

*THE GENDER GAP AND THE LIFE CYCLE IN THE BRAZILIAN FORMAL LABOUR MARKET

Very Preliminary Version
(do not quote without permission)

* These slides

* Research Brief https://www.cps.fgv.br/cps/bndl/docs/Brazil_gender_gap_ResearchBrief_KKredits%2016_11_18SentWider20181128_KK28_11-2.pdf

*** Paper <https://www.wider.unu.edu/publication/gender-gap-education-and-life-cycle-profile-brazilian-formal-labour-market>

Cecília Machado – FGV EPGE

Marcelo Neri – FGV Social

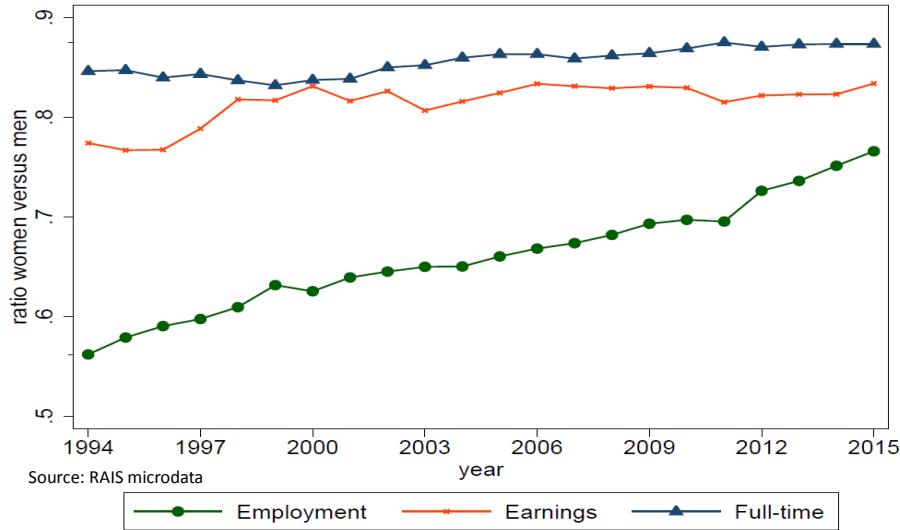
Valdemar Pinho-Neto – FGV EPGE

Main Objective: to study the trajectory of the gender gap in the Brazilian formal labour market over time and over the life cycle.

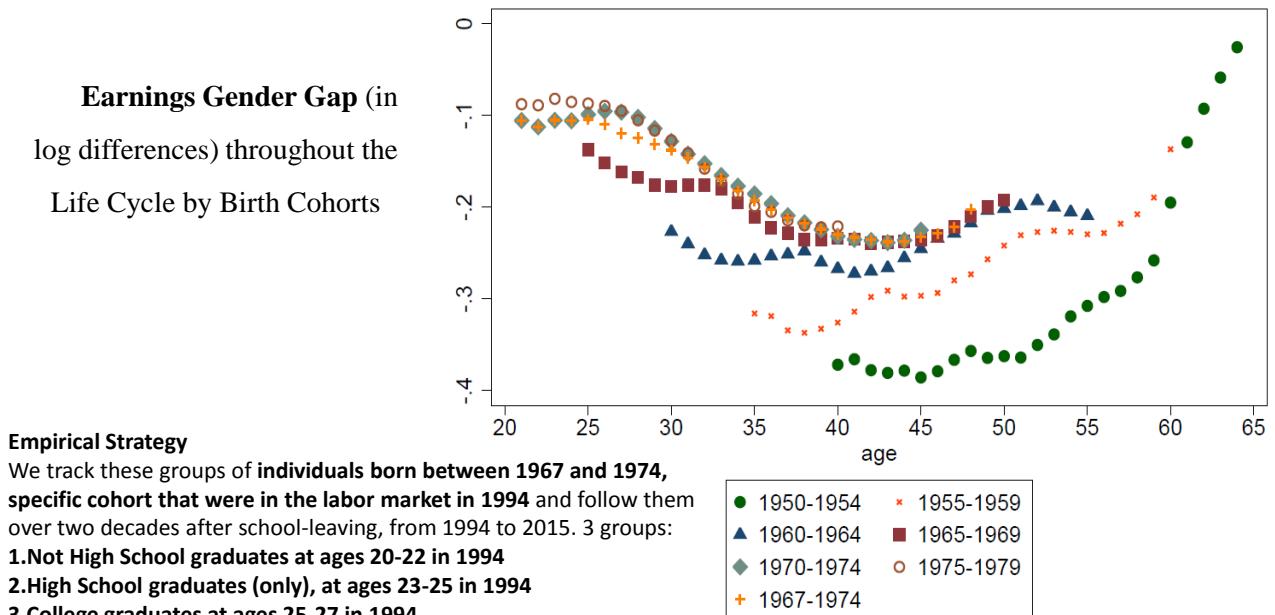
- **Brief Literature review** (see, Bertrand et al. 2010) - **Two perspectives:**
- **1) time trends in gender inequality** - US CPS data 1980-2010, **Blau and Khan [2016]** wage gap declined considerably.
- **2) patterns of gender gap throughout the life cycle.** Goldin et al. [2017] American data from the Longitudinal Employer-Household Dynamics (LEHD) database linked to the 2000 Census, **gender earnings gap has been expanding over the life cycle.**
- This life cycle approach suggests two other perspectives pursued here:
 - a) **career path** varies within an employer, due to wage raises and promotions over time .
 - b) **sorting into high versus low-paying employers.**

Background: Gender Differences (ratio women to men)

- Overall and formal labour market show that most gender gaps fell:



Rising gender gap over the life cycle until age of 40, when this trend is reverted the gender gap is higher for the older cohorts ie. has reduced over generations.



Empirical Strategy

We estimate the following baseline econometric model, close related to Barth et. al [2017] and Goldin et. al [2017], unbalanced panel a specific cohort for three education groups j :

$$Y_{ijt} = \alpha_{tj} + X_{ijt}'\beta + \sum_l \theta_{lj} I(a_{ijt} = l) + \sum_l \varphi_{lj} I(a_{ijt} = l) \times F_{ij} + \epsilon_{ijt} \quad (1)$$

to evaluate the effect of the occupational/industry and firms characteristics (omit the educational index j):

$$Y_{it} = \alpha_t + X_{it}'\beta + \sum_l \theta_l I(a_{it} = l) + \sum_l \varphi_l I(a_{it} = l) \times F_i + S_{it}'\mu + \epsilon_{it} \quad (2)$$

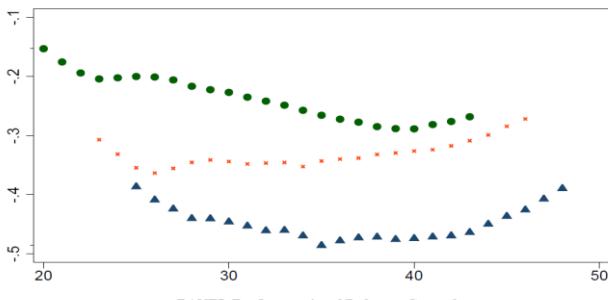
We also expand the model to include controls for job-specific effect:

$$Y_{it} = \alpha_t + X_{it}'\beta + \sum_l \theta_l I(a_{it} = l) + \sum_l \varphi_l I(a_{it} = l) \times F_i + S_{it}'\mu + \Omega_{e(it)t} + \epsilon_{it} \quad (3)$$

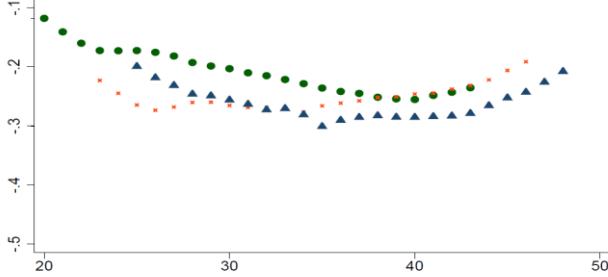
Our approach consists in analyzing the pattern of the coefficient φ_{lj} , which represents gender earnings gap, over the age profile for each of the three education group and also de R squared of the regressions.

Importance of the Controls in the Earnings Gender Gap throughout the Life Cycle

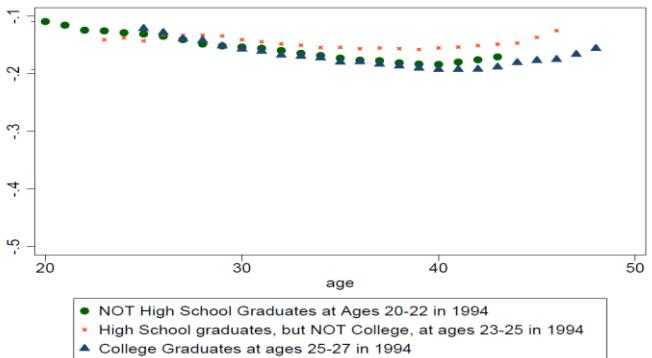
PANEL A: Baseline



PANEL B: Occupational/Industry Controls



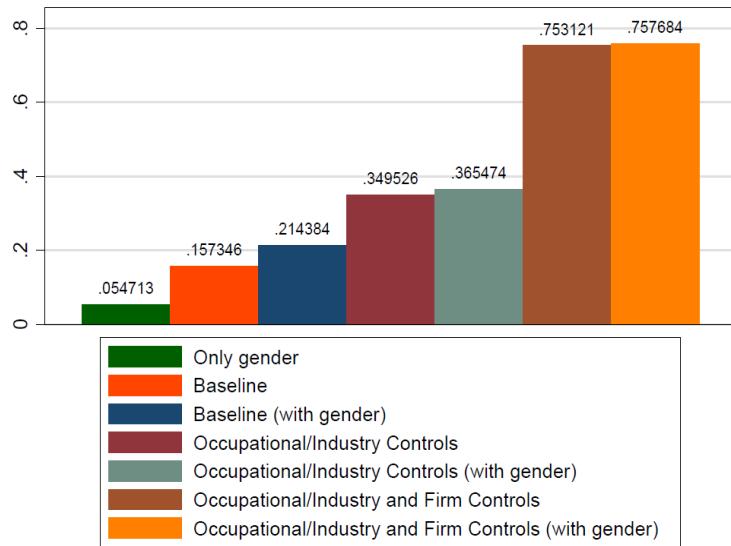
PANEL C: Occupational/Industry and Firm Controls



Source: RAIS microdata

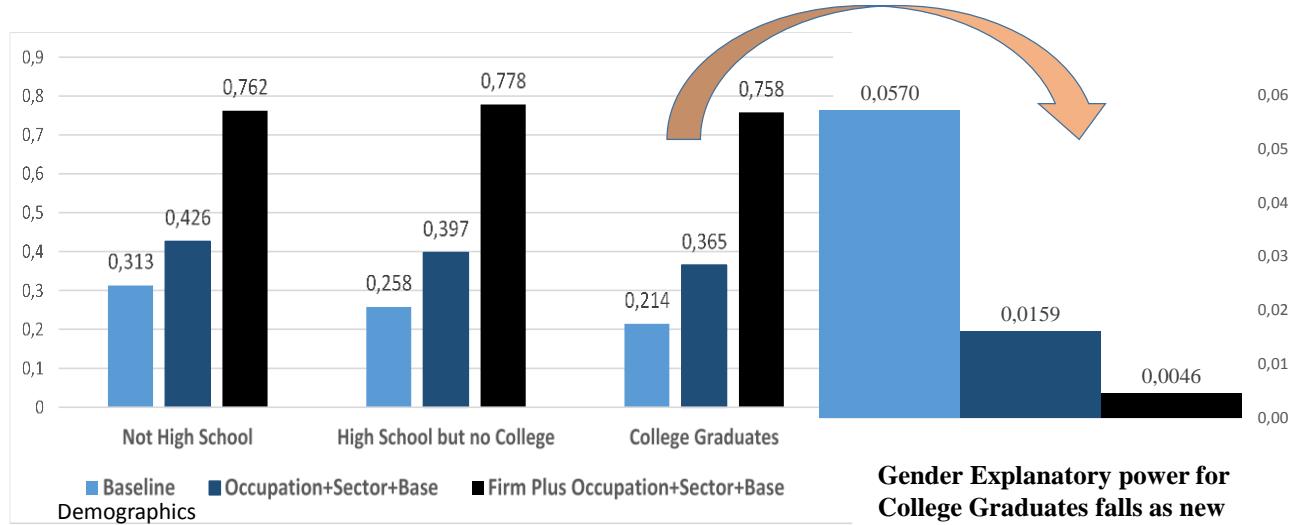
Firm controls rises R-squared substantially, to more than 75 percent for all educational groups: a large part of the inequality can be explained by a sorting between high paying and low paying companies rather than inequality within firms. Moreover, the marginal contribution of gender becomes negligible when we consider the full model with all the controls.

Controls to Explain
the Variance of the
log of Earnings for
College Graduates
at ages 25-27 in
1994



Source: RAIS microdata

Regression Framework: Analyses of overall earnings inequality within educational groups. How much do variables explain? Firms fixed effects are key!



Source: Rais microdata 1994 to 2015

Main Conclusions

- Starting with the results **without any controls**. The gender gap **expands** over the life cycle **until** around the **age of 40**, when it starts to reduce until the end of the career.
- The gender inequality has been **reducing over generations**.
- The gender explanatory power over inequality **increases with education**: from **1.14** percent for workers with **less than high school** completed to **4.17** percent for workers with **high school** degrees and **5.46** percent for those with **more than high school**.

Main Conclusions (cont.)

- **The cohort born in 1967-1974 was split into three groups of schooling and different types of controls were introduced step by step** in order to evaluate among other variables the gender impact exerted on overall earnings inequality.
- We are able to **expand the share of the variance of logs explained** from less than **32** percent using employees' characteristics to more than **75** percent by incorporating the roles that **occupation/industry and the establishment**.
- A large part of the gender inequality can be explained by a **sorting between high paying and low paying companies rather than inequality within firms**. Moreover, the **marginal contribution of the gender variable becomes negligible when we consider the full model** with all the controls.

Gender wage gap over the life cycle in Brazil*

Gender earnings gap is falling in Brazil across time and generations, but what are the trends of the wage gap over the life cycles of individuals? Do the trends differ with different levels of education, occupations and can the earnings gap be explained with unequal wages within or between employers?

FINDINGS:

- Although the gender earnings gap is falling in Brazil across time and generations, it expands over the life cycle until the age of 40, when it starts to reduce until the end of the career.
- The gender gap increases with the educational level. At 40 years of age, women without high school degrees earned 28.8 per cent less than men. For those with high school and college degrees, this difference was 32.6 per cent and 47.4 per cent, respectively.
- For all of the education groups and independent of the specific age, the gender earning gap reduces when occupational/industry and employer controls are added. After controlling for the occupation/industry and firms characteristics, the remaining gender gap is lower than 20 per cent and greater than 10 per cent over the entire career in all educational levels.
- Large part of the wage inequality can be explained by a sorting between high paying and low paying companies rather than inequality within firms.

Recently, Brazil has been very successful in reducing gender inequality. In overall employment gender earnings gap fell from 45 per cent in 1995 to 27 per cent in 2015.

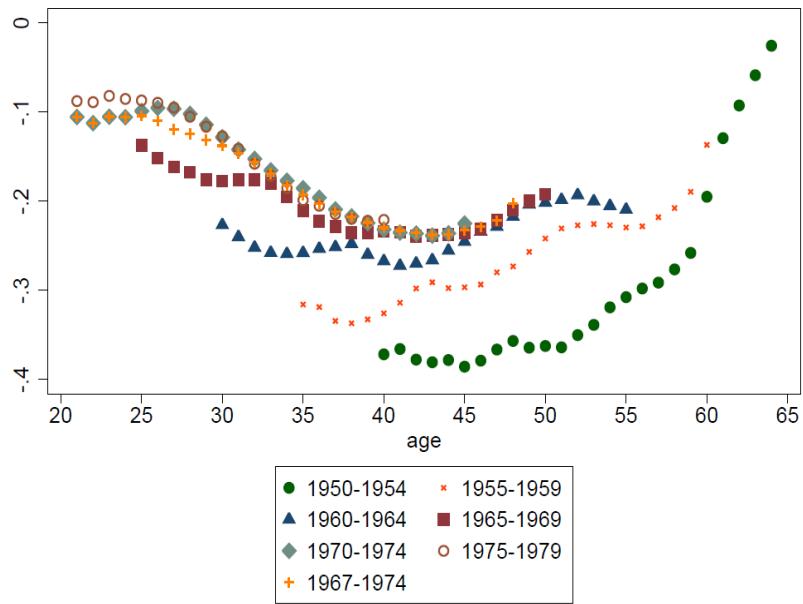
Although there has been a remarkable growth in female labor market participation over the last two decades, this change may have different patterns in different stages of life. It is useful to observe the gender wage gap in more detail, over the lifecycle, with different levels of education and whether it can be explained by wage raises or differences between employers.

Gender wage gap over the life cycle

In Brazil gender wage gap expands over the life cycle until around the age of 40, when the gender gap starts to reduce by the end of the career. This evidence parallels the one found for developed countries. In addition, we see that the gender wage gap is higher for the older cohorts, which shows that part of the gender income inequality has reduced over generations.

* Research brief based on the paper “The gender gap and the life-cycle profile in the Brazilian formal labour market” by Machado, Neri and Neto (2018) funded by Getulio Vargas Foundation.
<https://www.wider.unu.edu/publication/gender-gap-education-and-life-cycle-profile-brazilian-formal-labour-market>

Figure 1: Evolution of the Earnings Gender Gap throughout the Life Cycle by Birth Cohorts



Higher education, higher gender wage gap

In Brazil gender wage gap increases with the level of education. At 40 years of age, women without high school degrees earned 28.8% percent less than men. For those with high school and college degrees, this difference was 32.6% and 47.4% respectively.

Differently from what can be seen for workers without High School degrees, the gender gap is relatively more stable throughout the life cycle of workers who are High School graduates. However, gender wage gap is reducing overall over the life cycle after 40 years of age.

Wage differences within or between employers?

Patterns of gender earnings gap throughout the life cycle may be influenced by the combination of two different processes. First, the career path can vary within an employer, due to wage raises and promotions over time. Second, there can be a sorting into high-paying versus low-paying sectors and employers. After controlling for the occupation/industry and employer characteristics, the remaining gender gap is lower than 20 per cent and greater than 10 per cent over the entire career.

For the college graduates, the sector (occupational/activity) plays a fundamental role in explaining the gender wage gap throughout the entire life cycle of workers. Furthermore, for all of the education groups and independent of the specific age, the gender earning gap reduces when occupational/industry controls are added to the model. The inclusion of firm controls (size, average earnings and fixed effects) accounts even with a greater share of the gender earnings gap.

IMPLICATIONS:

Industry and in particular firm specific policies and choices are key drivers for reducing gender wage gap, as currently the high paying companies seem to prefer male labour. There is a need for a change in the company culture.

Thus, large part of the wage inequality can be explained by a sorting between high paying and low paying companies rather than inequality within firms. This suggests that industry and in particular firm specific policies and choices are key drivers for reducing gender wage gap, as currently the high paying companies seem to prefer male labour. This implies that there is a need for a change in the company culture.