# Hiring discrimination against working mothers

## Results from a Field Experiment in the US

---

Pablo Brugarolas

January 14, 2021

Master in Labour Economics (MiLE)

# Introduction

Recap:

(i) (Kleven et al. 2019; Quinto et al. 2020): there are no remarkable differences until the first childbirth but women diverge considerably from that moment on.

(ii) Motherhood explains a sig. proportion of the gender gap in earnings.

RQ: *Do employers discriminate against working mothers when hiring?*

How to distinguish between discrimination and productivity explanations (Baert 2018)?

**Evidence for our case is very scarce!** (Correll et al. 2007).

The first large field experiment measuring employment discrimination based on parental status.

- Online applications for 3,000 jobs, across the 20 largest US cities.

# A field experiment on hiring discrimination

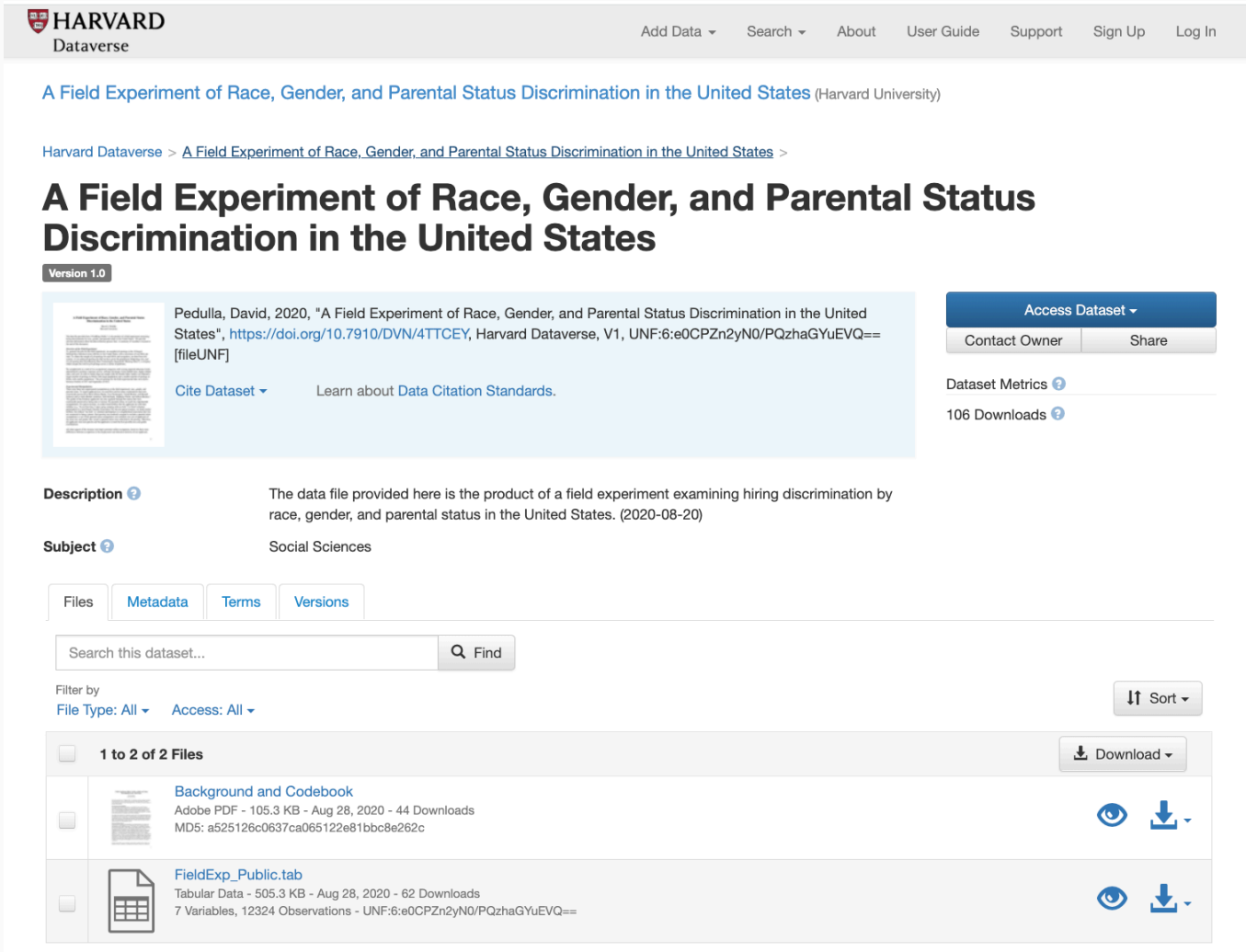


**Figure 1:** The replication materials (Pedulla 2020)

# Contributions to the literature

What this paper does

(i) Tests how motherhood status affects **call rates from employers**. Help to understand some of the most important and enduring patterns of gender inequality in paid work

(ii) Shows that this effect is **driven by occupations requiring less education**.

Not able to offer evidence on the underlying **mechanisms** (data limitations).

# Design of the Field Experiment

2017-2018: Took a sample of job postings in a total of six OCCUPATIONAL CATEGORIES:

- Administrative assistant
- Customer service
- Software developer
- Lower-skilled sales
- Higher-skilled sales
- Cook

in the 20 largest US MSAs (one max. per state).

# Design of Field Experiment

Sample jobs in a total of OCCUPATIONAL CATEGORIES.

Send CVs + CL that had equal OCCUPATION-(TYPE)-CONSISTENT CHARACTERISTICS to the same job.

- **Less education**: lower-skilled sales, customer service, and cook. 8 years of experience and a high school diploma.
- **More education**: higher-skilled sales, administrative assistant, and software developer. 6 years of experience and a bachelors (both field relevant).

There were three key EXPERIMENTAL MANIPULATIONS :

- **Gender and race**: first and last names perceived as men/women or black/white.
- **Parental status**: hobbies that the applicants do with their children or listed volunteer participation in a local Parent Teacher Association.

# An example of experimental manipulations

**Table 1:** An example with job post 1

| Resume ID | Callback | Race | Gender | Parental status | MSA | Occupation |
|---|---|---|---|---|---|---|
| 1 | 0 | White | Woman | Non-Parent | Los Angeles | LS Sales |
| 2 | 0 | White | Man | Non-Parent | Los Angeles | LS Sales |
| 3 | 0 | Black | Woman | Non-Parent | Los Angeles | LS Sales |
| 4 | 0 | Black | Man | Non-Parent | Los Angeles | LS Sales |

**Stata code**

```
browse if jobpostid == 1
```

# Estimation

I estimate a logit model for the effect of motherhood status on callbacks from employers:

$$(1) \quad P(Y_{ik} = 1) = \frac{\exp\left(\alpha + \beta_1 x_{ik} + \beta_2 x_{ik} + \tau x_{ik} + \boldsymbol{\lambda} + \varepsilon_{ik}\right)}{1 + \exp\left(\alpha + \beta_1 x_{ik} + \beta_2 x_{ik} + \tau x_{ik} + \boldsymbol{\lambda} + \varepsilon_{ik}\right)}$$

where $\tau$ is $\beta_1 \times \beta_2$, the motherhood interaction. $\boldsymbol{\lambda}$ includes black status, occupation, and the labor market in which the application was submitted, as well as all two-way interactions between the two latter.

## Stata code

```
logit callback i.woman i.parent i.workingmum i.black i.occupation#i.nmsa, vce(cluster job_posting_id)
margins, dydx(woman parent workingmum black) atmeans
```

# Results: Balance assessment (I)

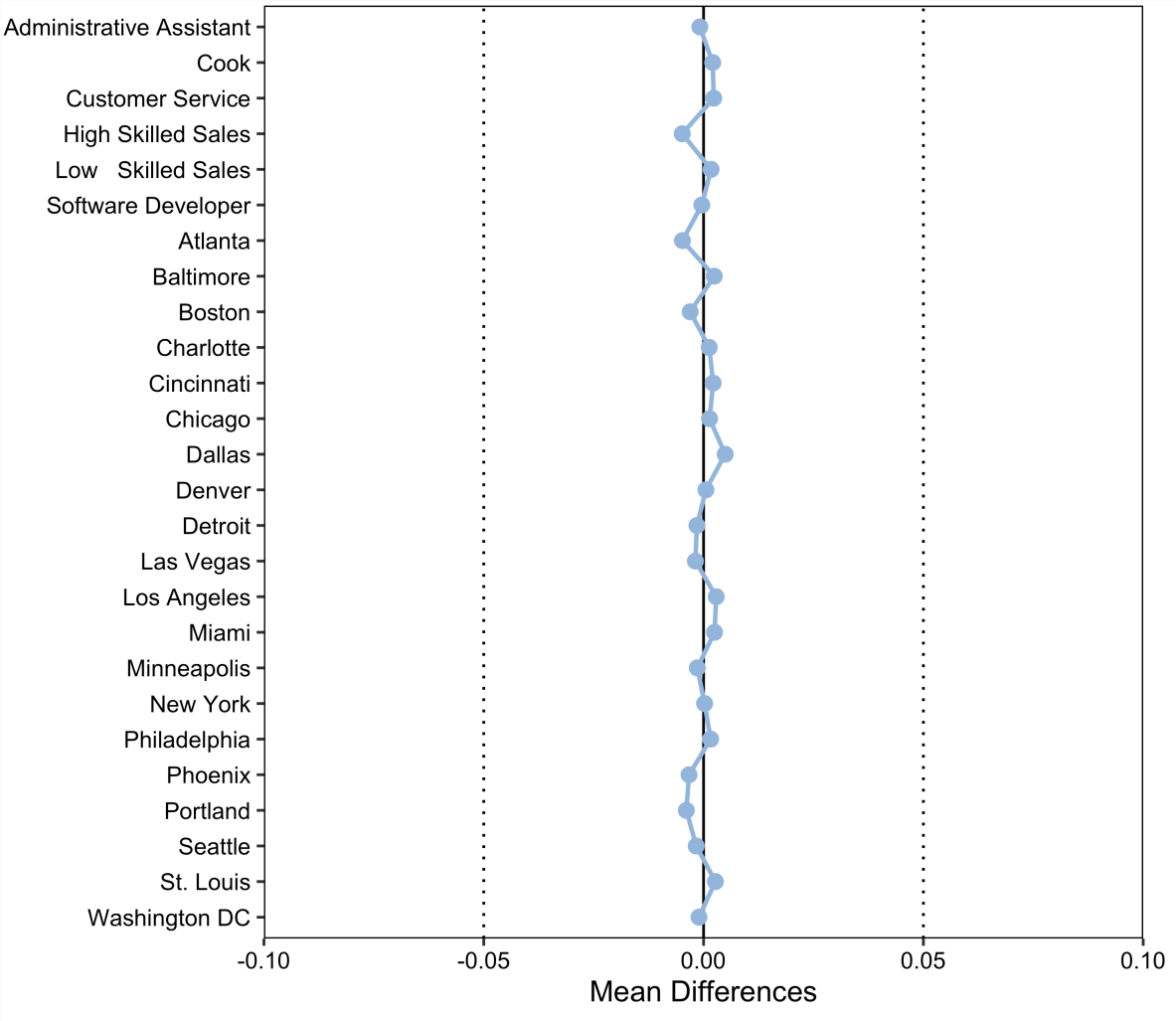


**Figure 2:** Balance across covariates - Women

# Results: Balance assessment (II)

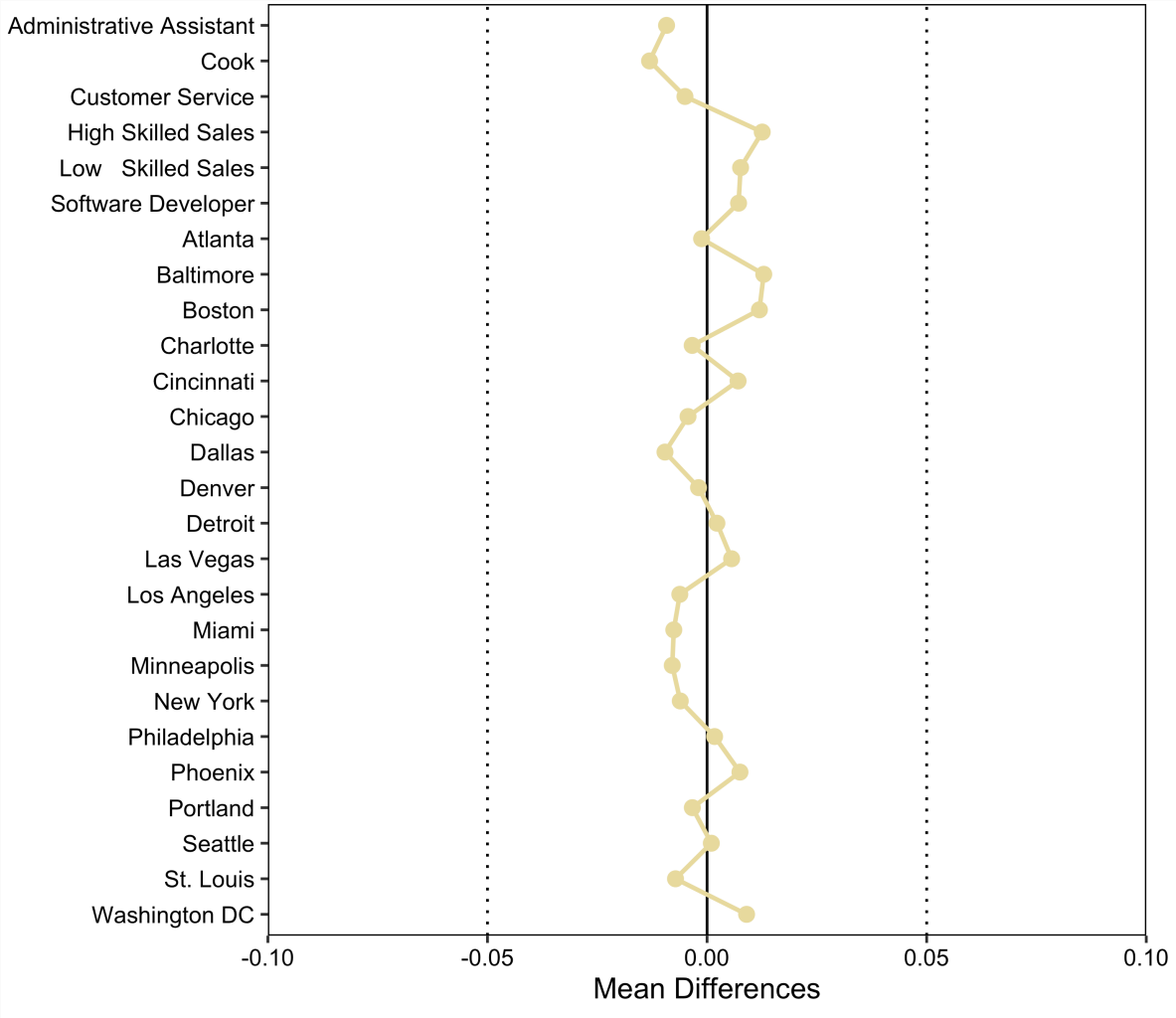


**Figure 3:** Balance across covariates - Parent

# Results: Balance assessment (III)

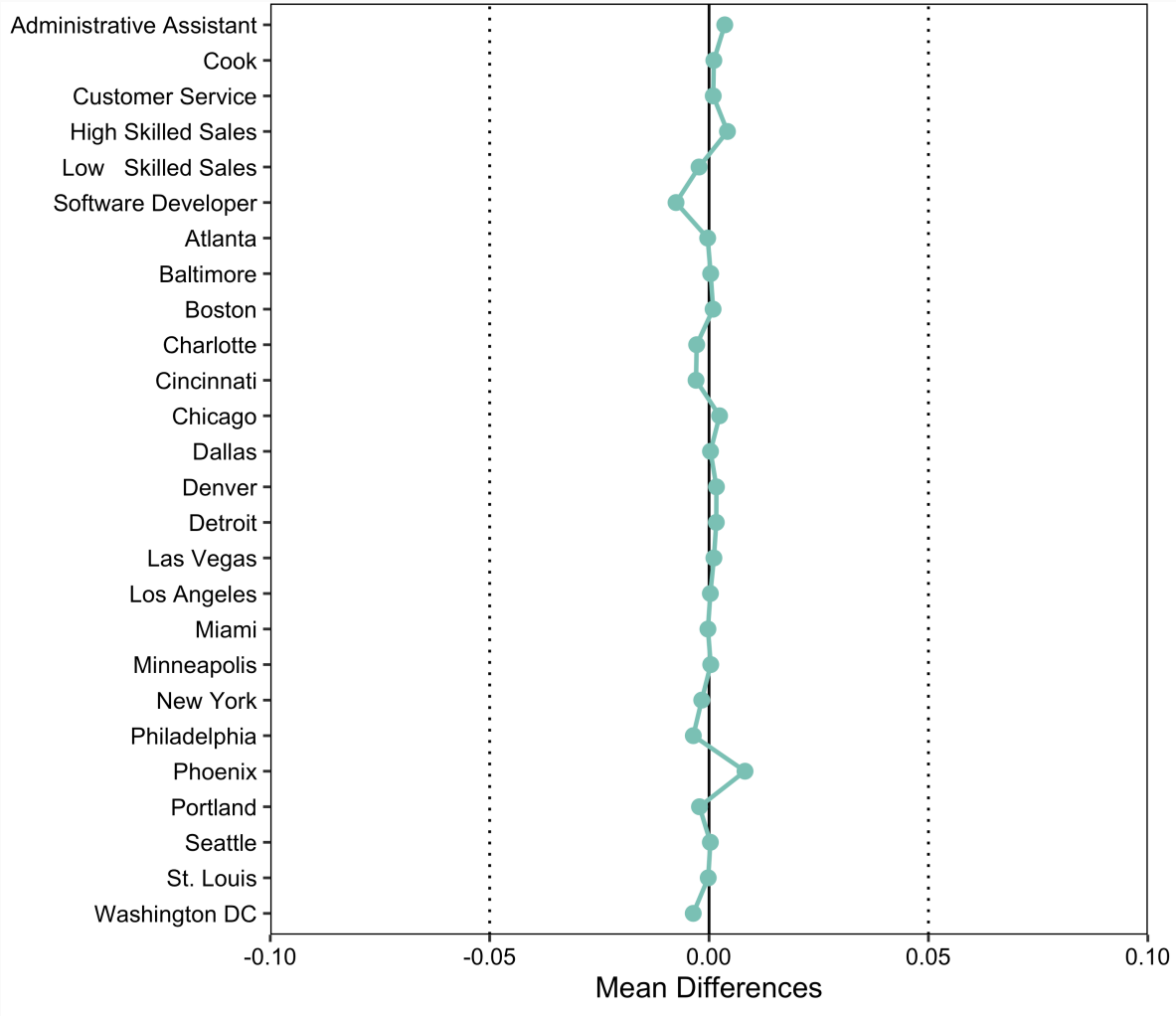


**Figure 4:** Balance across covariates - Black

# Descriptive results

**Table 2:** Proportions of Applicants Receiving Callbacks by Gender and Parental Status

| | Callbacks/ Total Job postings | Proportion Called Back |
|---|---|---|
| Mothers | 158/1,023 | 15.44 |
| Childless women | 836/5,191 | 16.10 |
| Fathers | 166/971 | 17.10** |
| Childless men | 749/5,139 | 14.57 |

# Results: Discrimination against working mothers

**Table 3:** The Effect of Gender, Parental status, and race on Callbacks

| | Callback from employers | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Woman | 0.009* | 0.014*** | 0.014*** |
| | (0.044) | (0.041) | (0.041) |
| Parent | 0.010 | 0.028** | 0.028** |
| | (0.080) | (0.096) | (0.096) |
| Black | −0.015*** | −0.015*** | −0.015*** |
| | (0.043) | (0.043) | (0.042) |
| Working mum | | −0.028** | −0.030** |
| | | (0.111) | (0.128) |
| Black working mum | | | −0.003 |
| | | | (0.156) |
| Observations | 12,324 | 12,324 | 12,324 |
| Pseudo $R^2$ | 0.072 | 0.073 | 0.073 |
| Baseline predicted prob. | 0.155 | 0.155 | 0.155 |

# Results: heterogeneity

**Table 4:** The Effect of Gender, Parental status, and race on Callbacks, by requiring level of educ.

| | Callback from employers | |
|---|---|---|
| | Occupations requiring more education (1) | Occupations requiring less education (2) |
| Woman | 0.022*** | 0.007 |
| | (0.064) | (0.051) |
| Parent | 0.017 | 0.033* |
| | (0.148) | (0.123) |
| Black | −0.017*** | −0.014* |
| | (0.064) | (0.056) |
| Working mum | −0.015 | −0.045** |
| | (0.172) | (0.140) |
| Observations | 6.344 | 5.980 |
| Pseudo $R^2$ | 0.018 | 0.029 |
| Baseline predicted probability | 0.119 | 0.193 |

# Wrapping up

Conclusions:

(i) Exploiting data from a field experiment, I have estimated hiring discrimination against working mums.

(ii) That parental status disadvantaged only female applicants (a 3 p.p. penalty) is strong evidence of discrimination.

(iii) Observed discrimination is largely driven by occupations requiring less education.

Still in the pipe:

- More in-depth lit review.
- Should I review lab evidence in the economic lit for exploring mechanisms?

github.com/brugarolaspablo/famecon_researchproposal

Questions?

# References i


Baert, Stijn. 2018. “Hiring Discrimination: An Overview of (Almost) All Correspondence Experiments Since 2005.” In *Audit Studies: Behind the Scenes with Theory, Method, and Nuance,* edited by S. Michael Gaddis, 63–77. Cham: Springer International Publishing.

Correll, Shelley J, Stephen Benard, and In Paik. 2007. “Getting a job: Is there a motherhood penalty?” *American journal of sociology* 112 (5): 1297–1338.

Kleven, Henrik, Camille Landais, Johanna Posch, Andreas Steinhauer, and Josef Zweimüller. 2019. “Child penalties across countries: Evidence and explanations.” In *AEA Papers and Proceedings,* 109:122–26.

# References ii


Pedulla, David. 2020. “A Field Experiment of Race, Gender, and Parental Status Discrimination in the United States.” *Harvard Dataverse* V1. https://doi.org/10.7910/dvn/4ttcey.

Piotrowski, Chris, and Terry Armstrong. 2006. “Current recruitment and selection practices: A national survey of Fortune 1000 firms.” *North American Journal of Psychology* 8 (3): 489–496.

Quinto, Alicia de, Laura Hospido, and Carlos Sanz. 2020. “The child penalty in Spain.” *Banco de Espana Occasional Paper,* no. 2017.

# Appendix: introduction

Nowadays, resumes one of the most **crucial** sources of information when HR-managers and recruiters initially screen applicants for jobs (Piotrowski and Armstrong 2006).

$\hookrightarrow$ interest in studying **whether recruiters discriminate against some particular groups**.

Systematic review (2005-2016): a overwhelming majority of studies reported **unfavourable treatment** of the group hypothesised to be discriminated against (Baert 2018).

(Correll et al. 2007): supporting evidence but had a much more limited scope.

- Jobs posted in a newspaper, in a large Northeastern US city.

# Appendix: Mind the identification gap

*How to distinguish between discrimination and productivity explanations?*

Compare the workplace outcomes (e.g., salaries, hiring) of employed mothers and non-mothers who have equal levels of productivity.

$\hookrightarrow$ All-else equal differences would suggest that discrimination factors are at work.

Challenge: **Endogeneity**. Full-specified measures of productivity cannot be observed.

# Appendix: heterogeneity

**Table 5:** The Effect of Gender, Parental status, and race on Callbacks, across occupations

| | Callback from employers | | | | | |
|---|---|---|---|---|---|---|
| | Administrative Assistant (1) | Cook (2) | Customer Service (3) | H-Skilled Sales (4) | L-Skilled Sales (5) | Software Developer (6) |
| Woman | 0.022** | −0.005 | 0.007 | 0.030** | 0.018 | 0.012 |
| | (0.135) | (0.088) | (0.093) | (0.094) | (0.094) | (0.126) |
| Parent | 0.013 | −0.013 | 0.025 | −0.015 | 0.093*** | 0.061*** |
| | (0.307) | (0.239) | (0.238) | (0.242) | (0.188) | (0.242) |
| Black | −0.004 | −0.020 | −0.009 | −0.021* | −0.011 | −0.025** |
| | (0.114) | (0.093) | (0.104) | (0.092) | (0.102) | (0.140) |
| Working mum | −0.014 | −0.089** | −0.016 | 0.013 | −0.051* | −0.033 |
| | (0.368) | (0.301) | (0.244) | (0.265) | (0.211) | (0.309) |
| Observations | 2036 | 1804 | 2104 | 2120 | 2072 | 2188 |
| Pseudo $R^2$ | 0.063 | 0.062 | 0.079 | 0.026 | 0.054 | 0.046 |
| Baseline pred. prob. | 0.093 | 0.229 | 0.162 | 0.167 | 0.199 | 0.104 |

# Appendix: Wage penalty for motherhood

Explanations of the motherhood wage gap?

- Reduced investment in human capital by mothers
- Lower work effort by mothers compared with non-mothers
- Unobserved heterogeneity between mothers and non-mothers
- Discrimination against mothers by employers.

Can be classified as

- **Worker explanations**: differences in the traits, skills, and behaviors between mothers and non-mothers
- **Discrimination explanations**: differential preference for equally productive mothers and non-mothers.

Empirical evaluations of these explanations have largely focused on the former.