Extended Abstract

Masculinity Norms, Occupational Choice, and Reallocation: Micro and Macro Evidence

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Abstract

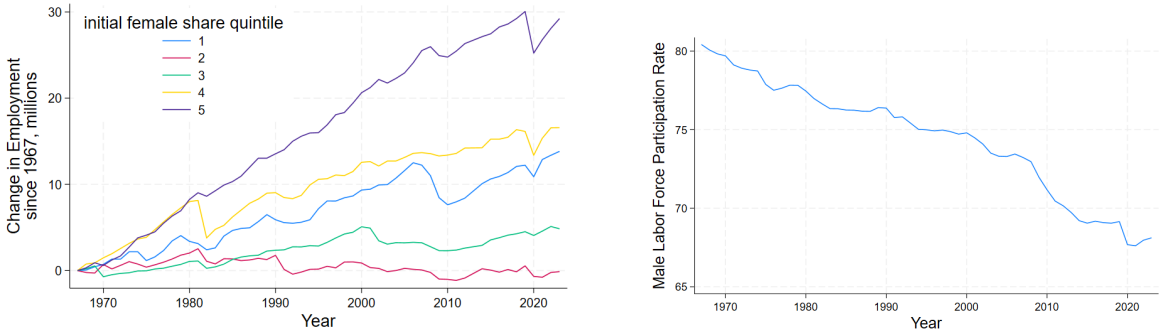
Over the past five decades, the labor force participation rate of American men has declined significantly–from 80% in the 1970s to just around 68% today–and similar trends are observed across the developed world. During the same period, the fastest-growing occupations have been those traditionally considered "feminine," such as nursing. Are these two trends connected? Do masculinity norms discourage men from entering the labor force by deterring them from pursuing jobs perceived as feminine? We document that male employment participation declined more following sectoral reallocation in more gender-traditional labor markets, as proxied by occupational segregation by gender. We then examine whether masculinity norms systematically distort men's occupational choices away from income-maximization and estimate men's willingness to pay (in terms of forgone earnings) to avoid occupations seen as feminine. Understanding the role of masculinity norms in shaping men's labor market decisions is crucial for addressing the ongoing decline in male labor force participation.

1 Introduction and Motivation

Despite strong economic growth for most of the past 50 years, male labor force participation in the US has been steadily declining. At the same time, the majority of recent growth has been in female-dominated industries (Figure 1). We hypothesize that the two trends are related: if a man is unwilling or unable to work in a female-dominated industry, this female-biased growth, rather than being an opportunity, will drive him out of the market. Here, we present preliminary evidence that labor market segregation by gender is linked with negative employment growth for men but not for women, in particular following reallocation of employment across industries. In the future, we will provide micro-evidence linking occupational choice and sector-switching behavior with masculinity norms.

To begin, we consider an example of two locations that appeared similar in the 1980s but evolved differently. In the 1980 US Census, Erie, Pennsylvania and Winston-Salem, North Carolina were remarkably similar. Erie had a population of around 240,000 and Winston-Salem, around 160,000. About 15% of residents had bachelor's degrees, 88 percent of men were employed, and the industry composition of employment was similar, in particular with about 35% of employment in manufacturing. As of 1990, in both commuting zones around half of the population lived in an urban area. But

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(a) Employment Growth by Female Share

(b) Male Labor Force Participation

Figure 1: Trends in the US Labor Market, 1967-2023

Note: The left panel shows the employment change of industries by their quintile of female share in 1968-1972 from the 1970s to today in the US (*Source: CPS Annual Social and Economic Supplement via IPUMS.*). The right panel shows male labor force participation over the same period (*Source: U.S. Bureau of Labor Statistics via FRED.*).

the level of gender segregation across industries was quite different: Winston-Salem was one of the least segregated commuting zones in the country, with segregation below the 5th percentile of all US commuting zones that year. Erie, on the other hand, had above median segregation.

In the following years, male labor force participation declined in both locations, as it did for the country as a whole. However, this decline was strikingly different: from 1980 to 2010, Winston-Salem's male labor force participation rate went from 92% to 89%–a decline by 3 percentage points, while Erie's went from 94% to 83%–an 11 percentge points drop. And this decline was specific to men: although female employment was lower in Erie in 1980, it was similar in both places in 2010, around 70%.

We hypothesize that the differences in starting segregation and in the evolution of male employment in these two locations are related, and that this is but one example of a broader pattern in the US labor market. Segregation, whether it is due to discrimination (against men *or* women) or gender norms or a combination of the two, has the potential to create problems for an evolving labor market. As demand shifts and the composition of occupations and industries changes, jobs that are typically dominated by one gender may be replaced by jobs typically performed by the other gender. As changes in trade, technology, and demand have shifted employment from goods-producing to services-providing industries in the US, these changes may have been particularly harmful for men if they were unwilling (due to gender norms) or unable (due to discrimination) to switch to jobs in female-dominated industries.

Our work is based on a two-pronged approach. At the aggregate level, we show that a reallocation of labor demand across industries has led to a sharper fall in male employment in areas with greater occupational segregation by gender, which are also the more gender-conservative. At the individual level, we are examining whether gender norms—-and masculinity norms in particular–drive this pattern, both through the study of layoff events and through a survey experiment currently in the pilot stage. In this extended abstract, we present the preliminary findings of our aggregate analysis and we describe the survey experiment.

2 Data

We use data from the US Census to measure gender segregation and reallocation. Our samples cover 1980 through 2010, using the decennial censuses for 1980, 1990, and 2000, and pool the 2009-2011 American Community Surveys for 2010. We define local areas using 1990 commuting zones. We define industries as broad groups of time-consistent 1950 industry codes[1], which gives us 17 total industries.

We define reallocation in a local area a following Chodorow-Reich and Wieland (2020) (which in turn follows Lilien, 1982) as a measure of dispersion across industry employment growth rates. Reallocation in area a between period t and $t+j$ is then

$$R_{a,t,t+j} = \frac{1}{j}\frac{1}{2}\sum_{i}^{I} s_{a,i,t}\left|\frac{1+g_{a,i,t,t+j}}{1+g_{a,t,t+j}} - 1\right|, \tag{1}$$

where i indexes industries and $s_{a,i,t}$ is the employment share of industry i in area a at time t and $g_{a,i,t,t+j}$ is the growth rate of industry i in area a between t and $t+j$. If all industries in an area grow at an equal pace, the main term of the index (before annualization) is equal to zero, and it is equal to one if all industries with positive employment in t disappear by $t+j$. Chodorow-Reich and Wieland (2020) find that reallocation contributes to higher local area unemployment if it occurs during a recession, but little difference in outcomes if it occurs during an expansion.

We measure gender segregation using the Duncan-Duncan Segregation Index (Duncan and Duncan, 1955), defined as

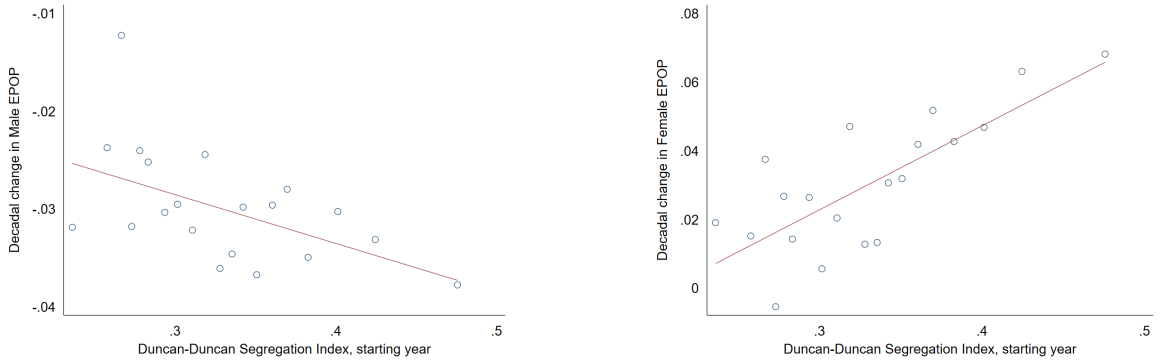
$$DDI = \frac{1}{2}\sum_{i=1}^{N}\left|\frac{m_i}{M} - \frac{f_i}{F}\right| \tag{2}$$

where $\frac{g_i}{G}$ is the share of gender g that is employed in industry i. If men and women are distributed equally across industries, the index is equal to zero, and if industries are entirely gender segregated, the index is equal to one. The index can also be thought of as the share of employment that would need to switch industries to remove all segregation.

3 Suggestive Patterns

Raw correlations suggest that the divergent destinies of Erie and Winston-Salem are indeed examples of a broader pattern across US labor markets. Figure 2 shows the correlation between the Duncan-Duncan Segregation Index at the beginning of the decade and the decadal change in the employment-to-population ratios for men (panel a) and for women (panel b). We can see that while in originally segregated places female employment increases faster, the opposite is true for male employment. In particular, in the most segregated commuting zones, the decline in male employment is almost twice as large relative to the least segregates areas. This is unlikely to be fully driven by lack of opportunities, given the contemporaneous increase in female employment; it suggests that growth accompanied by changes in sectoral composition might have been a hindrance rather than an opportunity for men unable or unwilling to move to a female-dominated sector. We turn to this analysis next.

[1] *ind1950* in IPUMS



(a) Male EPOP and Segregation

(b) Female EPOP and Segregation

Figure 2: Correlation between EPOP and Occupational Gender Segregation

Note: This figure shows the correlation (binscatter) between the decadal change in Employment-to-Population ratio for men (panel a) and women (panel b) and the occupational segregation by gender (Duncan-Duncan Index) at the beginning of the decade. The observations are are the commuting zone-by-decade level and are weighted by population.

4 Empirical Method

To study whether the effects of reallocation differ in more and less segregated labor markets, we estimate the effects of the interaction between reallocation and segregation on the employment-to-population ratio separately for men and women. To do so, we estimate the following regression

$$\Delta EPop_{a,t,t+j} = \alpha + \alpha_1 R_{a,t,t+j} + \alpha_2 DDI_{a,t} + \beta R_{a,t,t+j} \times DDI_{a,t} + \alpha_3 gb_{t,t+j} + \varepsilon_{a,t,t+j}. \quad (3)$$

The coefficient of interest is β_3, which measures the effect of segregation on the effect of reallocation on the change in labor force participation. We also control for local area population density and educational composition, Census region, and bartik-predicted employment growth. Because we do not have reason to believe the effect of segregation will be linear, we use an indicator for commuting zones with above-median segregation.

To account for the endogeneity of reallocation, we follow Chodorow-Reich and Wieland (2020) by using a Bartik instrument that uses local initial industry shares but replaces local growth rates with national growth rates:

$$Rb_{a,t,t+j} = \frac{1}{j}\frac{1}{2}\sum_{i}^{I} s_{a,i,t} \left| \frac{1+g_{i,t,t+j}}{1+g_{t,t+j}} - 1 \right|, \quad (4)$$

where $g_{i,t,t+j}$ is the national growth rate of industry i.

5 Results

Table 1: Change in Male Employment-Population Ratio vs. Reallocation x Segregation

	Dependent variable:			
	Δ Male EPOP$_{t,t+j}$			
	OLS		*instrumental variable*	
	(1)	(2)	(3)	(4)
Reallocation$_{t,t+j}$	-0.976^{***}	-0.895^{***}	-6.314^{***}	-5.284^{***}
	(0.236)	(0.241)	(2.080)	(1.555)
Growth$_{t,t+j}$ (Bartik pred.)	2.756^{***}	2.037^{***}	0.192	-0.799
	(0.277)	(0.329)	(0.859)	(0.833)
Segregation$_t$	0.010^{*}	0.008	0.039^{*}	0.035^{*}
	(0.005)	(0.005)	(0.021)	(0.020)
Reallocation$_{t,t+j}$ x Segregation$_t$	-0.740^{**}	-0.772^{**}	-2.324^{*}	-2.260^{*}
	(0.326)	(0.322)	(1.368)	(1.291)
Constant	-0.049^{***}	-0.039^{***}	0.082^{*}	0.070^{**}
	(0.007)	(0.007)	(0.046)	(0.034)
Controls	No	Yes	No	Yes
Observations	2,142	2,142	2,142	2,142
R^2	0.177	0.234	-0.343	-0.091
Note:				*p<0.1; **p<0.05; ***p<0.01

This table shows regressions of the change in the male employment-population ratio on reallocation and segregation at the commuting zone level for the period 1980-2010, with observations every 10 years. The data are from the US Census via IPUMS. Columns 1 and 2 use OLS, and columns 3 and 4 use 2SLS where we use Bartik-predicted reallocation as an instrument for local reallocation. All columns include year fixed effects and are weighted by log commuting zone population. Columns 2 and 4 also include Census region fixed effects, an indicator for above-mean density (measured in 2000), and an indicator for above-median share with a bachelor's degree.

Table 1 shows the results of this regression. As expected, the coefficient on the interaction between reallocation and segregation is negative: reallocation decreases male employment more in areas that are more segregated. Instrumenting for reallocation with Bartik-predicted reallocation and adding region fixed effects and controls for population density make the effect less significant, but it remains negative and becomes larger in magnitude.

To put these numbers into context, consider two commuting zones, one above median segregation and one with below median segregation. If the low segregation commuting zone experienced reallocation across industries at the 75th percentile, we would expect the male employment-population ratio to decrease by 3.1 percentage points more than if it experienced reallocation at the 25th percentile. However, for the high segregation commuting zone, we would expect its male e-pop to decrease by 4.4 percentage points more in the high-reallocation scenario vs. the low-reallocation scenario. Thus, for a similar change in reallocation, the high-segregation area would see a 1.3 percentage point larger decrease in male employment. This is approximately equivalent to moving from the median of male employement changes to the 35th percentile.

Notably, the negative effects of segregation on participation seem to be present only for men, not women. Table 2 shows the same regressions, but with changes in the female employment-population ratio as the dependent variable. Although the baseline relationship between reallocation and participation is consistently negative for women, the interaction term is positive, but insignificant in the IV case.

There are several possible explanations. One, which we are particularly interested in, is that segregation has been particularly harmful for men because of both gender norms and the general trend that reallocation has been away from goods-producing and towards services-providing industries documented in Figure 1. Indeed, at the macro-level, occupational segregation by gender and progressive gender norms are negatively correlated (Figure 3), which might indicate gender-conservative norms as determinant of both the segregation at the steady-state (e.g. as suggested by Pan, 2015) and of the inability to adapt to a changing labor market. We plan to explore this question further, both in the aggregate and by zooming in at a micro-level.

Table 2: Change in Female Employment-Population Ratio vs. Reallocation x Segregation

	Dependent variable:			
	Δ Female $\text{EPOP}_{t,t+j}$			
	OLS		*instrumental variable*	
	(1)	(2)	(3)	(4)
$\text{Reallocation}_{t,t+j}$	-0.790^{***}	-0.593^{***}	-7.244^{***}	-6.616^{***}
	(0.211)	(0.212)	(2.066)	(1.508)
$\text{Growth}_{t,t+j}$ (Bartik pred.)	1.717^{***}	2.080^{***}	-1.251	-1.238
	(0.247)	(0.288)	(0.853)	(0.808)
Segregation_t	0.003	-0.004	0.026	0.002
	(0.005)	(0.005)	(0.020)	(0.020)
$\text{Reallocation}_{t,t+j}$ x Segregation_t	1.259^{***}	1.407^{***}	0.160	1.321
	(0.291)	(0.282)	(1.358)	(1.252)
Constant	0.084^{***}	0.091^{***}	0.239^{***}	0.232^{***}
	(0.006)	(0.006)	(0.046)	(0.033)
Controls	No	Yes	No	Yes
Observations	2,142	2,142	2,142	2,142
R^2	0.740	0.767	0.475	0.593
Note:				*p<0.1; **p<0.05; ***p<0.01

This table shows regressions of the change in the female employment-population ratio on reallocation and segregation at the commuting zone level for the period 1980-2010, with observations every 10 years. The data are from the US Census via IPUMS. Columns 1 and 2 use OLS, and columns 3 and 4 use 2SLS where we use Bartik-predicted reallocation as an instrument for local reallocation. All columns include year fixed effects and are weighted by log commuting zone population. Columns 2 and 4 also include Census region fixed effects, an indicator for above-mean density (measured in 2000), and an indicator for above-median share with a bachelor's degree.

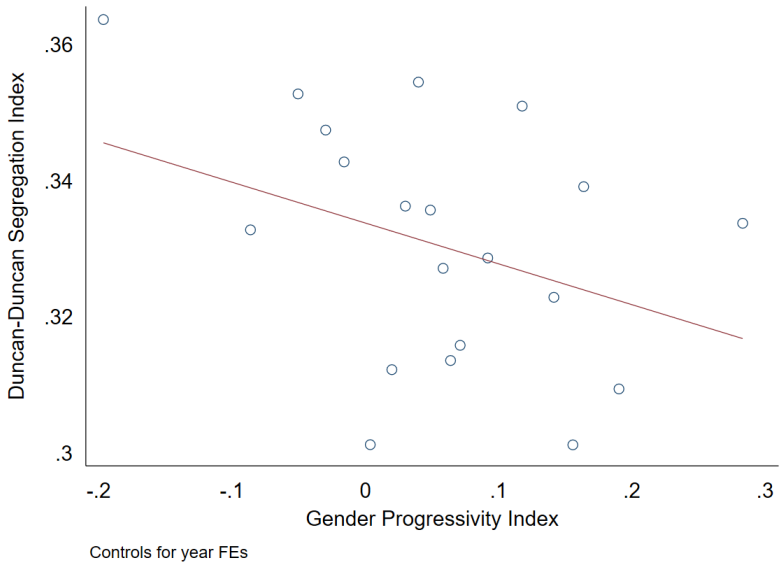


Figure 3: Correlation Between Gender Occupational Segregation and Gender Progressivity

Note: This figure shows the correlation (binscatter) between the occupational segregation by gender (Duncan-Duncan Index) and the Gender Progressivity Index across US states and decades (1990s-2010s). The Gender Progressivity Index summarizes the three gender norms-related questions that are consistently asked in the General Social Survey from the beginning (1972) to today and is constructed for states-by-decades by Kleven (2022). The segregation index is aggregated from commuting zone to state level by weighted average. The observations are at the state-by-decade level and are weighted by population. We control for year fixed effects.

6 Next Steps

Here, we have shown preliminary evidence that growth in demand in traditionally female occupations has led to a sharper fall in male labor force participation in more gender-conservative areas, as indicated by stronger gender segregation across occupations. At the individual level, we want to study whether gender norms—and masculinity norms in particular—drive this pattern. Answering this question is of crucial importance: if masculinity norms are a primary factor in occupational choice, then providing men with training will not be sufficient to turn technicians displaced by the decline of manufacturing into well-paid nurses, and potentially prosperous reallocation will require other types of interventions.

We are currently piloting a survey experiment to measure the relationship between masculinity norms and occupation choice. The experiment elicits and experimentally vary information regarding masculinity norms and then assesses preferences over occupations using a two-part hypothetical occupation choice exercise.

To measure masculinity norms, we ask respondents to provide their level of agreement with a series of statements regarding ideal masculine behavior following Matavelli et al. (2025). We add an additional statement regarding the importance of not working in a feminine job,[2] to directly elicit masculinity norms related to occupation choice. Next, we ask respondents what fraction of 100 random adults would agree with one of the statements; afterwards, we tell 50% of them the true number (similarly to Bursztyn et al., 2020).

In the second part, respondents make a series of choices between pairs of hypothetical job offers in traditionally masculine and feminine occupations, where we randomly vary the length of training

[2] "Men should not work in occupations that are traditionally seen as feminine".

and the wage. From this, we can calculate the willingness-to-pay (WTP) among men (and women) to avoid a feminine (and masculine) job. Coupled with the questions and information treatment on masculinity norms, we can assess whether stronger masculine norms correlate with a higher WTP to work in an occupation that aligns with one's gender and whether correcting misperceptions about societal masculinity norms changes this WTP.

Finally, respondents are asked to express their preferences among future occupations for their children. We ask respondents to rank a list of four occupations by how pleased they would be if their (hypothetical) offspring chose them. We show a list of occupations that vary in pay, prestige, and masculinity.[3] This exercise will allow us to measure whether gender norms affect choices for one's child differently than those for oneself, and also to abstract from differences in skills that are already established among working adults.

Through this survey coupled with our macro evidence on reallocation, we will be better able to assess whether gender norms in particular drive differing choices in the face of shifting demand.

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[3] We experimentally vary the expected pay shown for the occupations without deception using sampling variation following Bergolo et al. (2023).