | | | | | | | | | | | | | |
| Belgorodskaya Oblast | 84 | 103 | 92 | 83 | 104 | 72 | 103 | 98 | 80 | 117 | 89 | 104 | 101 | 92 | 131 |
| Bryanskaya Oblast | 76 | 102 | 97 | 82 | 107 | 68 | 97 | 102 | 78 | 116 | 77 | 108 | 101 | 94 | 134 |
| Vladimirskaia Oblast | 77 | 102 | 108 | 89 | 100 | 77 | 105 | 108 | 82 | 122 | 83 | 112 | 104 | 95 | 140 |
| Voronezhskaya Oblast | 90 | 87 | 122 | 82 | 97 | 71 | 103 | 104 | 80 | 117 | 85 | 105 | 100 | 96 | 130 |
| Ivanovskaya Oblast | 89 | 99 | 103 | 75 | 106 | 76 | 102 | 97 | 73 | 117 | 83 | 107 | 104 | 93 | 143 |
| Kaluzhskaya Oblast | 82 | 87 | 99 | 82 | 102 | 70 | 104 | 108 | 80 | 126 | 76 | 111 | 106 | 98 | 135 |
| Kostromskaya Oblast | 85 | 89 | 100 | 92 | 104 | 77 | 105 | 101 | 83 | 111 | 81 | 110 | 104 | 96 | 134 |
| Kurskaya Oblast | 78 | 98 | 111 | 86 | 98 | 70 | 101 | 103 | 76 | 111 | 81 | 109 | 105 | 90 | 132 |
| Lipezkaya Oblast | 84 | 108 | 95 | 90 | 112 | 76 | 106 | 101 | 78 | 122 | 80 | 111 | 98 | 89 | 131 |
| Moskovskaya Oblast | 74 | 102 | 114 | 89 | 108 | 75 | 106 | 114 | 85 | 120 | 97 | 112 | 108 | 95 | 134 |
| Orlovskaya Oblast | 76 | 105 | 99 | 85 | 103 | 69 | 109 | 108 | 87 | 122 | 85 | 108 | 110 | 93 | 136 |
| Ryazanskaya Oblast | 76 | 95 | 105 | 85 | 103 | 72 | 93 | 102 | 79 | 118 | 73 | 112 | 103 | 93 | 137 |
| Smolenskaya Oblast | 83 | 101 | 102 | 91 | 106 | 66 | 101 | 108 | 79 | 116 | 83 | 113 | 101 | 89 | 133 |
| Tambovskaya Oblast | 77 | 94 | 106 | 94 | 106 | 69 | 97 | 102 | 79 | 112 | 82 | 109 | 100 | 90 | 132 |
| Tverskaya Oblast | 79 | 95 | 99 | 90 | 103 | 81 | 104 | 101 | 80 | 116 | 75 | 110 | 103 | 92 | 135 |
| Tul'skaya Oblast | 82 | 94 | 112 | 88 | 105 | 80 | 106 | 102 | 83 | 121 | 88 | 103 | 102 | 92 | 133 |
| Yaroslavl'skaya Oblast | 81 | 91 | 99 | 90 | 111 | 73 | 108 | 104 | 83 | 125 | 86 | 105 | 103 | 97 | 137 |
| Moscow City | 77 | 106 | 107 | 82 | 109 | 53 | 108 | 112 | 75 | 110 | 81 | 108 | 103 | 87 | 132 |
| Northwest Federal Region | | | | | | | | | | | | | | | |

Within-Round Payoffs:

Notation Legend

125: initial employer endowment

25: initial worker endowment

Y: number of questions answered correctly by worker

W: wage paid to worker (second highest wage offered to worker)

Prediction Penalty (for employers): 1.25 times the total error in predicting the performance of workers

Prediction Penalty (for workers): 1.25 times the error in predicting own performance

The payoffs for each round will be calculated as follows:

Employer who hired no workers:

$\text{EmployerPayoff}_{\text{Round}T} = 125 - \text{Prediction Penalty}$

Employer who hired one worker:

$\text{EmployerPayoff}_{\text{Round}T} = 125 + (1/3) * Y * (5 \text{ points per question}) - W - \text{Prediction Penalty}$

Employer who hired two or more workers:

$\text{EmployerPayoff}_{\text{Round}T} = 125 + (1/3) * Y(1) * (5 \text{ points per question}) - W(1) + (1/3) * Y(2) * (5 \text{ points per question}) - W(2) + \dots - \text{Prediction Penalty}$

$(1/3) * Y(1) * (5 \text{ points per question}) - W(1)$ are the net earnings from the first “hired” worker, $(1/3) * Y(2) * (5 \text{ points per question}) - W(2)$ are the net earnings from the second “hired” worker, and “...” represents the net earnings from the rest (if any) “hired” workers.

Workers:

$\text{WorkerPayoff}_{\text{Round}T} = 25 + (2/3) * Y * (5 \text{ points per question}) + W - \text{Prediction Penalty}$

Example: Employer hires one worker. The second-highest wage offered to the worker is $W = 40$. Number of correct answers (Y) in round $T = 10$; Worker’s prediction of Y is 8; Employer’s total prediction error is 6. The employer’s payoff in round T is _____. The worker’s payoff in round T is _____.

Rounds:

There will be 2 rounds consisting of wage offers made by employers to hire workers, performance predictions by the employer and worker, and subsequent task completion by the worker.

After the first round, each employer will receive the following information:

- Number of correct questions Y answered by each worker, even if the employer did not hire him or her.
- Own payoff for the round

Each worker will receive the following information:

- Total number of questions he or she answered
- Number of correct questions Y
- Own payoff for the round

The final payoff for the experiment will be calculated as follows:

Final payoff (\$) = $\text{Payoff}_{\text{Round1}}(\text{points}) * 0.04(\$/\text{point}) + \text{Payoff}_{\text{Round2}}(\text{points}) * 0.04(\$/\text{point}) +$
Show-up fee (\$10)

Are there any questions?

Instructions for the experiment: Round I

The remainder of the experiment consists of **2 rounds**.

Employers and Workers:

You have been randomly assigned to one of the following roles: **employer** or **worker**. Your role is written in bold at the top of these instructions pages. You will remain in the same role for the duration of the experiment.

Employers

Employers will start each round with an endowment of 125 points that they may keep or use to “hire” workers, who will perform a task described below. To “hire” workers, employers will submit fixed wage offers. The better the “hired” worker(s) perform(s) the task, the more points the employer will earn.

Note that the task may or may not change between rounds. The description of the task given below applies to this round only. Instructions for the second round task will be provided once the first round task is completed. However, the “hiring” process will remain the same in both rounds.

In each round, employers will see pictures of all workers on the right computer monitor. To see a particular worker’s resume, the employer will click on the text box below the worker’s picture. To return to the worker’s picture, the employer will click on the text box again.

Performance Prediction

Next, employers will be asked to make a prediction for the performance of *each* worker. The prediction will be subject to a prediction penalty. For each item correctly entered by the worker above or below the prediction, we will subtract 0.25 points from the employer’s total payoff. When the number of items entered correctly (Y) is exactly equal to the prediction, the employer will not lose any points. So, the estimate that is the closest to reality will result in the highest earnings. In pilot trials for this task, the average number of items entered correctly was 75 (see task description below for more detail). The prediction penalty for employers will be based on his or her total prediction error for the workers’ performance.

The employer’s estimates will not be revealed to any other subject at any point during the experiment.

“Hiring” Workers

Next, employers will have 3 minutes to make all the wage offers. Employers will make wage offers on the left computer monitor. Note that a given employer may offer equal wages to two or more workers. However, the total value of the offers cannot exceed his or her endowment of 125 points. An offer of zero (0) is equivalent to an unwillingness to hire that worker.

Based on the wage offers, each employer may be matched with one or more worker(s). If more than one employer tries to hire (offers a non-zero wage to) the same worker, the employer with

the highest wage offer will hire that worker. Ties will be resolved by a random draw. There is a possibility that an employer will not be matched to any worker. In that case, his or her earnings for that round will be equal to the endowment of 125 points.

Although the employer with the highest wage offer for a particular worker will “hire” that person, he or she will only have to pay the worker the second highest wage (W) offered to that worker.

Example:

| | Employer 1 Offers | Employer 2 Offers | Employer 3 Offers |
|----------|-------------------|-------------------|-------------------|
| Worker 1 | 70 points | 40 points | 10 points |
| Worker 2 | 30 points | 30 points | 37 points |
| Worker 3 | 0 points | 0 points | 35 points |

Outcome of employer-worker matching for employers:

- Employer 1 hires Worker 1 and pays a wage of 40 points, keeping 125 – 40 points.
- Employer 2 does not hire anyone, keeping 125 points.
- Employer 3 hires Workers 2 and 3 and pays them wages of 30 and 0 points, respectively, keeping 125 – 30 points.

Outcome of employer-worker matching for workers:

- Worker 1 is hired by Employer 1 and receives a wage of 40 points.
- Worker 2 is hired by Employer 3 and receives a wage of 30 points.
- Worker 3 is hired by Employer 3 and receives a wage of 0 points.

Upon completion of the task, the employer will earn a payoff based on the performance of the worker(s) he or she hired (if any) and the wage he or she paid to the worker(s), as determined by the above procedure.

Workers

Workers will start each round with an endowment of 25 points.

Performance Prediction

Workers will first estimate the number of items they expect to enter correctly in the task. Workers will be asked to make a prediction only for their *own* performance. The prediction will be subject to a prediction penalty. For each item correctly entered by the worker above or below the prediction, we will subtract 0.25 points from the worker’s total payoff. When the number of items entered correctly (Y) is exactly equal to the prediction, the worker will not lose any points. So, the estimate that is the closest to reality will result in the highest earnings. In pilot trials for this task, the average number of items entered correctly was 75 (see task description below for more detail). The prediction penalty for workers will be based on the prediction error for his or her own performance.

The worker's estimates will not be revealed to any other subject at any point during the experiment.

Getting "Hired" by an Employer

Then, workers will wait until they are matched to an employer (if any). Each worker will then engage in a data entry task described below. Upon completion of the task, workers will be informed of the fixed wage (W) paid by their employer (if any). Workers will also get a summary of their earnings in the data entry task. All wages and additional payoffs based on performance will be paid at the end of the experiment.

Tasks:

Employers

Employers do not have any further tasks beyond offering the workers' wages and predicting worker performance, as described above. During the task completion phase, the employers are free to read or engage in other quiet activities. Do not use the lab computer until instructed again by us.

Workers

The workers will have 6 minutes to enter as much data as possible correctly. At the end of the 6-minute period, the experimenters will determine the number of correctly entered items (Y). Workers will be paid 1 point per correctly entered item.

Sample Data Entry Task

Read the following carefully to understand the nature of the workers' task.

Below is a sample of the kind of data workers will be asked to enter from a paper copy into electronic format. The worker's task will be to enter the data exactly as it appears. The titles of the rows and columns have been pre-filled in an Excel spreadsheet into which the worker will enter the data.

For example, enter "104" into the cell corresponding to the row "Belgorodskaya Oblast" and the year "2000" in the "Real Income (percent of previous year)" column. Note that workers may see some "... " or blank entries. These entries correspond to missing values in the data. They will not count toward the number of correct items.

4. Population Living Standard

4.1 Changes in Income

| | Real income (percent of previous year) | | | | | Real wages (percent of previous year) | | | | | Real pensions (percent of previous year) | | | | |
|---------------------------------|--|------------|------------|-----------|------------|---------------------------------------|------------|------------|-----------|------------|--|------------|------------|-----------|------------|
| | 1995 | 1996 | 1997 | 1999 | 2000 | 1995 | 1996 | 1997 | 1999 | 2000 | 1995 | 1996 | 1997 | 1999 | 2000 |
| Russian Federation | 84 | 101 | 106 | 87 | 111 | 72 | 106 | 105 | 78 | 121 | 87 | 108 | 103 | 95 | 131 |
| Central Federal Region | | | | | | | | | | | | | | | |
| Belgorodskaya Oblast | 84 | 103 | 92 | 83 | 104 | 72 | 103 | 98 | 80 | 117 | 89 | 104 | 101 | 92 | 131 |
| Bryanskaya Oblast | 76 | 102 | 97 | 82 | 107 | 68 | 97 | 102 | 78 | 116 | 77 | 108 | 101 | 94 | 134 |
| Vladimirskaia Oblast | 77 | 102 | 108 | 89 | 100 | 77 | 105 | 108 | 82 | 122 | 83 | 112 | 104 | 95 | 140 |
| Voronezhskaya Oblast | 90 | 87 | 122 | 82 | 97 | 71 | 103 | 104 | 80 | 117 | 85 | 105 | 100 | 96 | 130 |
| Ivanovskaya Oblast | 89 | 99 | 103 | 75 | 106 | 76 | 102 | 97 | 73 | 117 | 83 | 107 | 104 | 93 | 143 |
| Kaluzhskaya Oblast | 82 | 87 | 99 | 82 | 102 | 70 | 104 | 108 | 80 | 126 | 76 | 111 | 106 | 98 | 135 |
| Kostromskaya Oblast | 85 | 89 | 100 | 92 | 104 | 77 | 105 | 101 | 83 | 111 | 81 | 110 | 104 | 96 | 134 |
| Kurskaya Oblast | 78 | 98 | 111 | 86 | 98 | 70 | 101 | 103 | 76 | 111 | 81 | 109 | 105 | 90 | 132 |
| Lipezkaya Oblast | 84 | 108 | 95 | 90 | 112 | 76 | 106 | 101 | 78 | 122 | 80 | 111 | 98 | 89 | 131 |
| Moskovskaya Oblast | 74 | 102 | 114 | 89 | 108 | 75 | 106 | 114 | 85 | 120 | 97 | 112 | 108 | 95 | 134 |
| Orlovskaya Oblast | 76 | 105 | 99 | 85 | 103 | 69 | 109 | 108 | 87 | 122 | 85 | 108 | 110 | 93 | 136 |
| Ryazanskaya Oblast | 76 | 95 | 105 | 85 | 103 | 72 | 93 | 102 | 79 | 118 | 73 | 112 | 103 | 93 | 137 |
| Smolenskaya Oblast | 83 | 101 | 102 | 91 | 106 | 66 | 101 | 108 | 79 | 116 | 83 | 113 | 101 | 89 | 133 |
| Tambovskaya Oblast | 77 | 94 | 106 | 94 | 106 | 69 | 97 | 102 | 79 | 112 | 82 | 109 | 100 | 90 | 132 |
| Tverskaya Oblast | 79 | 95 | 99 | 90 | 103 | 81 | 104 | 101 | 80 | 116 | 75 | 110 | 103 | 92 | 135 |
| Tul'skaya Oblast | 82 | 94 | 112 | 88 | 105 | 80 | 106 | 102 | 83 | 121 | 88 | 103 | 102 | 92 | 133 |
| Yaroslavskaia Oblast | 81 | 91 | 99 | 90 | 111 | 73 | 108 | 104 | 83 | 125 | 86 | 105 | 103 | 97 | 137 |
| Moscow City | 77 | 106 | 107 | 82 | 109 | 53 | 108 | 112 | 75 | 110 | 81 | 108 | 103 | 87 | 132 |
| Northwest Federal Region | | | | | | | | | | | | | | | |

Below is a reproduction of the spreadsheet corresponding to the sample data above. It will appear larger on the worker's screen and may not have the same borders as shown here.

| Table | Region name | Real income 1995 | Real income 1996 | Real income 1997 | Real income 1999 | Real income 2000 | Real wages 1995 | Real wages 1996 | Real wages 1997 | Real wages 1999 | Real wages 2000 | Real pensions 1995 | Real pensions 1996 | Real pensions 1997 | Real pensions 1999 | Real pensions 2000 |
|-------|------------------------|------------------|------------------|------------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 4.1 | Russian Federation | | | | | | | | | | | | | | | |
| 4.1 | Central Federal Region | | | | | | | | | | | | | | | |
| 4.1 | Belgorodskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Bryanskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Vladimirskaia Oblast | | | | | | | | | | | | | | | |
| 4.1 | Voronezhskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Ivanovskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Kaluzhskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Kostromskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Kurskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Lipezkaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Moskovskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Orlovskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Ryazanskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Smolenskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Tambovskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Tverskaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Tul'skaya Oblast | | | | | | | | | | | | | | | |
| 4.1 | Yaroslavskaia Oblast | | | | | | | | | | | | | | | |
| 4.1 | Moscow City | | | | | | | | | | | | | | | |

The blank spreadsheets should already be open on workers' right screens. Please do not enter anything into the spreadsheets until instructed to do so. Do not manipulate the spreadsheets in any way.

Recall that workers will have 6 minutes to enter as much data as possible. We do not expect workers to be able to enter all the data, so there may be several un-entered data sheets left after time is up. Once the time is up, workers should stop entering data and wait for one of the experimenters, who will save and close the spreadsheets. Workers should not try to save or close the spreadsheets themselves – this may result in improper processing and miscalculation of correctly entered items.

We will then check the entries for accuracy. In order to receive points for entering the data correctly, the entry in each cell must be exact and must correspond to the appropriate row and column. For example, if a worker enters “107” instead of “104” into the cell corresponding to the row “Belgorodskaya Oblast” and the year “2000” in the “Real Income (percent of previous year)” column, he or she will receive 0 points for that entry.

Within-Round Payoffs:

Notation Legend

125: initial employer endowment

25: initial worker endowment

Y: number of items entered correctly by worker

W: wage paid to worker (second highest wage offered to worker)

Prediction Penalty (for employers): 0.25 times the total error in predicting the performance of workers

Prediction Penalty (for workers): 0.25 times the error in predicting own performance

The payoffs for each round will be calculated as follows:

Employer who hired no workers:

$$\text{EmployerPayoff}_{\text{Round}T} = 125 - \text{Prediction Penalty}$$

Employer who hired one worker:

$$\text{EmployerPayoff}_{\text{Round}T} = 125 + (1/3)*Y - W - \text{Prediction Penalty}$$

Employer who hired two or more workers:

$$\text{EmployerPayoff}_{\text{Round}T} = 125 + (1/3)*Y(1) - W(1) + (1/3)*Y(2) - W(2) + \dots - \text{Prediction Penalty}$$

$(1/3)*Y(1) - W(1)$ are the net earnings from the first “hired” worker, $(1/3)*Y(2) - W(2)$ are the net earnings from the second “hired” worker, and “...” represents the net earnings from the rest (if any) “hired” workers.

Workers:

$$\text{WorkerPayoff}_{\text{Round}T} = 25 + (2/3)*Y + W - \text{Prediction Penalty}$$

Example: Employer hires one worker. The second-highest wage offered to the worker is $W = 40$. Number of correct items (Y) in round $T = 45$; Worker’s prediction of Y is 40; Employer’s

total prediction error is 6. The employer's payoff in round T is _____. The worker's payoff in round T is _____.

Rounds:

There will be 2 rounds consisting of wage offers made by employers to hire workers, performance predictions by the employer and worker, and subsequent task completion by the worker.

After the first round, each employer will receive the following information:

- Number of correct items Y entered by each worker, even if the employer did not hire him or her.
- Own payoff for the round

Each worker will receive the following information:

- Total number of items he or she entered
- Number of correct items Y out of the verified items
- Own payoff for the round

The final payoff for the experiment will be calculated as follows:

Final payoff (\$) = $\text{Payoff}_{\text{Round1}}(\text{points}) * 0.04(\$/\text{point}) + \text{Payoff}_{\text{Round2}}(\text{points}) * 0.04(\$/\text{point}) +$
Show-up fee (\$10)

Are there any questions?

RESUME-BUILDING QUESTIONNAIRE

[Note that all questionnaires will be computerized.]

PLEASE ANSWER THE FOLLOWING QUESTIONS! YOUR ANSWERS WILL BE USED TO BUILD YOUR RESUME

Note that the answers may be viewed by some other participants.

Please, answer each question as truthfully as possible! The outcomes of the experiment and your earning may depend on your responses. After you answer the questions, please, wait for the second part of the experiment to begin.

1. From the options listed below, please, indicate your current student status at your college or university:

- Undergraduate
- Graduate
- Other

2. Which of the following areas of study best represents your major or concentration at your college or university? (If you are a double-major and your majors span more than one of the three areas below, please, choose the area that you consider to be your primary focus.)

- Natural Sciences (including engineering and math)
- Social Sciences
- Humanities
- Undeclared

3. Indicate the range that your overall undergraduate GPA falls into (on a 4.0 scale), even if you are no longer an undergraduate. Choose N/A if you wish not to disclose your GPA. (If your college or university uses a different GPA system, please, convert to the 4.0 scale to the best of your ability.)

- 0-2.0
- 2.0-2.5
- 2.5-3.0
- 3.0-3.5
- 3.5-4.0
- N/A

4. The following three questions ask you to assess your proficiency in several areas. Please, be as objective in your assessment as possible.

Typing skills:

- Basic
- Good
- Excellent

Analytical skills:

- Basic
- Good
- Excellent

Communications skills:

- Basic
- Good
- Excellent

Post-Experiment Questionnaire

Please fill out this brief questionnaire. Again, we ask you to answer all questions as truthfully as possible. Your answers will help us tremendously! Feel free to leave any of the answers blank if you prefer not to answer.

1. Gender: Male Female

2. Age: _____

3. Marital status:
 - Now married
 - Widowed
 - Divorced
 - Separated
 - Never married
 Are you of Hispanic origin or descent, such as Mexican, Puerto Rican, Cuban, or other Spanish background? Yes No

4. Which of the following best describe(s) your race (check all that apply)?
 - American Indian or Alaska Native
 - Asian
 - Black or African American
 - Native Hawaiian or Other Pacific Islander
 - White
 - Other (please specify) _____

5. Country of birth: _____

6. Are you currently a student? Yes No
 - 1) If yes, what is your student status? Graduate Undergraduate
 - 2) If yes, what is (are) your field(s) of study? _____

7. What is (was) your undergraduate GPA, on a 4.0 scale? _____

8. What is your family's total household income?
 - Under \$20,000
 - \$20,000 to \$45,000
 - \$45,000 to \$65,000
 - \$65,000 to \$90,000
 - \$90,000 to \$125,000
 - \$125,000 to \$200,000

More questions on the next page!

\$200,000 or more

9. Please describe any significant work or internship experiences (paid or unpaid) that you held in the past or currently hold. Indicate the top skill that was most important for the success in that job.

1) Job Title: _____

Job Description: _____

Analytical/Quantitative Verbal/Communication Typing
 Creative Working with other people Other (specify) _____

2) Job Title: _____

Job Description: _____

Analytical/Quantitative Verbal/Communication Typing
 Creative Working with other people Other (specify) _____

3) Job Title: _____

Job Description: _____

Analytical/Quantitative Verbal/Communication Typing
 Creative Working with other people Other (specify) _____

10. If you were in the role of EMPLOYER in this experiment, please indicate with which worker(s) (if any) you have a personal relationship (friend, classmate, co-worker, etc).

None Worker 1 Worker 2 Worker 3 Worker 4

THANK YOU VERY MUCH FOR YOUR PARTICIPATION IN THIS STUDY!