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Analysis Report

Introduction

The analysis aims to address the research question on socio-political factors' influence on per capita income using the "states.student_version" dataset. It focuses on conducting Descriptive, Correlations, Measures of central tendency, Measures of variability and dispersion, and Linear regression. The study includes four independent variables (Percent population college degree, Percent Mass Public Conservative, Prochoice Percent, Percent public pro-life) and two control variables to comprehensively assess their impact on income disparity within regions.

Research Question: How do various socio-political factors influence the per capita income in a given region?

1. Descriptive Statistics

In this section, we discuss Descriptive, Measures of central tendency, and Variability and Dispersion to explore the characteristics and spread of socio-political variables and per capita income within the dataset.

Table 1. Descriptive Statistics for Per Capita Income, Percentage population college degree, Percent Mass Public Conservative (2013), Prochoice Percent, Percent public pro-life, Clinton's and Trump's vote shares Difference, and Percent women state legislators, 2017

	N	Range	Min.	Max.	Mean	S.D.	Variance	Skewness	Kurtosis
Percapita income	50	20748	24650	45398	31951.10	4448.65	19790518.94	.817	.755
Percent population college degree	50	21.90	19.60	41.50	29.80	5.05	25.53	.287	-.347
Percent Mass Public Conservative (2013)	50	24.60	26.80	51.40	38.39	6.11	37.45	-.175	-.722
Prochoice Percent	50	39	35	74	52.58	9.69	93.96	.069	-.683
Percent public pro-life	50	36	25	61	40.66	9.20	84.71	.202	-.853

Vote shares Difference	50	77.96	-32.19	45.77	5.46	20.19	407.67	-.012	-.833
Percent women state legislators, 2017	50	28.90	11.10	40.00	25.03	7.64	58.43	.198	-.783

Interpretation: The descriptive statistics table presents key characteristics of socio-political variables and per capita income within the sample. Per capita income displayed substantial variability (Range = $20,748), with values ranging from $24,650 to $45,398 (M = $31,951.10, SD = $4,448.65). Regarding socio-political factors, the mean percentage of the population with college degrees was 29.80% (SD = 5.05), while the average percentage of Mass Public Conservatism stood at 38.39% (SD = 6.11). Public sentiments on abortion indicated variability, with Prochoice Percent averaging at 52.58% (SD = 9.69) and Percent public pro-life at 40.66% (SD = 9.20). The Difference in Vote Shares between Clinton and Trump had a mean of 5.46 (SD = 20.19), with a range from -32.19 to 45.77. Additionally, the Percent of Women State Legislators in 2017 averaged 25.03% (SD = 7.64). Skewness and kurtosis values for all variables indicated generally acceptable levels of normality, except for Vote shares Difference, which exhibited a slight negative skew and high kurtosis.

2. Correlation Analysis

Table 2. Pearson Correlations between Per Capita Income, Percent population college degree, Percent Mass Public Conservative (2013), Prochoice Percent, Percent public pro-life, Clinton's and Trump's vote shares Difference, and Percent women state legislators, 2017

Variable	Per Capita Income	Percent population college degree	Percent Mass Public Conservative (2013)	Prochoice Percent	Percent public pro-life	Vote shares Difference	Percent Women State Legislators, 2017
Per Capita Income	1						
Percent population college degree	.807	1					

Percent Mass Public Conservative (2013)	-.692	-.681	1				
Prochoice Percent	.383	.498	-.507	1			
Percent public pro-life	-.773	-.726	.829	-.415	1		
Vote shares Difference	-.624	-.716	.905	-.440	.821	1	
Percent women state legislators, 2017	.371	.549	-.592	.249	-.626	-.612	1

Interpretation: The Pearson correlations between socio-political factors and per capita income revealed several significant associations. A strong positive correlation was observed between per capita income and the percentage of the population holding college degrees ($r = 0.807$, $p < 0.001$). Conversely, notable negative correlations were found between income and variables such as the percentage of the population with pro-life sentiments ($r = -0.773$, $p < 0.001$), Mass Public Conservatism in 2013 ($r = -0.692$, $p < 0.001$), and differences in Clinton's and Trump's vote shares ($r = -0.624$, $p < 0.001$). Furthermore, a moderate positive correlation existed between income and the percentage of women state legislators in 2017 ($r = 0.371$, $p < 0.05$).

3. Multivariate Linear Regression

Table 3: Multivariate Linear Regression Analysis of Per Capita Income	
Percent population college degree	586.55*** (93.60)
Percent Mass Public Conservative (2013)	-337.83* (125.56)
Prochoice Percent	-55.73 (36.93)
Percent public pro-life	-249.59*** (64.73)
Clinton's and Trump's vote shares Difference	105.36** (37.18)
Percent women state legislators, 2017	-157.51** (51.117)
Constant	43886.06***

	(6201.12)
N F-Test	50 31.14***
***p<0.001, **p< 0.01, *p<0.05, †p<0.10 Standard Errors in parentheses.	

Interpretation: The multivariate linear regression analysis for per capita income in a region revealed several significant socio-political factors. A higher percentage of the population with college degrees positively influenced income levels significantly (β = 586.55, p < 0.001). Conversely, a greater presence of public conservatism (β = -337.83, p < 0.05) and pro-life sentiment (β = -249.59, p < 0.001) showed adverse impacts on income. Notably, the difference between Clinton's and Trump's vote shares positively correlated with income (β = 105.36, p < 0.01). Additionally, a lower percentage of women state legislators in 2017 exhibited a negative association with per capita income (β = -157.51, p < 0.01). The overall model was significant (F (6, 50) = 31.14, p < 0.001), elucidating how these socio-political variables collectively contribute to explaining variations in per capita income in the region.

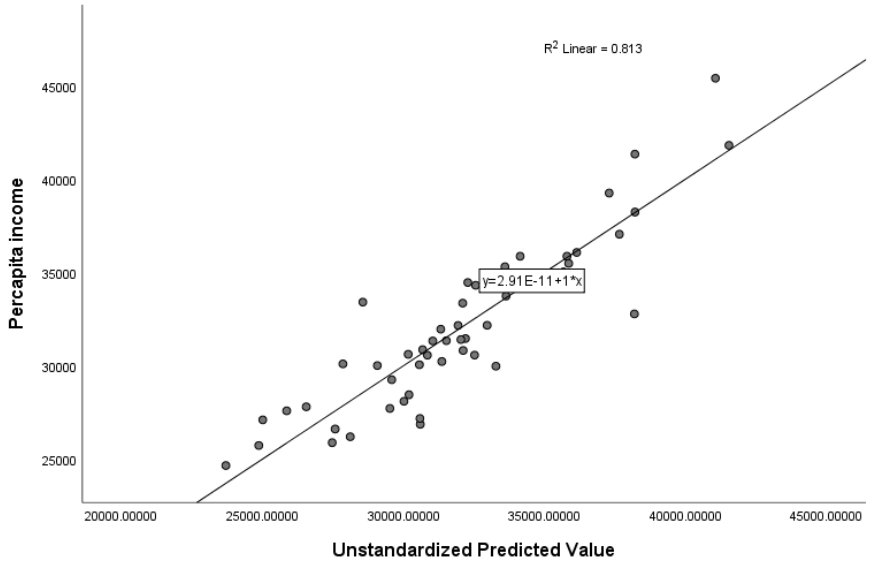

Figure 1. Scatter Plot for Multiple Regression

Conclusion

The data analysis explored the influence of socio-political factors on per capita income in a specific region. Descriptive statistics highlighted significant variation in income levels, with mean per capita income at $31,951.10. Socio-political factors like the percentage of college-educated

individuals correlated positively with income, while conservatism and pro-life sentiment had adverse effects. Additionally, correlations emphasized robust associations between income and variables like education and political sentiment, shedding light on key determinants. The multivariate regression model affirmed the impact of these factors on income, emphasizing the significance of education, political ideologies, and gender representation in shaping regional income disparities. Understanding these dynamics holds crucial implications for policymakers aiming to address socioeconomic inequalities.