

# Eau Claire Wage and Labor Market Analysis

An analysis of Eau Claire's labor market and wages in relation to other metropolitan areas in Wisconsin

Rachel Pratt, Sam Gullerud, and Dr. Wayne Carroll | Economics Department

## INTRODUCTION

The metropolitan statistical area of Eau Claire has historically experienced wages lower than state and surrounding metropolitan area averages.



## SCOPE AND SCALE

In order to better understand wages and labor market composition in Eau Claire, we gathered data from the state as a whole and other Wisconsin metropolitan areas including:

- Appleton
- Green Bay
- LaCrosse
- Madison
- Racine

We collected data from the Bureau of Labor Statistics, which covered 22 standard occupational classification (SOC) groups for each geographic area. In each area and sector, we retrieved data on employment, mean hourly wage, annual mean wage, and annual median wage for the years of 2000-2014.

## HYPOTHESIS

There were two possible explanations for the lower wages in Eau Claire. The composition of the labor force might be more saturated in lower wage occupations, which would drag the annual mean wage down. There could also be lower wages in each sector of employment within Eau Claire. Our hypothesis is that wages in Eau Claire are depressed evenly across major sectors, rather than a disproportionately high amount of workers in low wage sectors compared with high wage sectors.

## DATA ANALYSIS

### METHODS

Our approach was to manipulate the average wage equation to show the amount of variance in mean annual wage given changes in labor market composition, while holding average wages in each sector constant. Contrast this with the amount of variance when holding labor market composition constant and altering average wages in each sector.

Denote occupational sectors:  $i = 1, 2, 3, \dots, 22$

Comparison MSAs:  $j = HL$

The share of workers employed in a sector:  $S_{(ij)}$

Average wage in MSA  $j$ :  $W_j^* = \sum_{i=1}^{22} S_{ij} W_{ij}$

Difference between average MSA wages:  $\Delta W^* = W_L^* - W_H^*$   
 $= [\sum_{i=1}^{22} (S_{iL} W_{iH} - S_{iH} W_{iH})] + [\sum_{i=1}^{22} (S_{iL} W_{iL} - S_{iL} W_{iH})]$

The first term:

$$\sum_{i=1}^{22} (S_{iL} W_{iH} - S_{iH} W_{iH})$$

Represents the change in annual mean wage in MSA H if you hold occupational wages constant, but adjust labor market composition to that of MSA L. A positive value indicates that the labor market composition in MSA L is relatively biased toward high wage sectors, while a negative value indicates that the labor market composition in MSA H is relatively biased toward high wage sectors.

The second term:

$$\sum_{i=1}^{22} (S_{iL} W_{iL} - S_{iL} W_{iH})$$

Represents the change in annual mean wage in MSA H if you hold labor market composition constant, but adjust occupational wages to that of MSA L. A positive value indicates that, on average, occupational wages in MSA L are relatively higher, while a negative value indicates that, on average, occupational wages in MSA H are relatively higher.

	$\Delta W^* = W_L^* - W_H^*, H = \text{Eau Claire}$		
	2000	2007	2014
L=Appleton	1677	2086	2990
L=Green Bay	1472	1196	3631
L=LaCrosse	-558	271	-259
L=Madison	7395	5851	4850
L=Racine	-171	715	1648

## RESULTS

### OUR OBSERVATIONS

We observed little to no change in the annual mean wage for the Eau Claire MSA when adjusting labor market composition and holding sector wages constant. We did, however, observe large changes in each sector when holding the composition constant and testing for average sector wage differences.

	$\sum_{i=1}^{22} (S_{iL} W_{iH} - S_{iH} W_{iH}), H = \text{Eau Claire}$		
	2000	2007	2014
L=Appleton	-566	-286	61
L=Green Bay	-121	-1084	138
L=LaCrosse	126	281	79
L=Madison	3218	2144	1506
L=Racine	-1438	-1261	-273

	$\sum_{i=1}^{22} (S_{iL} W_{iL} - S_{iL} W_{iH}), H = \text{Eau Claire}$		
	2000	2007	2014
L=Appleton	2243	2373	2929
L=Green Bay	1,594	2,281	3,493
L=LaCrosse	-684	-10	-339
L=Madison	4177	3706	3343
L=Racine	1267	1976	1922

### CONCLUSION

Out of the two possible explanations for lower wages, our manipulation of the average wage equation suggests that our original hypothesis cannot be rejected. Therefore, it is reasonable to assume that average wage depression in Eau Claire is more heavily a factor of lower wages across all sectors. This suggests that attempting to affect labor market composition in Eau Claire would be an ineffective method to boost overall wages.

### WHAT ECONOMIC POLICIES CAN BE PUT IN PLACE?

If lower wages are caused by labor market composition:

- Training and education programs to combat a skills gap
- Encourage businesses in higher wage occupations to relocate to the MSA

If the major sectors have consistently lower wages:

- Increase education levels by promoting higher education

### DIRECTIONS FOR FURTHER WORK

- Incorporating shift differentials into the average wage model
- Assessing the possible impacts of regional demographics on MSA average wages
- Adjusting for the impact college students with part-time jobs have on the labor market
- Taking into account the effect cost of living has on the standard of living. If the cost of living in Eau Claire is much lower than in a higher wage city, lower wages would not mean reduced standard of living
- How does a skills gap, if observable, affect labor composition and average wage rates in Wisconsin MSAs?

### PROJECT LIMITATIONS

- The Bureau of Labor Statistics SOC subgroups did not remain consistent across years, so detailed analysis of wage trends over time was not possible.
- There are no reliable comparative data on the cost of living across Wisconsin MSAs, so it is difficult to compare living standards