

# GEOGRAPHIC FACTORS IN SON PREFERENCE AND WAGE DISCRIMINATION

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**Abstract:** This paper further investigates whether son preference, acting as a measure of male bias, could be used to explain a portion of the female wage gap. By investigating geographic patterns in son preference, I am able to isolate the sources of son preference and construct an estimate of the impact that son preference plays in wage discrimination while controlling for demographic factors. Utilizing these factors, I predict that son preference can account for approximately 5.4% of the female wage gap.

**Keywords:** gender discrimination, wage discrimination, son preference, demographics.

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## 1. INTRODUCTION

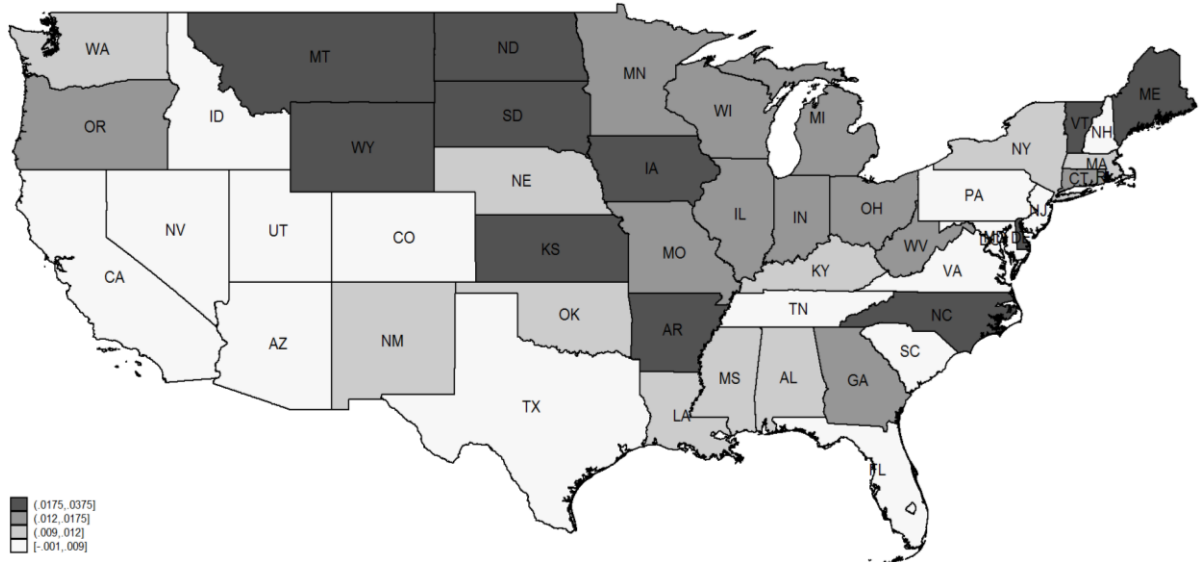
Towell (2023) finds that, from 2005 to 2015, households in the U.S. were about 1.2 percentage points more likely to have another child if all of their previous children had been girls as compared to households in which all previous children were boys. This is indicative of a preference for sons, as parents are on average more likely to continue having additional children until they have had a son. However, significant variation in the prevalence of this behavior was found to exist between different demographic groups and geographic areas, and differences in this measure of son preference between states were found to explain approximately 4.5% of the gender wage gap, as a preference for sons may be interpreted as a bias towards males, which may contribute towards higher earnings for men as compared to women.

However, this measure of son preference is likely to be affected by significant attenuation occurring from unplanned pregnancies, which is likely to be the largest source of noise within this measure. The rate of unplanned pregnancies within a state is tied to numerous observable characteristics of a state. Amongst these, three prominent features are the state's racial composition, education level and the age at which parents are having children. By isolating groups for which the unintended pregnancy rate is lower, the true preference for sons over daughters within a state can be observed more clearly. Additionally, this helps to isolate trends in son preference across states that are not due to the demographic composition of the state.

Finer and Zolna (2016) find that, amongst other trends, unplanned pregnancies are less common for older mothers, educated mothers, and mothers who are white. In order to more accurately determine the true level of son preference occurring within a state, I examine the level of son preference that occurs within each state for these demographics that report a comparatively low rate of unplanned pregnancies.

## 2. SON PREFERENCE BY STATE AND DEMOGRAPHIC

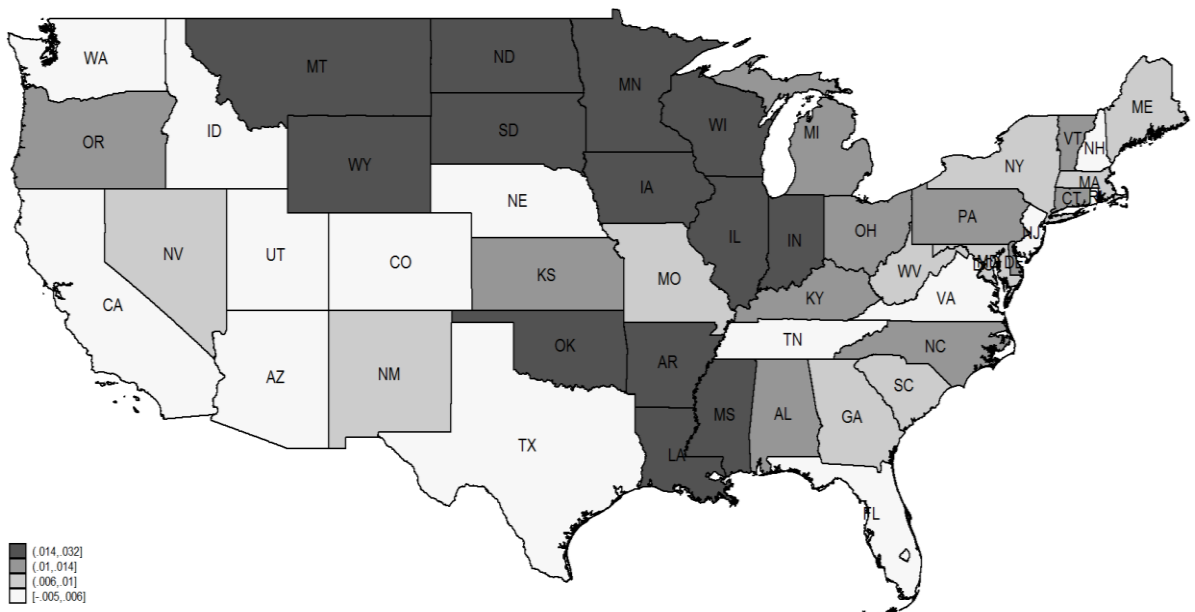
Fig. 1 examines the distribution of son preference for the years 2005 – 2015 across states by for families where both parents are high school graduates. As reported in Towell (2023), such families were overall approximately about 1 percentage point more likely to have another child if they had only daughters, as compared to such families who had only sons. All son preference data is calculated from the American Community Survey (ACS), years 2005-2015.



Note: Displayed is the difference between the percentage of families with only daughters who went on to have another child and the percentage of families with only sons who went on to have another child. Only households with 4 children or fewer and two parents who have graduated from high school are included.

**Fig. 1: Average Son Preference by State for Parents with High School Degrees**

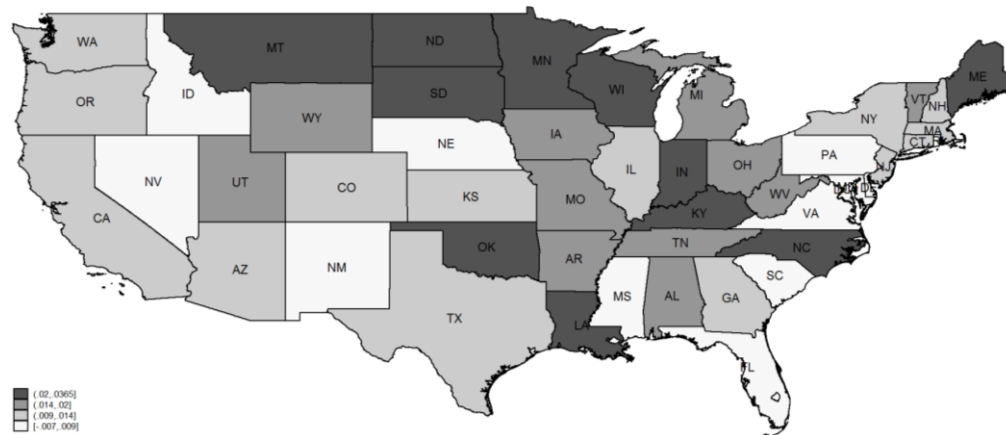
Fig. 2 looks only at white families in which both parents are high school graduates. Such families were overall approximately about .9 percentage point more likely to have another child if they had only daughters, as compared to such families who had only sons.



Note: Displayed is the difference between the percentage of families with only daughters who went on to have another child and the percentage of families with only sons who went on to have another child. Only households with 4 children or fewer and two white parents who have graduated from high school are included.

**Fig. 2: Average Son Preference by State for White Parents with High School Degrees**

Fig. 3 examines state level differences in son preference for families in which the mother had her first child between the ages of 30 and 39. Overall, such families were approximately 1.5 percentage points more likely to have another child if only daughters were present compared to families with only sons.



Note: Displayed is the difference between the percentage of families with only daughters who went on to have another child and the percentage of families with only sons who went on to have another child. Only households with 4 children or fewer and a mother who had her first child between the ages of 30 and 39 are included.

**Fig. 3: Average Son Preference by State for Mothers Aged 30-39**

In all three demographic groups observed, significant geographic clustering occurs, and the overall geographic pattern is largely consistent across the three groups. This strongly suggests that there are significant geographic patterns in son preference that are not tied to demographic composition. If son preference acts as a proxy for male bias, this in turn suggests that the level of wage discrimination against females is also likely to be heavily dependent on the geographical region.

### 3. SON PREFERENCE AS A MEASURE OF MALE BIAS

If son preference is an indicator of a general attitude of male bias within a state, then it may contribute towards the female wage gap, but it should also be expected to manifest itself in ways other than wage discrimination. Table 1 examines the relationship between son preference and some selected outcomes pertaining to potential gender prejudice. In addition to the gender wage gap, one of the most frequently discussed issues pertaining to prejudice against women is the level of sexual violence. Column 1 analyzes the relationship between son preference and the sexual assault rate by state for the year 2012. Data on sexual assault rates was taken from the Federal Bureau of Investigation's Uniform Crime Reporting Program. The log of the number of sexual assaults per 100,000 people was regressed against the state's level of son preference, and a positive relationship was found.

In addition to explicitly negative outcomes for females, gender prejudice may also be evinced through differing expectations for men and women. In the labor market, this may be seen in occupation selection. If an occupation has been historically performed predominantly by females, there may be a cultural stigma attached to a male working such a job; this stigma may be more prevalent in states that exhibit strong gender biases overall. Columns 2 and 3 examine the relationship between son preference and the percentage of nurses and secretaries respectively who are males. In both cases a statistically significant negative relationship is found. State-years with higher son preferences have fewer males working in these traditionally female dominated occupations. In both instances an increase in son preference of .01 is associated with a decrease in the percentage of employees who are male of approximately .2 percentage points. Occupation data is from the Current Population Survey (CPS), years 2005-2015

**TABLE 1: Son Preference and Other Outcomes**

	1	2	3
SonPref	5.224 (3.824)	-0.200 (0.084)**	-0.226 (0.125)*
N	51	561	561

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Note: Standard errors in parentheses. In column 1, observations are states in year 2012. The dependent variable the log of the sexual assault rate per 100,000 people. In columns 2 and 3, observations are state year combinations. In column 2, the dependent variable is the percentage of nurses who are male. In column 3, the dependent variable is the percentage of secretaries who are male.

#### 4. SON PREFERENCE AND WAGE DISCRIMINATION

Differences in each state's level of son preference will of course be due, at least in part, to differences in each state's demographic composition. However, given that an estimated 85% of management positions are held by white people (Bureau of Labor Statistics, Labor Force Characteristics by Race and Ethnicity, 2015), it is likely that differences in son preference amongst white families within each state will play a larger role in affecting wages than differences in each state's racial composition. To measure the effect that this has on the female wage gap, the son preference within a state for a given year is calculated for white families. A wage regression including a female coefficient is then run both with and without son preference measure included as an explanatory variable. Son preference is calculated using the ACS. All other data is from the CPS. Observations are from the years 2005 to 2015. The results of this regression are given in Table 2 below.

**TABLE 2: Wage Regression Using Son Preference of White Families**

	1	2	3	4	5	6
female	-0.119 (0.003)***	-0.112 (0.003)***	-0.111 (0.003)***	-0.105 (0.004)***	-0.111 (0.003)***	-0.105 (0.004)***
SonPref		0.101 (0.270)		0.201 (0.107)*		0.199 (0.097)**
female*SonPref		-0.533 (0.145)***		-0.521 (0.150)***		-0.521 (0.150)***
Individual Controls	Y	Y	Y	Y	Y	Y
Year Fixed Effects	N	N	Y	Y	Y	Y
State Fixed Effects	N	N	Y	Y	Y	Y
State-Specific Trends	N	N	N	N	Y	Y
$R^2$	0.40	0.40	0.42	0.42	0.42	0.42

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Note: There are 504,130 observations. The dependent variable is the log of hourly earnings. State clustered standard errors in parentheses. Individual control variables are age, age squared, education, race, month fixed effects, occupation fixed effects, industry fixed effects, union status, marital status, and number of children. Columns 7 and 8 include state specific linear and quadratic trends. Observations are full time workers between the ages of 22 and 55. SonPref is the measure of son preference amongst white families only.

As argued in Towell (2023), if the magnitude of the female coefficient is decreased when the son preference variable is included, this is indicative of gender bias since the son preference variable should not have any bearing on productivity. Depending on the specification used, inclusion of the white family son preference term reduces the female wage gap by between .5 and .7 percentage points, and in the final specification accounts for 5.4% of the female wage gap. Note that Towell (2023) runs a similar regression, but includes all families. While the two regressions show a similar effect on the female coefficient when adding in the son preference variable, the son preference variable is much more statistically significant in this regression. This suggests that including all families was introducing significant statistical noise.

#### 5. CONCLUSION

In this paper, I find evidence that even within demographic groups, there exist substantial differences in son preference across geographic regions. I find evidence that son preference acts as a measure of male bias, and that differences within demographic groups in this measure can explain approximately 5.4% of the observed female wage gap. This suggests a lower bound on the amount of the female wage gap that is due to due to discrimination, as son preference is not expected to have any impact on productivity.

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