

Discussion of “The Glass Ceiling and The Paper Floor:
Gender Differences among Top Earners, 1981-2012”
by Guvenen, Kaplan, & Song

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This paper

This is a nice paper that uses data from the US Social Security Administration (SSA) to provide empirical evidence on gender differences in earnings:

- Differences in gender representation at the top
 - .1 percent
 - .9 percent
- Persistence across these percentiles by gender
- Age structure by gender
- Industry Composition by gender
- Life-cycle Dynamics by gender

The Data

- 10% representative sample of individual earnings histories from the SSA.
- Panel data: able to track the same individuals over time
- Long series: 32 years (1981-2012)
- Basic demographic characteristics: age, sex, race, type of work (farm/nonfarm, employment/self-employment), earnings
- Employee earnings data: wages and salaries, bonuses, and exercised stock options
- Sample selection - In each year t , select those individuals from the 10% sample that satisfy:
 - Age between 25-60
 - Annual earning above a certain minimum threshold (equivalent to 13 weeks, full time, at 1/2 minimum wage)
- Focus thus is on those with a relatively strong labor market attachment
 - Pros: useful to understand earnings dynamics
 - Cons: less useful if one is interested in inequality of gender distribution whereupon zeros are also of interest.

The Data

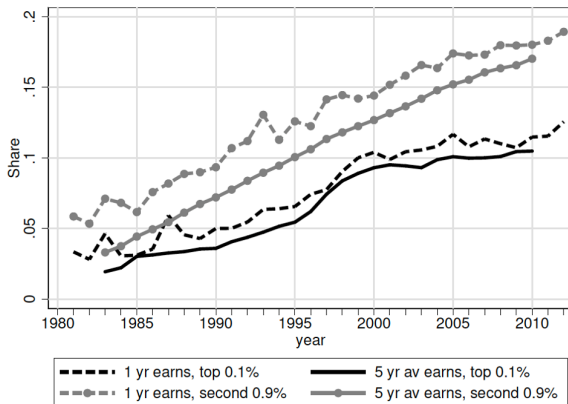
- What are the advantages of panel data?
 - One can study average income over some period, e.g., top earners as defined by their average earnings over a 5-year period, and decrease “noise.”
 - Persistence and mobility
 - Lifetime income
- What are the disadvantages (at least for this data set)?
 - We know very little about the individuals
 - Marital status and children
 - Spousal attributes
 - Education
 - Occupation other than broad industry categories

Main Findings

- Growth of female share of top earners
 - Top .1%: 1981-85 = 1.9% to 2008-12 = 10.5%
 - Next 0.9%: 1981-85 = 3.3% to 2008-12 = 17.0%
- Very little of this growth is due to increase FLFP
- But growth of share female mostly unchanged as of 2000 for top .1pct
- Still growing for next 0.9pct

Share Female Top Earners

(A) Share of Women among Top Earners



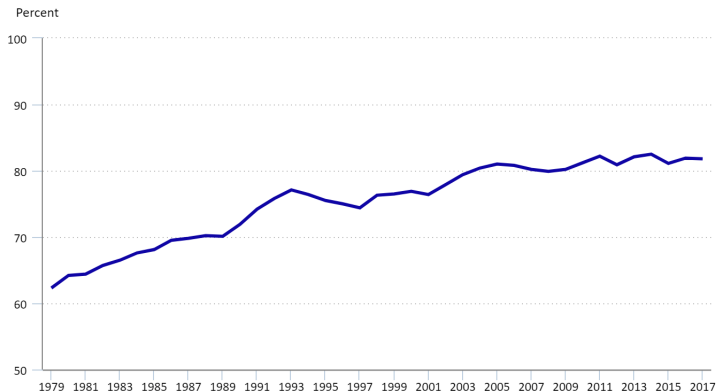
Other Percentiles

(B) Based on Five-Year Avg. Earnings



Stagnation

Chart 1. Women's earnings as a percentage of men's, for full-time wage and salary workers, 1979–2017 annual averages

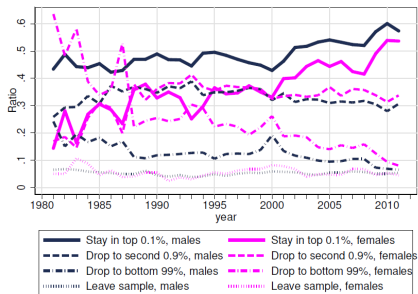


Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics, Current Population Survey.

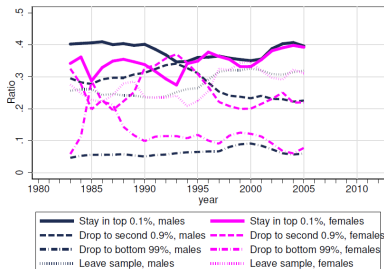


Persistence: 1 year vs 5 year

(A) One-Year Transit. Prob., Top 0.1pct



(c) Five-Year Transit. Prob., Top 0.1pct



Persistence: 1 year vs 5 year

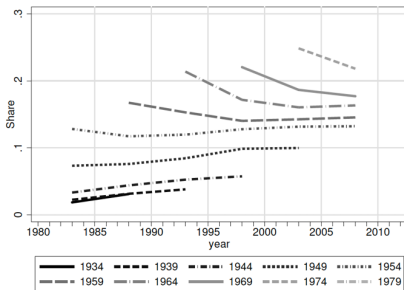
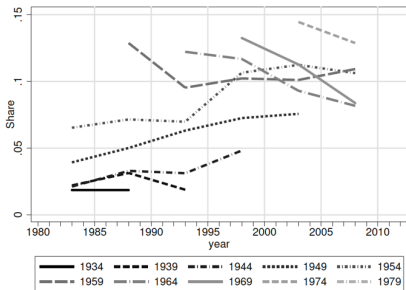
- Much stronger and earlier convergence of the top .1% persistence rate for the 5-year average income variable.
- A large proportion of men and women exit the sample
- Maybe women are “leaving the sample” for different reasons than men (e.g. birth of child, sick parent) and this gets smoothed out in the 5-year transition.
- More generally, it would be interesting to know more about the characteristics of women vs men who drop out.
 - Do they leave permanently?
 - If they reenter, do they reenter at top of distribution?
- It would be good to *exploit more the panel nature* of the data and understand how the paths of men and women differ: by occupation (industry) and by percentile.
- Broaden focus beyond transitions in and out of the very very top.

Cohort Distributions

- The cohort picture – *showing the share of women at the top of their cohort distribution* – yields mixed results regarding the march towards gender equality at the top. Cohorts
- This picture is very interesting and thinking about what drives it could be a greater focus of the paper
 - On the one hand, each successive cohort is entering with a larger share of women at the top.
 - On the other hand, the youngest 3-4 cohorts have a rapidly declining share as they age
 - Are men promoted more rapidly? Changing jobs more/less frequently?
 - Are women exiting or reducing hours worked?
- It would be great to see how these cohorts behave now that you have 6-7 more years of data

Cohorts over Time

(C) Share of women among top 0.1pct by cohort (D) Share of women among second 0.9pct by cohort



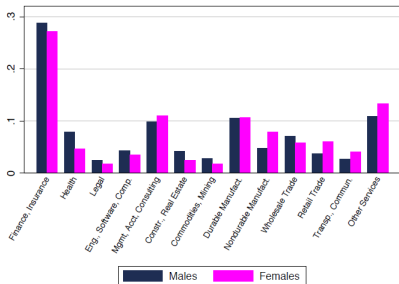
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Industry Composition

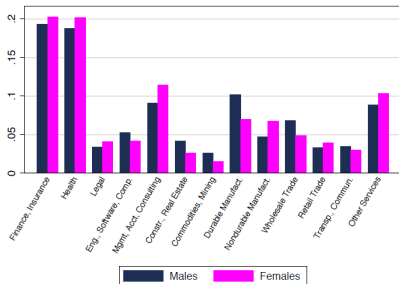
- Unfortunately, data is not by occupation, but rather 13 broad industry groups
- One unsurprising finding is that the representation of finance in the top .1% has increased markedly.
 - **Suggestion:** Provide a figure decomposing changes of representation of industries in top incomes into growth of employment in the industry to changes in relative pay in the industry.
 - Otherwise, we cannot distinguish how much is due to prob of being a high earner given industry and expansion of the industry (e.g., finance has grown markedly over this period and pay at the top of industry has also increased).
- An interesting finding is that within the top 1% the distribution of female employment by industry is very similar to that of males'. Industry
 - This indicates that the under-representation of women at the very top is pervasive across the industry groups, perhaps indicating a common problem.

Industry Composition

Top 0.1 Percent



Second 0.9 Percent



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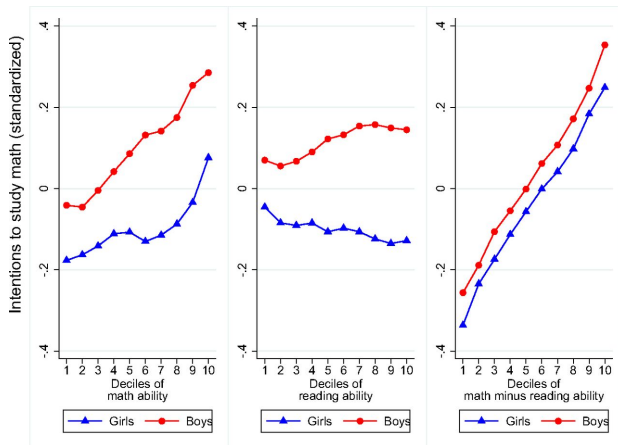
What do we Know from other Work?

- Although we have seen a significant reversal of the gender gap in education, the share of women at the top has been fairly stagnant over the 2000s.
- Why?
- Large differences in education choices

Education Choices

- In most OECD countries the gender difference in performance in math is small (favors boys), whereas the difference in reading is large (favors girls)
- Breda and Napp (2019) use 2012 PISA scores of 15 year old students in OECD countries (3000,000) as well as answers to questions regarding their intention to study math-intensive fields in the future.

Education Choices



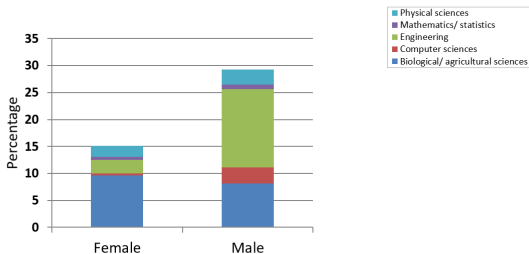
Variable is standardized to have zero mean and std dev of 1. Source: Breda and Napp (2019).

Education Choices

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- Breda and Napp (2019) use 2012 PISA scores of 15 year old students in OECD countries (300,000) as well as answers to questions regarding their intention to study math-intensive fields in the future.
- In high school, girls and boys seem to respond to their relative advantage in performance across field, instead of their absolute advantage and the relative rewards.
- A girl who is good at math but even better in reading may favor the humanities because she perceives herself as a “verbal” person

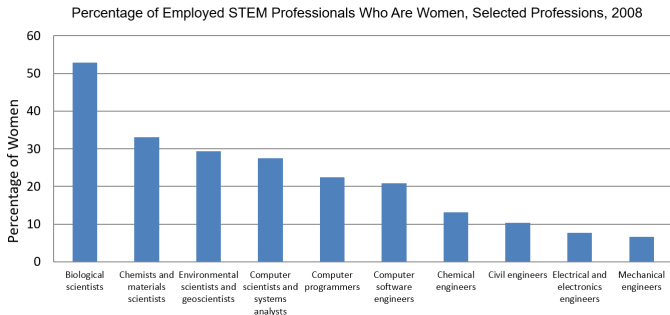
STEM Gap

Intent of First-Year College Students to Major in Science and Engineering Fields,
by Gender, 2006



Source: Commission on Professionals in Science and Technology. Data derived from Cooperative Institutional Research Program, Higher Education Research Institute, Graduate School of Education and Information Studies, University of California, Los Angeles, *The American Freshman: National Norms for Fall 1990 through Fall 2006*, www.gseis.ucla.edu/heri/heri.htm.

STEM Gap



source: U.S. Department of Labor, Bureau of Labor Statistics, 2009, *Women in the labor force: A databook* (Report 1018) (Washington, DC), Table 11.

What do we Know from other Work?

- Although we have seen a significant reversal of the gender gap in education, the share of women at the top has been fairly stagnant over the 2000s. Why?
- Large differences in education choices
- Large penalties in professions for temporary breaks in employment
- Important differences in exit rates:
 - among top executives in publicly traded firms - Gayle, Golan, Miller (2012)
 - among MBAs from Chicago Business School - Bertrand, Goldin, Katz (2010)).

- Bertrand, Goldin, Katz (2010) use survey data to study the dynamics of wages of University of Chicago MBAs from classes of 1990-2006.
- A man in the ninetieth percentile earns over \$1 million at 10-16 years out as compared to \$438K for the ninetieth percentile women.

Annual Salaries over Career

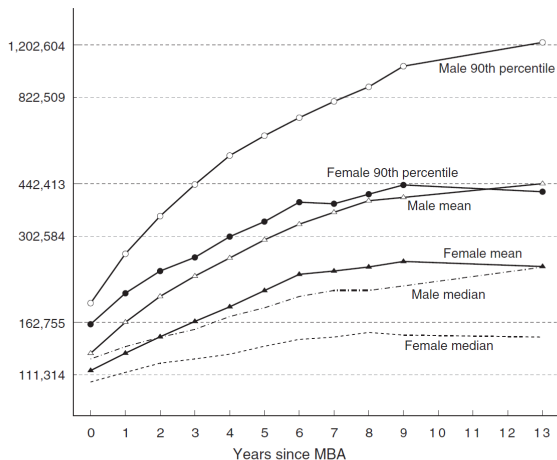


FIGURE 1. MALE AND FEMALE MEAN, MEDIAN, AND NINETYTH PERCENTILE ANNUAL SALARIES (2006 DOLLARS) BY YEARS SINCE MBA

Vertical axis is in natural log scale. Source: Bertrand, Goldin, Katz (2010).

Explaining Earnings

| | Dependent variable: Log (annual earnings) | | | | | | | |
|--------------------------------------|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Female | -0.287 [0.035]*** | -0.190 [0.033]*** | -0.146 [0.032]*** | -0.173 [0.030]*** | -0.094 [0.029]*** | -0.064 [0.029]** | -0.054 [0.028] | -0.038 [0.025] |
| MBA GPA | | 0.429 [0.054]*** | 0.406 [0.053]*** | | 0.369 [0.051]*** | 0.351 [0.051]*** | 0.367 [0.049]*** | 0.347 [0.043]*** |
| Fraction finance classes | | 1.833 [0.211]*** | 1.807 [0.206]*** | | 1.758 [0.199]*** | 1.737 [0.194]*** | 1.65 [0.193]*** | 0.430 [0.180]** |
| Actual post- MBA exp | | | 0.046 [0.075] | | | 0.085 [0.071] | 0.056 [0.068] | 0.029 [0.064] |
| Actual post- MBA exp ² | | | 0.010 [0.004]*** | | | 0.005 [0.004] | 0.008 [0.003]** | 0.007 [0.003]** |
| Any no work spell | | | -0.290 [0.067]*** | | | -0.228 [0.062]*** | -0.218 [0.061]*** | -0.173 [0.054]*** |
| Dummy variables: | | | | | | | | |
| Weekly hours worked | No | No | No | Yes | Yes | Yes | Yes | Yes |
| Pre-MBA characteristics | No | Yes | Yes | No | Yes | Yes | Yes | Yes |
| Reason for choosing job | No | No | No | No | No | No | Yes | Yes |
| Job function | No | No | No | No | No | No | No | Yes |
| Employer type | No | No | No | No | No | No | No | Yes |
| Cohort × year | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | 12.156 [0.018]*** | 9.493 [0.585]*** | 8.809 [0.667]*** | 10.385 [0.151]*** | 8.08 [0.603]*** | 7.525 [0.694]*** | 8.229 [0.733]*** | 8.324 [0.547]*** |
| Observations | 18,272 | 18,272 | 18,272 | 18,272 | 18,272 | 18,272 | 18,272 | 18,272 |
| R ² | 0.15 | 0.31 | 0.34 | 0.26 | 0.40 | 0.41 | 0.43 | 0.54 |

Source: Bertrand, Goldin, Katz (2010).

Chicago MBA

- Bertrand, Goldin, Katz (2010) use survey data to study the dynamics of wages of University of Chicago MBAs from classes of 1990-2006.
- A man in the ninetieth percentile earns over \$1 million at 10-16 years out as compared to \$438K for the ninetieth percentile women.
- Even after accounting for loss in work experience, and after accounting for weekly hours worked, taking any time out of work results in a 23 log point reduction in annual earnings (column 6).
- If a no-work spell is interacted with gender, the reduction is even larger for men than women.
- Much more frequent for women: 27% of women as opposed to 11% of men in sample have a work interruption.

Children

- Kleven, Landais, Posch, Steinhauer, Zweimuller (2019) use panel data to study the dynamics of labor earnings – in particular, their response to birth of first child – across several countries.

Child Penalty

$$Y_{ist}^g = \sum_{j \neq -1} \alpha_j^g \cdot \mathbf{1}[j = t] + \sum_k \beta_k^g \cdot \mathbf{1}[k = age_{is}] + \sum_y \gamma_y^g \cdot \mathbf{1}[y = s] + \nu_{ist}^g$$

Event time dummies

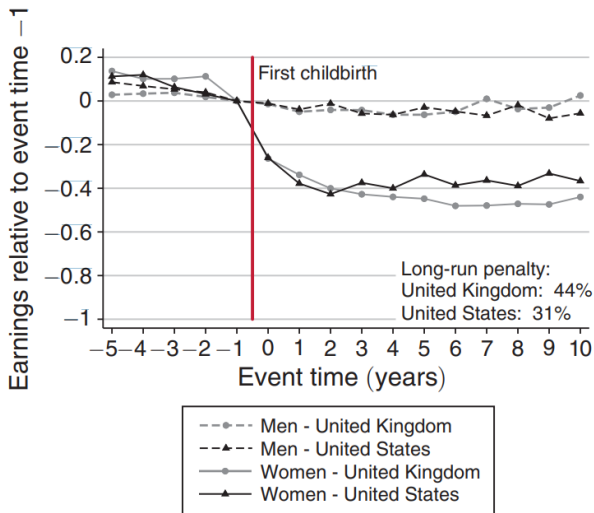
Age dummies

Year dummies

where the Y_{ist}^g are the earnings of individual i in year s and event period t .

The regressions are run separately for each gender g and are relative to event period $t = -1$, where $t = 0$ is the period of birth of first child.

Child Penalty

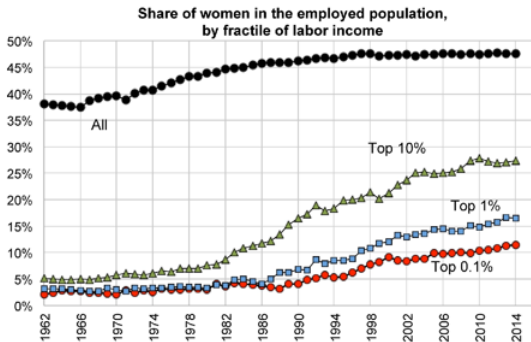


Source: Kleven, Landais, Posch, Steinhauer, Zweimuller (2019).

Suggestions

- Some of the paper's findings are now already in the literature PSZ
- Focus more on results for which you have a comparative advantage because of the nature of your data
 - 5-year averages
 - Who exits labor force and how do they return?
 - More transition/mobility numbers for different parts of the distribution. Why so obsessed with the top 0.1 and 1%?
- Race & ethnicity: Black, Hispanic, and Asian
- Back of the envelope calculation of the main bottlenecks
 - Choice of major in college (occupation/field)
 - Career interruption and how does amount of time out matter
- Policy?
 - Interventions in high school and in college that render certain quantitative fields more attractive (including economics!)
 - Scandinavian "Daddy quotas" that incentivize fathers to spend time (paternity leave) at home may normalize these breaks.
 - Joint vs single taxation

Piketty, Saez, Zucman



Source: Piketty, Saez, Zucman (2018).