

# Sleep is the Cousin of Wealth

Quality of sleep and household income

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# Introduction

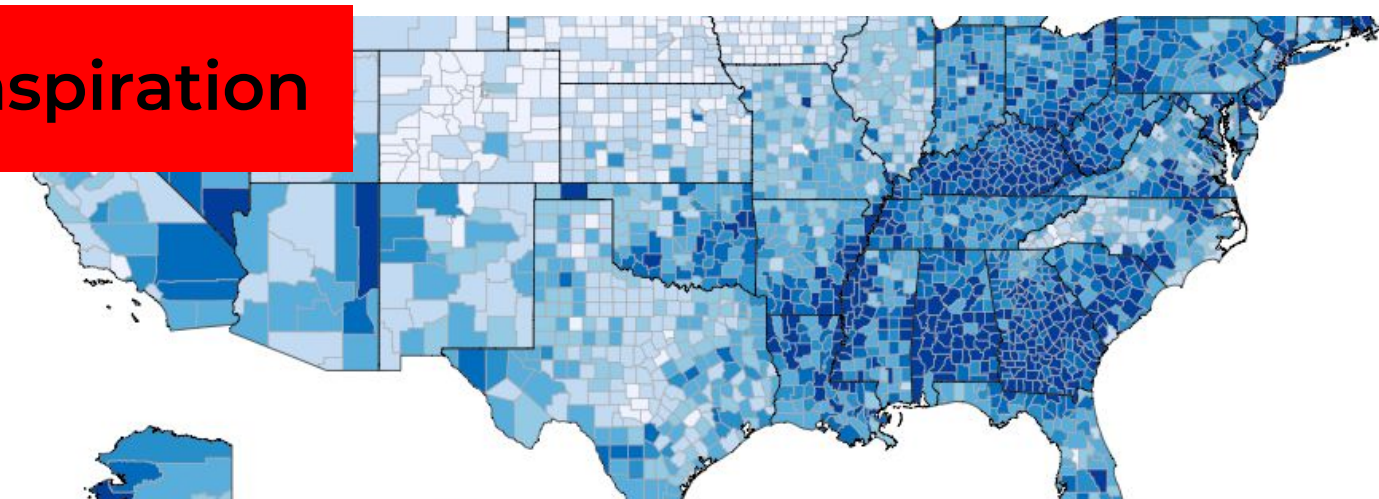
Sleep as **a setback**

Sleep as **a necessity**

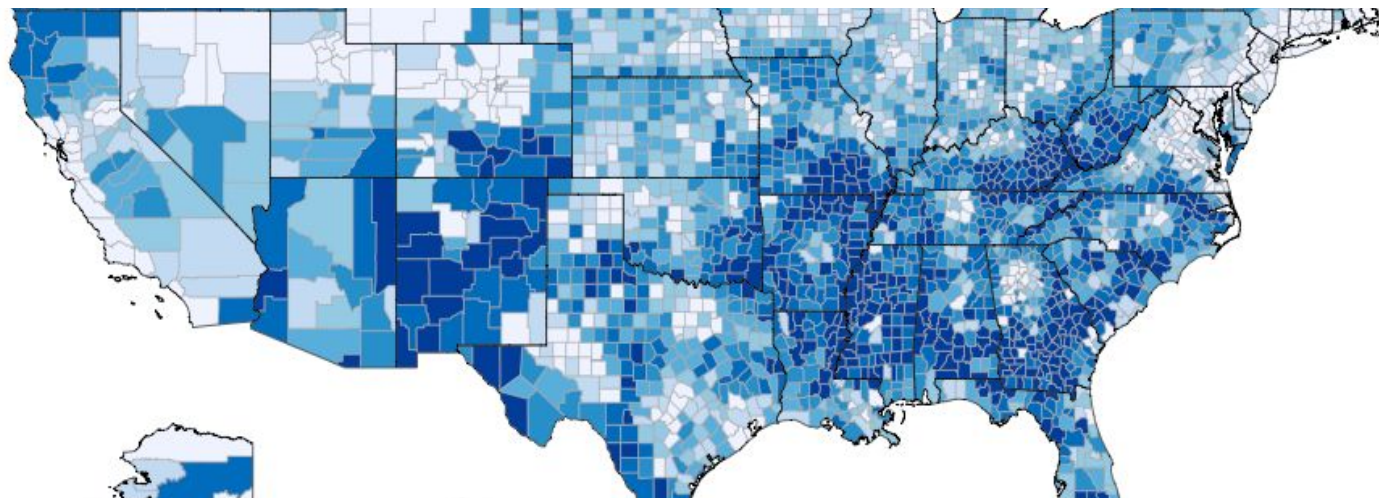
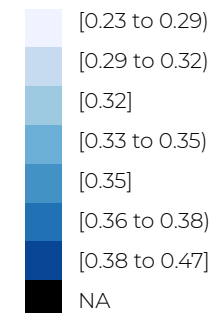
Controlling for socioeconomic factors (fig. 2), a significant relationship exists between quality of sleep and income. Specifically, U.S. counties with lower rates of sufficient sleep have lower household income.



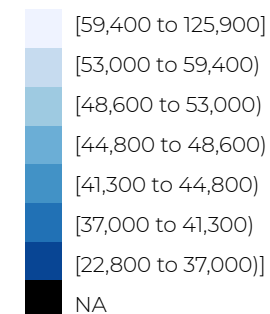
# Inspiration



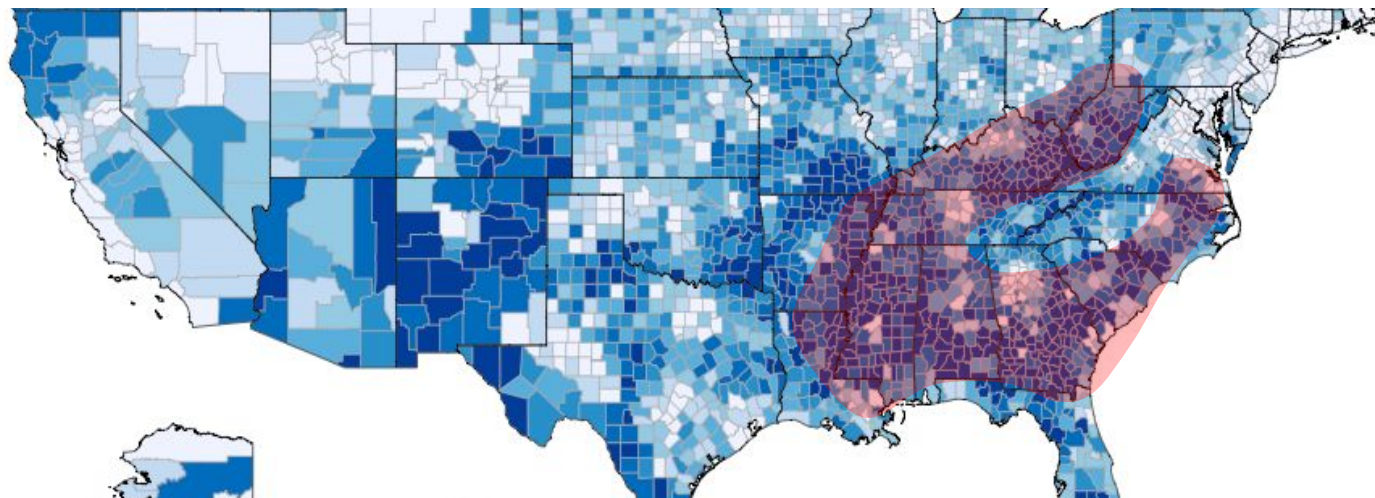
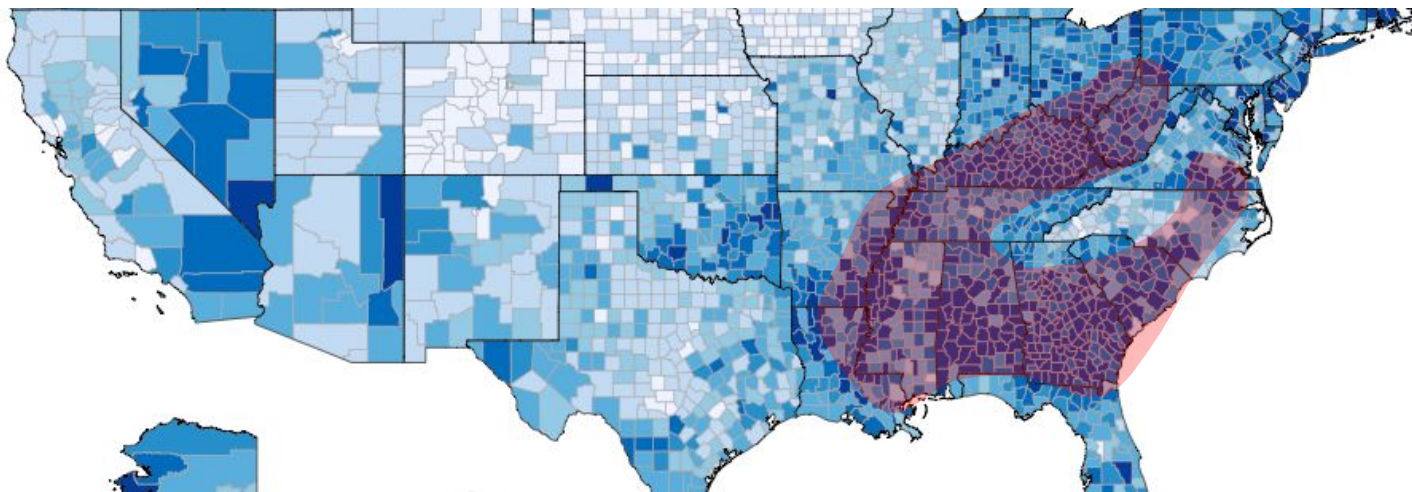
% insufficient sleepers\*



median household income (\$)



\* insufficient sleepers are those who reported more than 15 days of not enough sleep in the past month



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# Data

Variable	Source	Year
Median household income	Small Area Income and Poverty Estimates	2014
Rate of Insufficient Sleep	Behavioral Risk Factor Surveillance System	2014
% Rural	US Census	2010
High school graduation rate	US Census	2010
Average cost of healthcare	Dartmouth Atlas of Health Care	2014
Violent crime rate	Behavioral Risk Factor Surveillance System	2014
% Unemployed	US Census	2010
% 65 or older	US Census	2010
% under 18	US Census	2010
Drug overdose rate	Behavioral Risk Factor Surveillance System	2014

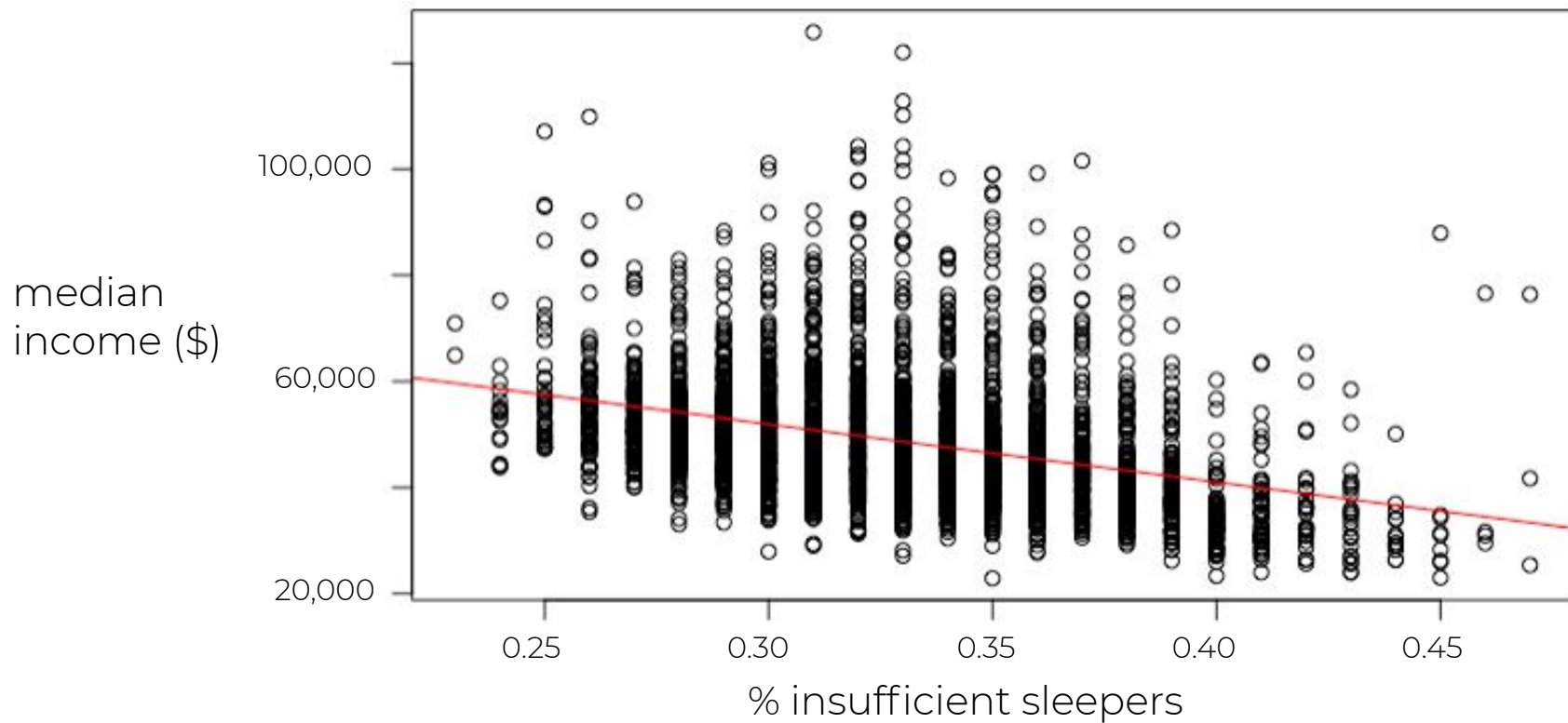
# Analysis

$H_0$  no relationship between quality of sleep and household income

$H_A$  positive relationship between quality of sleep and household income



## Quality of Sleep vs. Median Income by U.S. County





Variable	Beta Hat	Standardized Beta Hat	P-value	Significance (0.0001)
% Insufficient Sleep	-51830	-0.1375	1.07e-9	***
% Rural	-203.1	-0.4127	< 2e-16	***
High school graduation rate	25310	0.1436	8.35e-13	***
Average cost of healthcare	-0.9922	-0.0964	4.42e-6	***
Violent crime rate	-15.72	-0.2276	< 2e-16	***
% Unemployed	-185900	-0.2367	< 2e-16	***
% 65 or over	-442.4	-0.1382	1.9e-7	***
% under 18	142.6	0.0319	0.172	
Drug overdose rate	-39.80	-0.0281	0.154	

# Limitations

Insufficient Sleep variable relies on self reported data

Lack of available data to control for less explicit variables such as stress level

Only state-level data on number of multiple jobholders

# Conclusion

In a county-level analysis, there exists a statistically and practically **significant positive relationship** between quality of sleep and household income.