The Unexpected Factors that Drive the Gender Wage Gap

Abigail Pierce[1]

[1] Department of Economics & Finance, College of Business, Louisiana Tech University

Question

What social and economical factors affect the gender wage gap at the state level?

This project analyzes various social, economic, and political factors that affect the gender wage gap using a cross-sectional time series technique to determine the impact from 2004 to 2022.

The variables included are:

1. Real Gross Domestic Product for Each State
2. Birth Rate for Each State
3. Educational Attainment for Each State

The binary variables included are:

1. State Majority House and Senate (Democrat=1)
2. Reproductive Rights (Protected and Expanded Rights=1)
3. Population Changes (Increase in Population from 2004-2022=1)
4. Equal Pay Policy (Policy in Place=1)

The main purpose of this project is to determine what factors aid in narrowing the gender wage gap compared to others. It explores social, political, and economic variables due to them normally being contributed to impacting the gender wage gap.

Who is interested in the answer to this question?

1. Lawmakers
2. Females
3. Business Owners/ Employers
4. Voters

Methods

This project uses a cross-sectional analysis in order to examine the chosen variables impact on narrowing the gender wage gap at the state level. A cross-sectional analysis was chosen in order to understand what factors drive the gender wage gap over the course of 2004 to 2022.

The regression equation is shown below.

$$WageGap_i = \beta_0 + \beta_1 StateMajorityPoliticalParty_{i,j}$$
$$+ \ \beta_2 ReproductiveRights_i + \beta_3 ChangePopulation_i$$
$$+ \ \beta_4 EqualPayPolicyImplemented_i + \beta_5 ChangeRealGDP_i$$
$$+ \ \beta_6 ChangeBirthRate_i + \beta_7 EducationalAttainment_i + \epsilon_i$$

Note that subscript j= {house,senate}

Data

The figure below is a heat map of the United States showing a gender wage ratio, taking gender wage gap from 2022 for each state and dividing it by the gender wage gap for 2004. The darker color the pink is for a state the greater the percent of change in the gender wage gap for that state since 2004; likewise the lighter the pink is for a state the lower the percent of change in the gender wage gap.
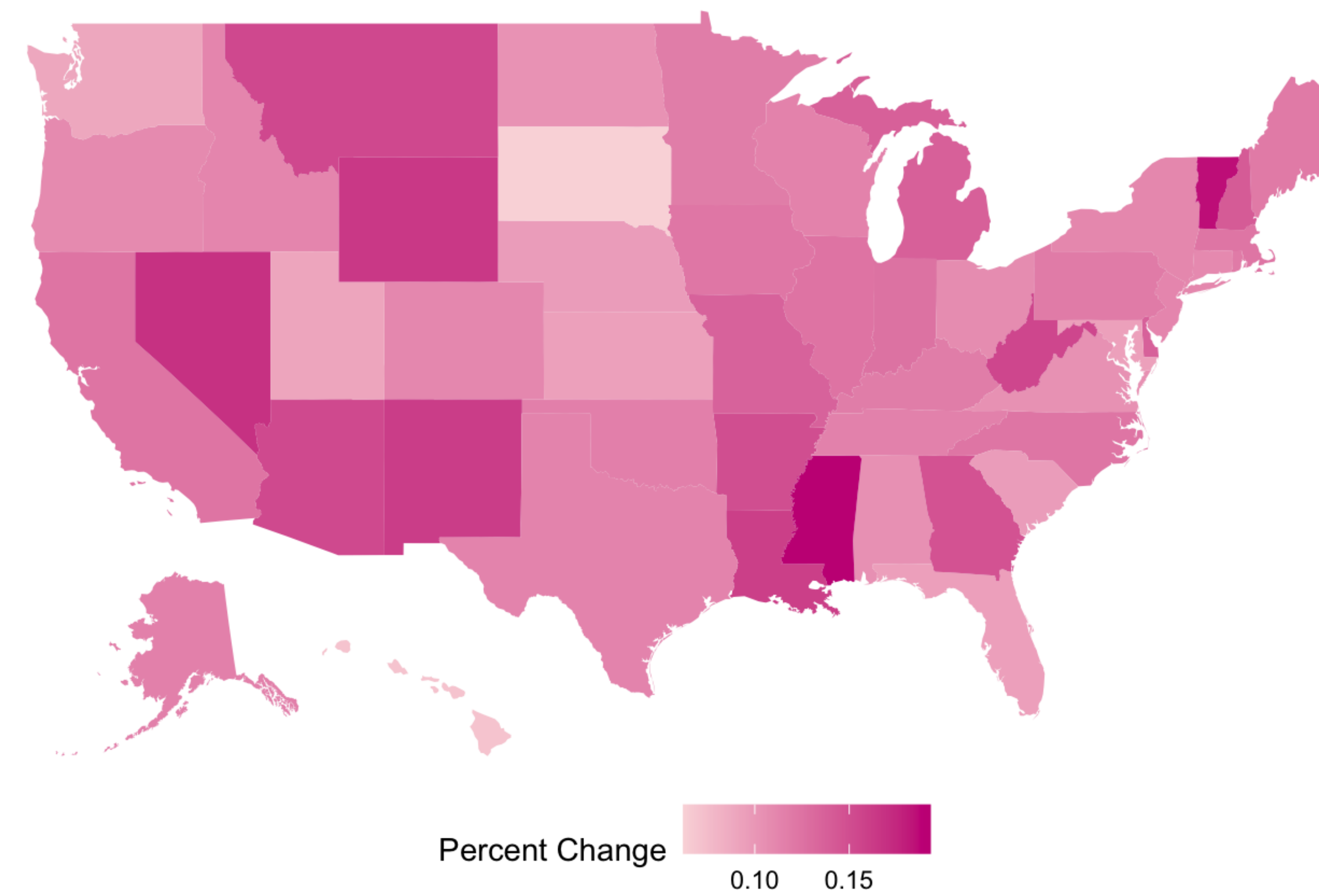

Figure 1: Gender Wage Gap Map

The figure above shows that the change in gender wage gap from 2004-2022 varies widely across states and regions. There is very little geographical trend seen throughout the United States.

Focusing on the South you will notice that there are states with large percent changes and states with smaller percent changes, this trend is noticed throughout the other regions of the United States.

This figure represents that there are underlying factors that have contributed to the gender wage gap that are concerned less with geographical location. Knowing that the southern states normally hold a majority Republican House and Senate, you can quickly defer that political parties are going to have little impact on the gender wage gap overtime.

This projects data on the gender wage gap came from the American Community Survey published by the United States Census Bureau.

Note: Data from 2020 is not included in the ACS survey, therefore I have excluded 2020 from my research.

Conclusion

Despite the fact that many variables, political parties, abortion rights, equal pay policy, and educational attainment, are associated with impacting the gender wage gap, the analysis shows that these factors have had a minimal impact on the gender wage gap since 2004.

The variables with the most significant impact is the average birth rate and the average real Gross Domestic Product for each state. This regression model demonstrates that higher birth rate ratio leads to a 0.12% lower gender wage gap and a higher GDP ratio leads to a 0.027% lower gender wage gap. A higher birth rate could mean that there are better policies regarding maternity leave or better access to healthcare in those states. A higher real GDP tends to show that a state is economically healthier than others.

All of the correlations below are statistically significant at the 5% level.

Results

Regression Model Estimates

	Dependent variable:	
	Gender Wage Gap 2022-2004	
	(1)	(2)
Ratio of D House	0.008	
	(0.012)	
Ratio of D Senate		0.015
		(0.012)
Abortion Rights	-0.015	-0.006
	(0.010)	(0.010)
Increase/Decrease in Population	0.007	0.013
	(0.014)	(0.014)
If Equal Pay Policy is in place	-0.014	-0.009
	(0.017)	(0.016)
Birth Rate Ratio	-0.027[*]	-0.021
	(0.015)	(0.014)
Educational Attainment	-0.120[*]	-0.129[**]
	(0.065)	(0.062)
Constant		-0.002[**]
		(0.001)
Constant	0.285[***]	0.333[***]
	(0.070)	(0.071)
Observations	49	49
R^2	0.181	0.281
Adjusted R^2	0.064	0.159
Residual Std. Error	0.026 (df = 42)	0.025 (df = 41)
F Statistic	1.550 (df = 6; 42)	2.293[**] (df = 7; 41)
Note:		$p<0.1$; **$p<0.05$;** $p<0.01$