The Association Between Regional Price Parities and Various Metropolitan Statistical Data

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Introduction

- Inflation has been a big factor in America's affordability crisis. But, some metropolitan areas have experienced fundamentally disparate levels of price inflation compared to others (Considine & Forester, 2025).
- The Bureau of Economic Analysis (BEA) measures these prices in relation to the national average in a unit they call Regional Price Parity (RPP). For example, Maryland has an RPP value of 104.0, which indicates that prices in Maryland were 4.0% higher than the national average.
- Despite their extensive research on price parities, the BEA does not publish to what magnitude RPP is influenced by its decompositions (Housing, Goods, Utilities).
- Furthermore, the BEA also publishes yearly statistics for Real Personal Income (RPI), Gross Domestic Product (GDP), and population estimates, some of which will be relevant in this study.

Methods

Sample

- Metropolitan areas (n=384) in the United States were drawn from Bureau of Economic Analysis (BEA) regional data on metropolitan statistical areas.

Measures

- Statistical data was collected by estimates based on an aggregation of various federal price and expedenture surveys and research, which include, but are not limited to, BLS CPI survey data, Census ACS PUMS data, and BEA's PCE-by-state series.

Research Questions

- What is the relative association of RPP goods, housing, and utilities with overall RPP?
- What is the association between changes in real personal income and changes in regional price levels across metropolitan areas?
- What is the association between GDP growth and changes in regional price levels across metropolitan areas?

Results

RPP Component Graphs

(See figures 1-3)

Housing

- Strong positive relationship with overall RPP
- r-squared = 0.8464, p < .0001
- 95% CI: 0.91 to 0.94
- Explains ~85% of variation in overall RPP
- Clear upward linear trend
- Points tightly clustered around regression line

Goods

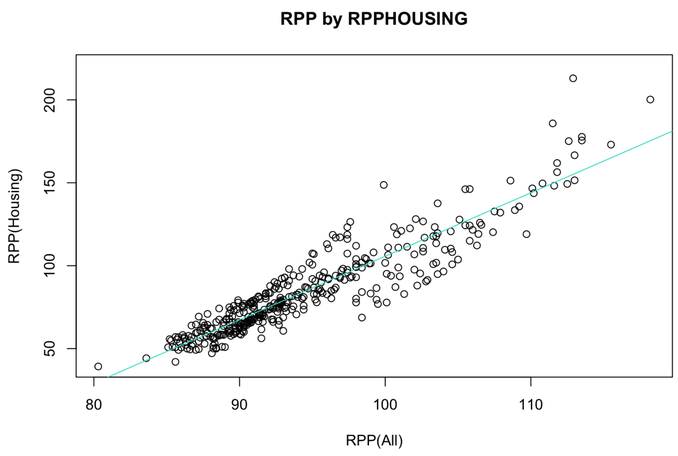
- Positive but lesser slope
- r-squared = 0.6241, p < .0001
- 95% CI: 0.75 to 0.83
- Explains ~62% of variation
- Prices clustered in narrow range
- Less variation across metro areas

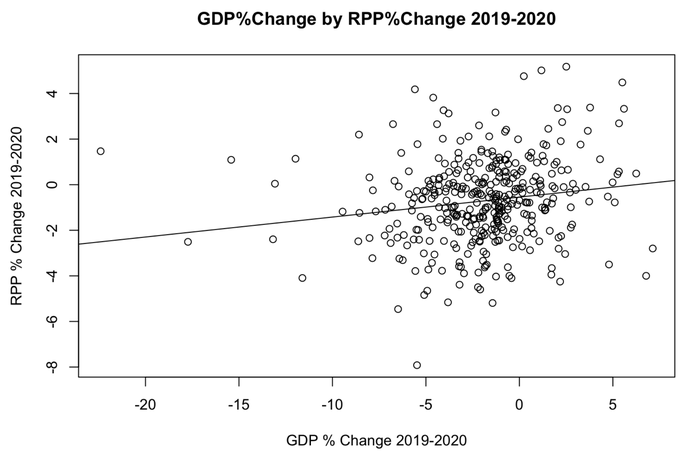
Utilities

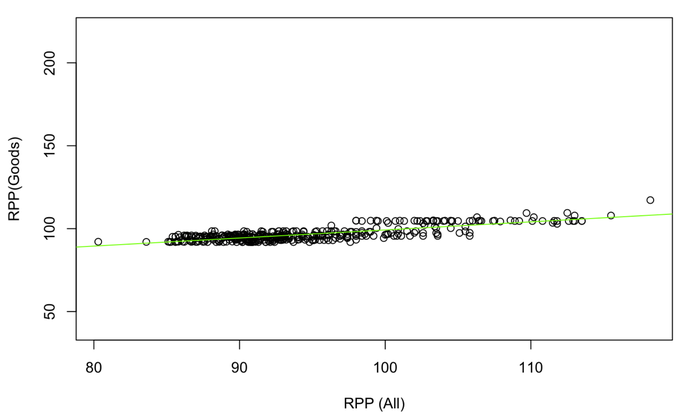
- Moderate positive relationship
- r-squared = 0.3364, p < .0001
- 95% CI: 0.51 to 0.64
- Explains ~34% of variation
- Wider dispersion of points
- Less consistent relationship with RPP

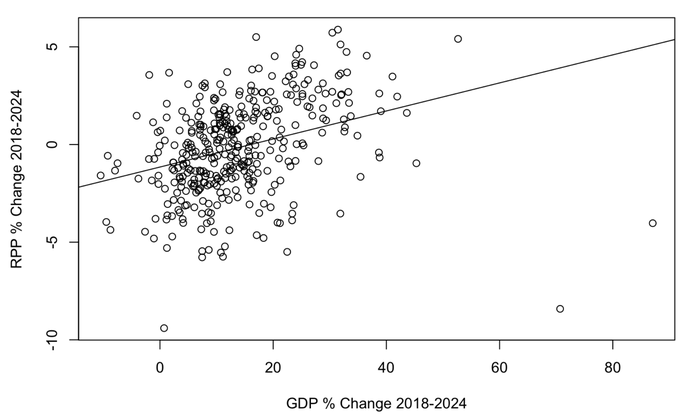
Discussion

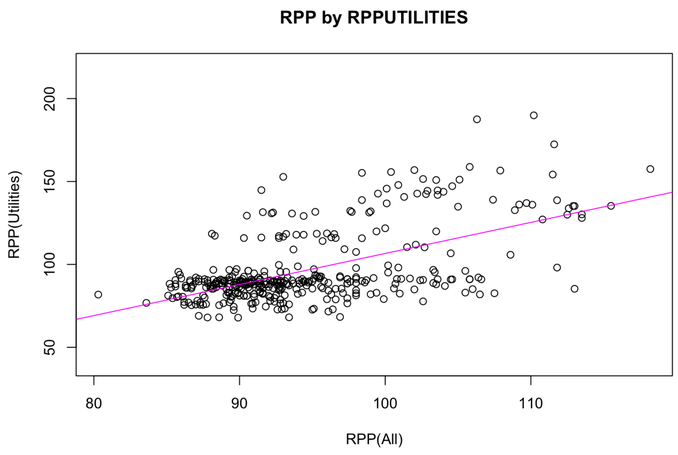
- Housing shows strongest relationship with overall RPP
- Housing appears to drive regional cost of living differences
- Goods also positively related to RPP
- Goods prices vary less across metropolitan areas
- Utilities show weakest and least consistent relationship
- Findings align with existing literature
- Policy implications centered on housing supply and affordability
- Reducing housing costs may reduce regional inequity
- For individuals, housing is the most important financial consideration in lowering personal costs



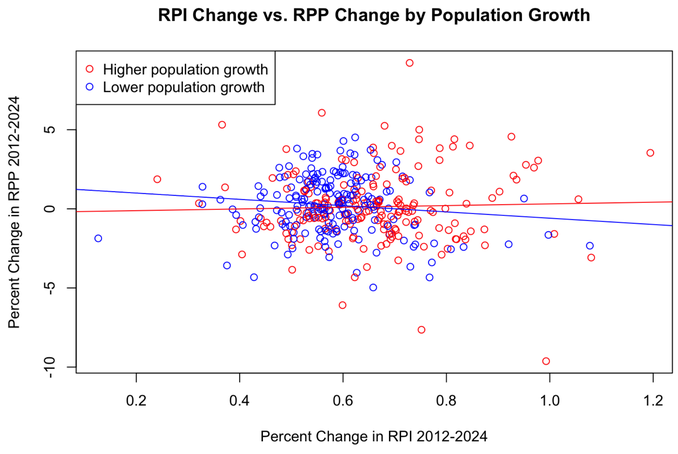








Figures 1-3: Regional Price Parities by RPP Components in American Metropolitan Areas



Figures 4: Percent Change in Real Personal Income and Percent Change Regional Price Parities by Population Growth in American Metropolitan Areas

Figures 5-6: Percent Change in Gross Domestic Product by Percent Change Regional Price Parities in Given Years

GDP %Change by RPP %Change Graphs

- No clear short run relationship between GDP growth and changes in RPP (See Figure 5)
- 2019 to 2020 relationship was not statistically significant
- GDP growth and RPP growth were positively correlated over 2018 to 2024 (See Figure 6)
- cor = 0.32, p < .0001
- Suggests economic growth may contribute to higher regional prices over time
- Relationship is statistically significant but moderately weak
- Price effects of economic growth may emerge gradually rather than immediately

Personal Income %Change by RPP %Change

- No statistically meaningful relationship between RPI growth and RPP growth (See Figure 4)
- Income gains do not consistently correspond to higher regional price levels
- Pattern remains scattered across metropolitan areas
- Population growth does not meaningfully change the relationship
- Regional price changes are not driven by income growth alone

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