

The impact of gender and race segregation on labor organization in a social interaction model

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Motivation

Two implicit conditions on the Communist Manifesto:

1. "In the earlier epochs of history, we find almost everywhere a complicated arrangement of society into various orders, a manifold gradation of social rank. (...) Our epoch, the epoch of the bourgeoisie, possesses, however, this distinctive feature: it has simplified the class antagonisms. Society as a whole is more and more split into two great hostile camps, into two great classes directly facing each other: bourgeoisie and proletariat." (Marx and Engels pp. 6-7) (Marx & Engels, 2016).
2. In one of the few passages where they point to the existence of competition between workers, Marx and Engels affirm that after being upset by such competition, the proletarians "ever rises up again, stronger, firmer, mightier". (Marx and Engels, pp. 23) (Marx & Engels, 2016)

Marx Revisited

Fraser (2014) (Fraser, 2014): Fraser argues that the separation between Economic Production and Social Reproduction is necessary to the functioning of the Capitalism.

Based on the idea that capitalisms structure functions as to “divide populations in ways that correlate with, and fabricate, “race”, Fraser(2016) (Fraser, 2016) challenges the Marxist definition of Capitalism.

Gender

What is gender?

Butler (1988) states that gender is “an identity instituted through a stylized repetition of act” (Butler, 1988)

What is a female?

According to Federici there has been a change in the view of femininity that began at the “end of the 17th century, after women had been subject for more than two centuries to state terrorism”. The new model of femininity that emerged was of “the ideal woman and wife- passive, obedient, thrifty, of few words, always busy at work, and chaste”. (Federici 2004 p. 103) (Federici, 2004)

Delphy (1975): “Women oppression” versus “Feminine condition” (Hennessy, 2012)

Gender Segregation in Unions

“TO THE EDITOR OF THE PHILADELPHIA DAILY NEWS FROM PRINTERS’ UNION, 1854:

The printers of the United States have uniformly opposed the introduction of women into printing offices for the following natural reasons:

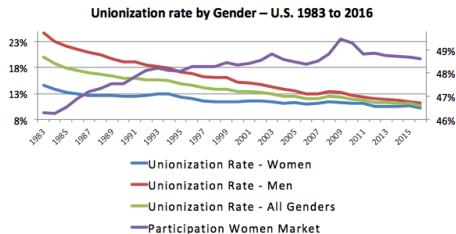
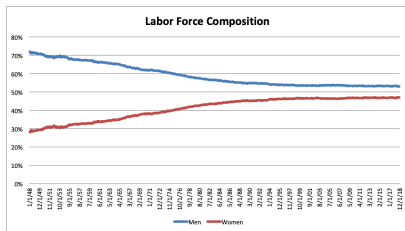
1. That females can be employed at rates much lower than we demand and are properly entitled to, and as a consequence employers would use them for the subversion of our national organization” Letter to the editor, Philadelphia Daily News, 1854 (Baxandall, Baxandall, Gordon, & Reverby, 1995)

Objective

- ▶ Contribute to the discussion of distributional conflicts within and between classes.
 - ▶ Intersectional Political Economy: Discuss the impacts of identity constitution in the long run functional distribution of income.
 - ▶ Model: Discuss segregation within labor organizations, with a special focus on gender, and its consequences to bargaining power.

Some evidence from data

Gender and the labor movement: the historical and social constitution of a segregated working class

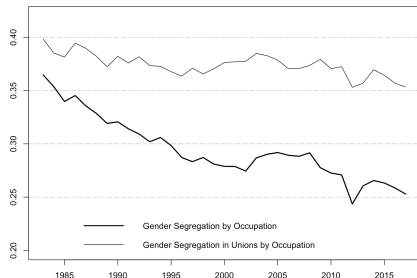


Source: U.S. Bureau of Labor Statistics

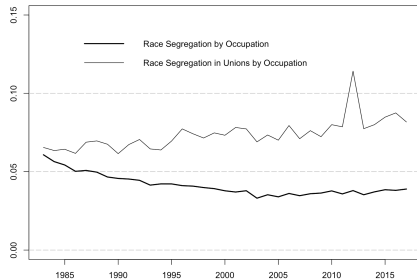
Changes in the labor force composition lead to a fall in the unionization rate.

Some evidence from data

Gender and Race Segregation



Source: Current Population Survey



Segregation falls faster in occupations than unions

Some evidence from History

Gender and the labor movement: the historical and social constitution of a segregated working class

- ▶ The production of gender as a category has been established in a violent way and is functional for capitalism.
- ▶ The existence of this category both allows the system to appropriate surplus as well as to divide the working class.
- ▶ Historically, trade unions have been used as a way of maintaining privileges and excluding women from certain activities.

Consequences for Theory:

- ▶ Existence of marginalized groups is an important parameter to understand bargaining power.
- ▶ Macroeconomic models that encapsulates the labor market should not think of the workers as a uniform class.

Two Players Model

The impact of gender segregation on labor organization in a social interaction model

The group of male and female workers utility in joining the union, U_m and U_w respectively are represented by the following equations:

$$\begin{aligned}U_m &= f(s_m, s_w) = \alpha((1 - \gamma_m * s_w)s_m - \beta s_m^2) \\U_w &= f(s_w, s_m) = \alpha((1 - \gamma_w * s_m)s_w - \beta s_w^2)\end{aligned}\tag{1}$$

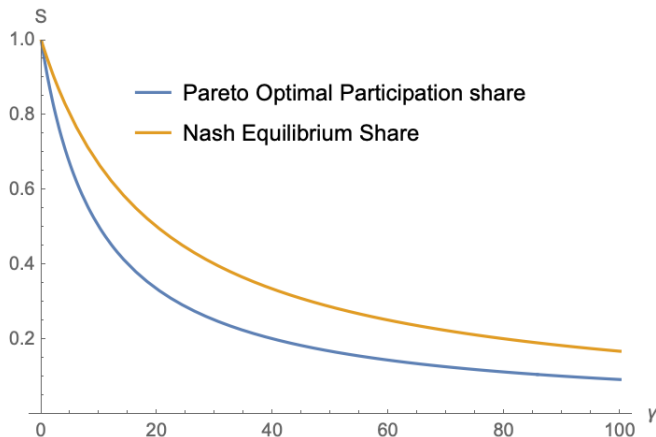
The Nash equilibrium unionization rates s_m^* and s_w^* are calculated by simultaneously solving for both best response functions.

$$s_m^* = \frac{\gamma_m - 2\beta}{\gamma_m \gamma_w - 4\beta^2}\tag{2}$$

$$s_w^* = \frac{\gamma_w - 2\beta}{\gamma_m \gamma_w - 4\beta^2}\tag{3}$$

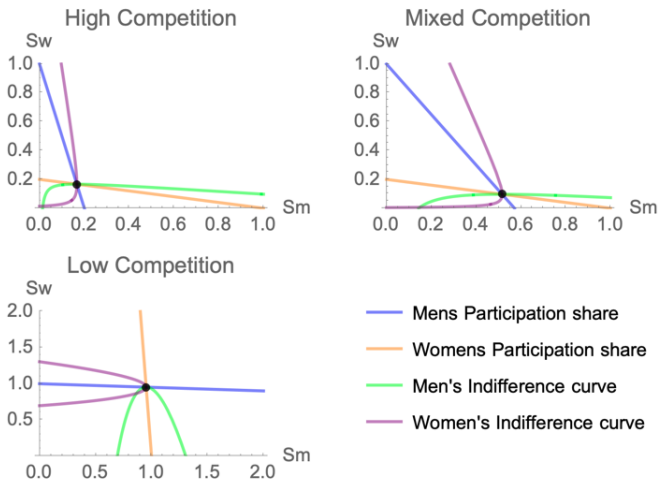
Two Players Model

From an Invisible hand game to a Prisoner's Dilemma



Two Players Model

From an Invisible hand game to a Prisoner's Dilemma



Statistical Equilibrium Model

The impact of identity segregation on labor organization in a social interaction model

$$U = f(x, z) \quad (4)$$

x is the individual decision to join the union and Z represents the unionization rate

$$U(x, z) = \alpha x - \beta x + \gamma xz + \eta z \quad (5)$$

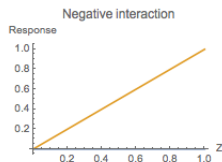
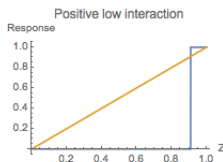
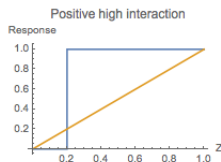
The term γxz is the interaction term and can be seen as the benefits of jointly participating in the union. A positive value indicates that joint participation potencializes the benefits of unions while a negative value indicates a cost for the interaction.

Statistical Equilibrium Model

Best Response: If $\alpha + \gamma z > \beta$, the individual will join the union.

If $\beta > \alpha + \gamma z$, the individual will not join the union.

If $\alpha + \gamma z = \beta$, the individual will be indifferent between joining the union or not.



Statistical Equilibrium Model

The impact of identity segregation on labor organization in a social interaction model

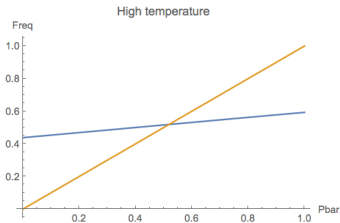
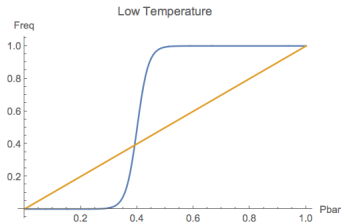
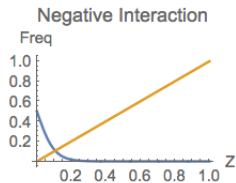
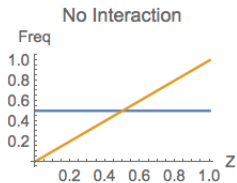
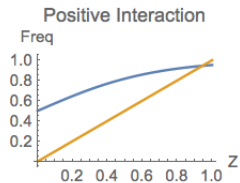
When can transform the problem into a constraint entropy maximization problem and maximize entropy with a constraint on utility where the solution is:

$$f[x|z] = \frac{e^{\frac{\alpha x - \beta x - \gamma xz + \eta z}{T}}}{e^{\frac{\alpha - \beta - \gamma z + \eta z}{T}} + e^{\frac{\eta z}{T}}} \quad (6)$$

$$f[1|z] = \frac{e^{\frac{\alpha - \beta - \gamma z + \eta z}{T}}}{e^{\frac{\alpha - \beta - \gamma z + \eta z}{T}} + e^{\frac{\eta z}{T}}} \quad (7)$$

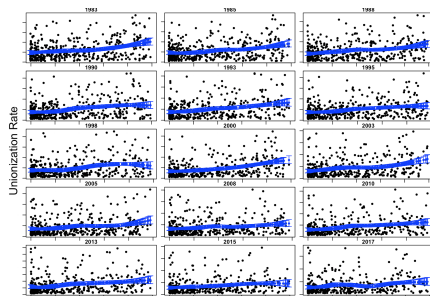
Statistical Equilibrium Model

Changes in Temperature



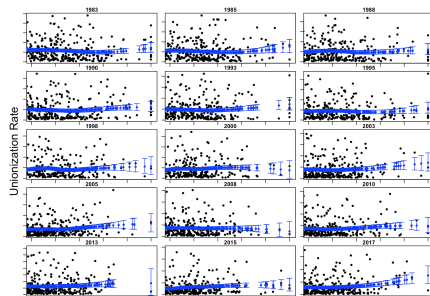
Some evidence from data

Gender and Race Segregation



Theil Segregation Index

In each Occupation from 1983 to 2017
Loess curve fitting in blue with 95% interval error bars



Race Theil Segregation Index

In each Occupation from 1983 to 2017
Loess curve fitting in blue with 95% interval error bars

Source: Current Population Survey

Segregation falls faster in occupations than unions

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