# The Parental Gender Earnings Gap in the United States

Danielle H. Sandler

YoonKyung Chung     Barbara A. Downs     Robert Sienkiewicz

U.S. Census Bureau

*danielle.h.sandler@census.gov*

January 4, 2018

# Disclaimer

All opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census Bureau. All results have been reviewed to ensure that no confidential information is disclosed.

# The Gender Earnings Gap

## Womens Median Weekly Earnings as a Proportion of Mens, Full-time Wage and Salary Workers, 1979-2013
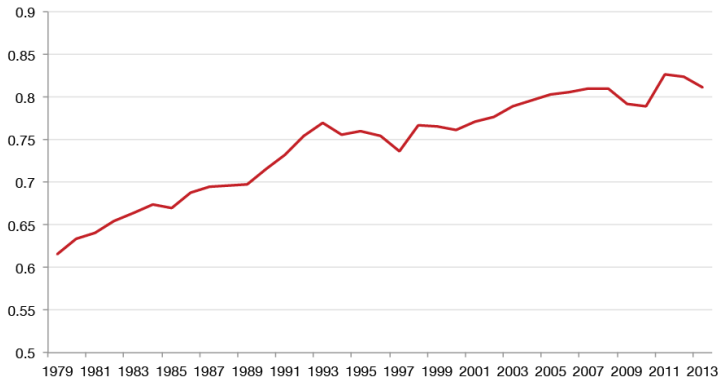


Source: Current Population Survey, Bureau of Labor Statistics, Highlights of Womens Earnings in 2012, October 2013.

## Our Question

How does the birth of a child affect the gender earnings gap between parents?

- Within Couple
- Dynamics Over Time
- Heterogeneity Over Couple Characteristics

Sample

- Heterosexual couples
- Married at time of survey
- Female spouse has at least 1 biological child
- Ages 16-65 at time of survey

## Data

- Survey of Income and Program Participation (SIPP) Gold Standard Data
  - Pooled 1984, 1990-1993, 1996, 2001, 2004 and 2008 SIPP panels
  - Social Security Administration Detailed Earnings Records (SSA-DER), 1978-2011

This analysis was first performed using the SIPP Synthetic Beta (SSB) on the Synthetic Data Server housed at Cornell University which is funded by NSF Grant #SES-1042181. These data are public use and may be accessed by researchers outside secure Census facilities. For more information, visit https://www.census.gov/programs-surveys/sipp/methodology/sipp-synthetic-beta-data-product.html. Final results for this paper were obtained from a validation analysis conducted by Census Bureau staff using the SIPP Completed Gold Standard Files and the programs written by this author and originally run on the SSB.

# Summary Statistics by Couple

| Summary Statistics, Couples | |
| --- | --- |
| % White | 0.855 |
| | (0.353) |
| % Black | 0.0726 |
| | (0.259) |
| % Mixed/Other | 0.0729 |
| | (0.260) |
| % Married at T | 0.397 |
| | (0.489) |
| Total Children | 1.782 |
| | (1.542) |
| Observations | 159333 |

# Summary Statistics, Earnings

| Summary Statistics, Earnings | | | |
|---|---|---|---|
| | All | Before Birth | After Birth |
| Men's Earnings | 37402.1 | 30673.1 | 40970.8 |
| | (48485.6) | (33205.9) | (39413.5) |
| Women's Earnings | 16894.1 | 18066.0 | 15840.6 |
| | (27630.5) | (22964.4) | (23586.4) |
| Earnings Difference | 20508.0 | 12607.1 | 25130.2 |
| | (50576.5) | (32036.2) | (42137.9) |
| Observations | 5417322 | 57395 | 67653 |

## Methodology

We estimate the following equation:

$$Y_{ht} = \sum_{d=-3}^{18} (t - birthyear_h = d) + \gamma_h + \varepsilon_{ht}$$

- where $Y_{ht} = ln(w_{Ht}) - ln(w_{Wt})$, the difference in the log earnings of the two spouses at time $t$
- $\sum_{d=-3}^{18}(t - birthyear_h = d)$ is a series of dummy variables indicating the distance, in years, to the birth of the first child ($t - 2$ is excluded)
- $\gamma_h$ is a household fixed effect

# Some measurement issues

- Marriage
  - Not all spouses are married at the time of the birth of the first child
- Birth Dates
  - Date of first birth is assigned to the couple based on the survey response of the female spouse.
- Zero earnings
  - If either spouse has zero earnings, they are assigned earnings of \$1 ($ln(1) = 0$)

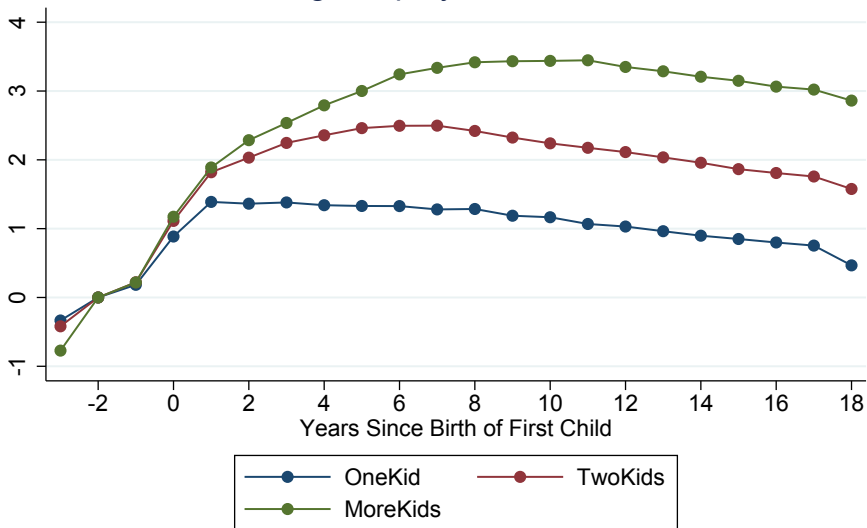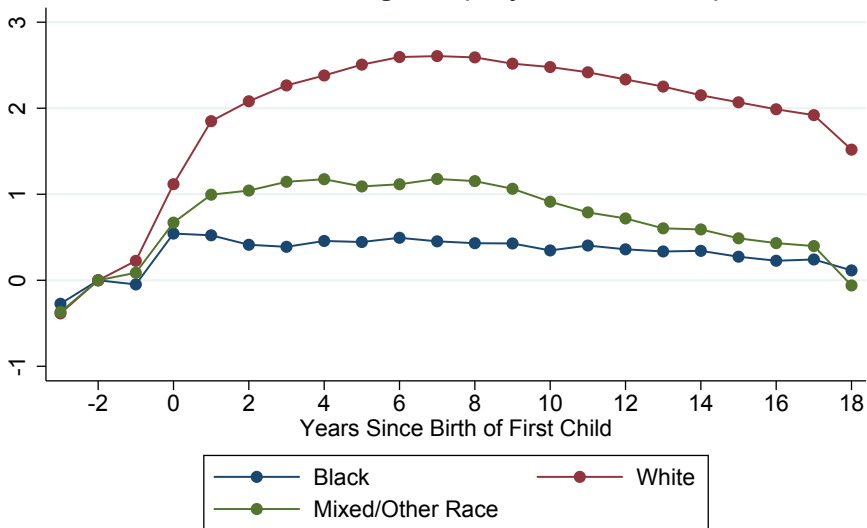# Effects of Birth on Parental Earnings Gap Over Time
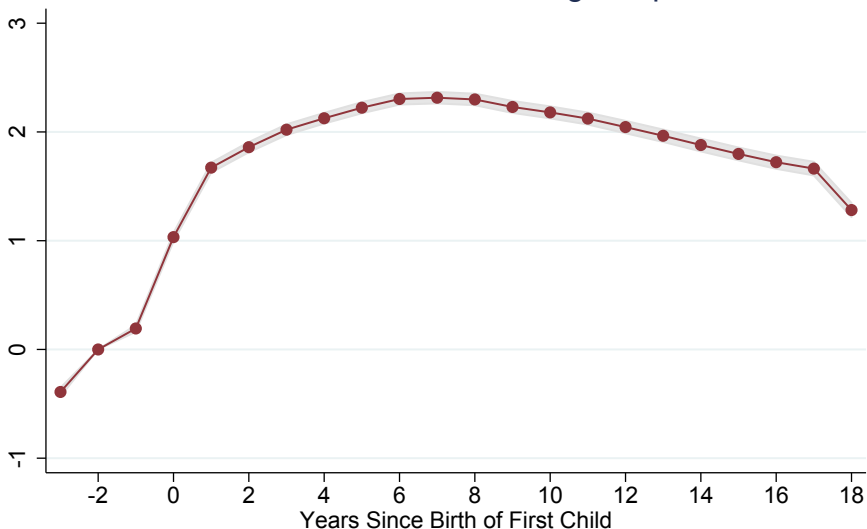


Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects

# Effects of Birth on Earnings Over Time by Gender
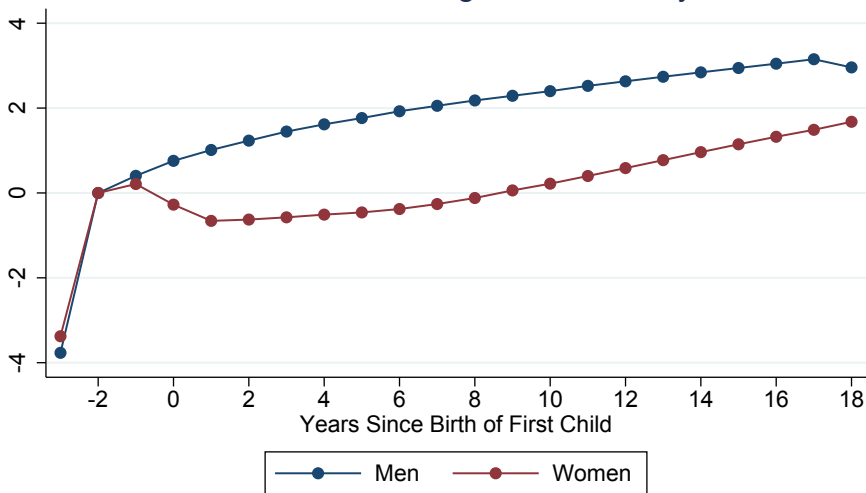


Dependent variable is the log yearly earnings for each individual in our sample.
Regression controls for individual fixed effects and year fixed effects and controls for the
spousal difference in earnings two years before the child was born and differences
in spouse ages and education levels.

Parental Earnings Gap by Total Number of Children

Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects

# Summary of Main Results

- The birth of a child increases the parental gender wage gap
- This increase occurs rapidly, in the first 2 years of the child's life
- The recovery of women's earnings relative to men's is slow
- Additional children increase the size of the gap and slow the recovery in earnings

# Heterogeneity

- Demographics and Income
    - Race of couple
    - Pre-birth income level of couple
    - Marital status at time of first birth

- Changes over time
    - Decade of first birth
    - Age of woman at first birth
    - Education of woman at first birth

- Household Bargaining
    - Differences in pre-birth earnings
    - Differences in education

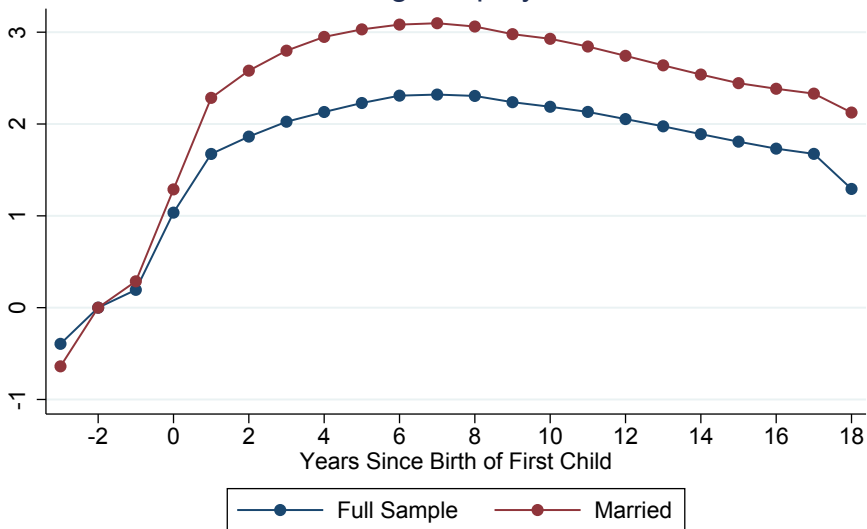# Parental Earnings Gap by Race of Couple



Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects

# Parental Earnings Gap by Total Family Income Level
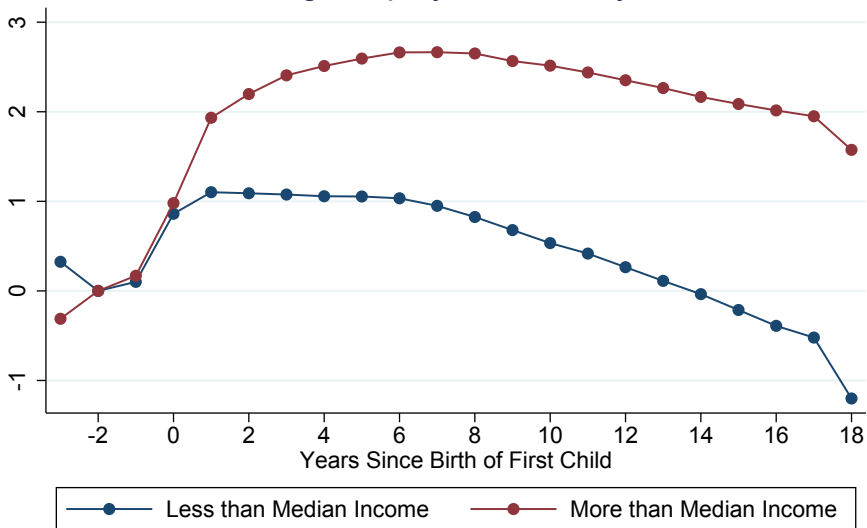
Less than Median Income

More than Median Income

Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects
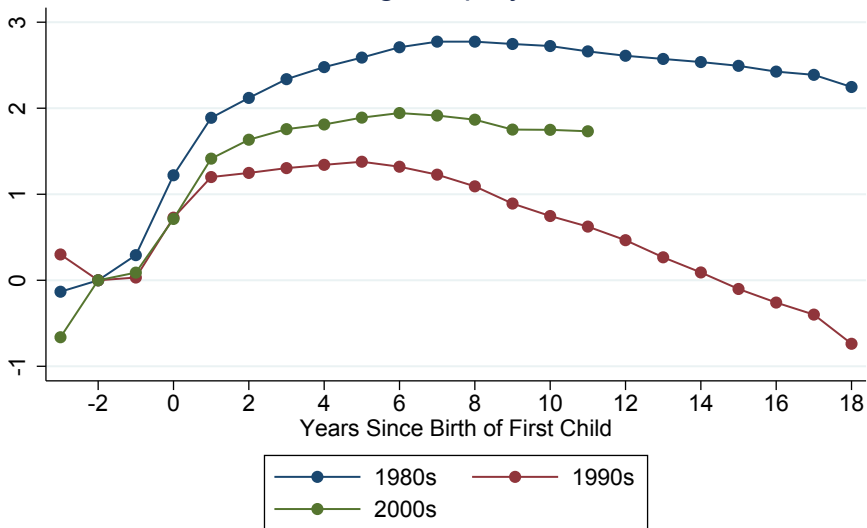
## Parental Earnings Gap by Marital Status

Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects
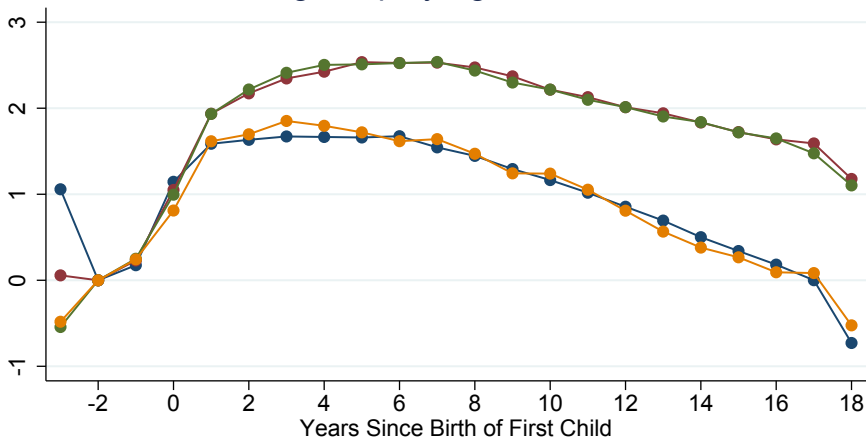
# Heterogeneity

- Demographics and Income
    - Race of couple
    - Pre-birth income level of couple
    - Marital status at time of first birth
- Changes over time
    - Decade of first birth
    - Age of woman at first birth
    - Education of woman at first birth
- Household Bargaining
    - Differences in pre-birth earnings
    - Differences in education

# Parental Earnings Gap by Decade of Birth

Years Since Birth of First Child
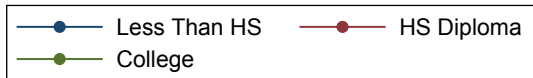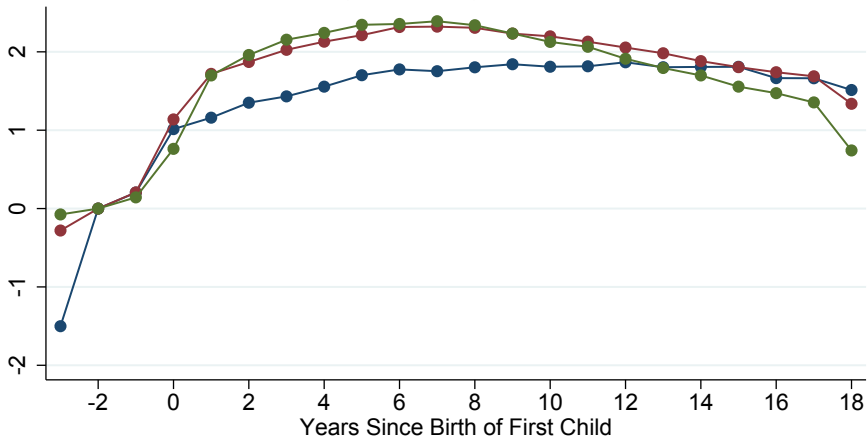
Legend:
— 1980s
— 1990s
— 2000s

Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects

Parental Earnings Gap by Age of Woman at Childbirth

Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects
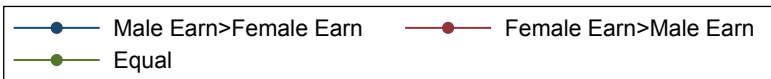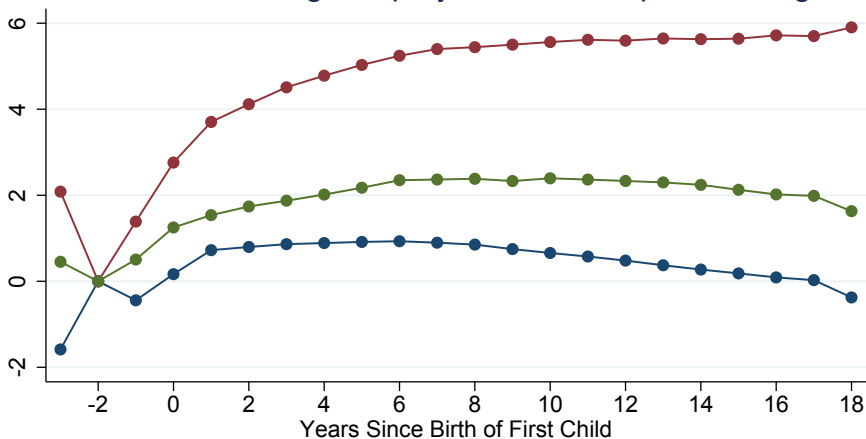
# Parental Earnings Gap by Education of Woman



Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects

# Heterogeneity

- Demographics and Income
    - Race of couple
    - Pre-birth income level of couple
    - Marital status at time of first birth

- Changes over time
    - Decade of first birth
    - Age of woman at first birth
    - Education of woman at first birth

- Household Bargaining
    - Differences in pre-birth earnings
    - Differences in education

# Parental Earnings Gap by Pre-Birth Gap in Earnings



Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects

# Parental Earnings Gap by Pre-Birth Gap in Education
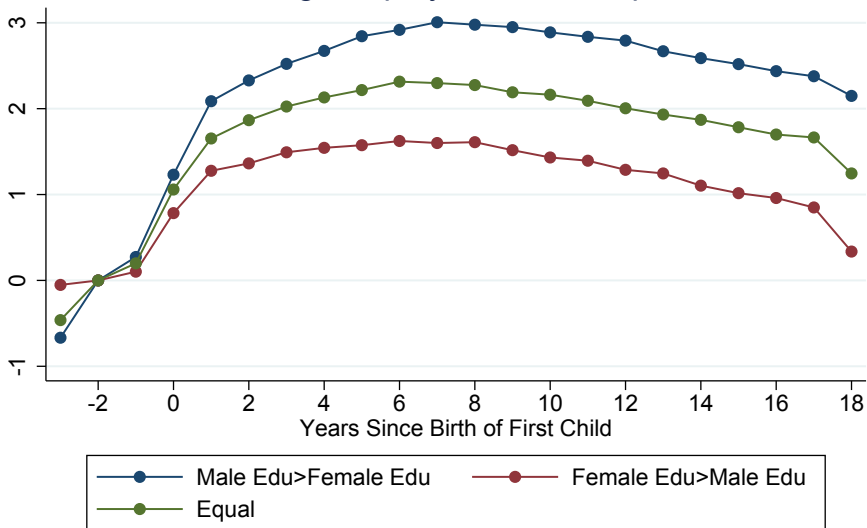


Dependent variable is the difference between the male spouse and female spouse's log yearly earnings. Regression controls for couple fixed effects and year fixed effects

# Conclusion

- The birth of a child increases the parental gender wage gap
- This increase occurs rapidly, in the first 2 years of the child's life
- The recovery of women's earnings relative to men's is slow
- The size of the initial increase in earnings gap as well as the dynamics after the child's birth displays heterogeneity over characteristics of the couple