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# Geographic Cost of Living Differences: In Brief

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## Cost of Living: When (Inflation) Versus Where (Geographic Differences)

The *cost of living* (COL) is an economic term referring to the amount of money people need to achieve a certain standard of living. It is largely determined by the prices of goods and services consumers must buy to reach that standard, including housing, food, energy (e.g., electricity and gas), medical care, and leisure, among many others. The federal government produces several measures of prices in the economy. For example, the Consumer Price Index and the Personal Consumption Expenditures Price Index track prices paid for goods and services by households.<sup>1</sup>

Policymakers and the public closely watch the rate of change of prices *over time*, called inflation. During periods of relatively high inflation, consumers need more money to achieve the same standard of living, or they will have a reduced standard of living if their earnings are stagnant or increase by less than inflation.<sup>2</sup> However, these headline numbers do not provide any information on differences in the COL in *different parts* of the country at *any one time*.<sup>3</sup> Put another way, inflation measures give no information about which areas are relatively more or less expensive places in which to live or how much more expensive it is to live in a metropolitan or a rural area, for example.

While the rate of inflation and changes to it have a number of quality-of-life and policy implications, so too do regional price disparities. As will be discussed later in this report, policies that do not account for COL differences across places may inadvertently benefit some more than others. Additionally, policies that rely on data unadjusted for place in order to determine who qualifies for certain benefits, for example, may also inadvertently benefit some more than others. However, measures of price disparity are less well known and less closely tracked than inflation measures. This report examines regional price disparity measures and selected economic and policy considerations.

## Measures of Geographic COL Differences

The main source of public data<sup>4</sup> on geographic COL differences is the regional price parity (RPP) series produced by the Bureau of Economic Analysis (BEA). BEA has been publishing official estimates of RPP by state and metropolitan statistical area since 2008. RPPs are weighted

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<sup>1</sup> Other measures of prices include the gross domestic product price deflator, which measures a broader array of prices, and the producer price index, which measures prices domestic producers receive for their products. These measures include the prices of many goods and services that are not purchased by consumers and are not generally considered as useful a gauge of cost of living as consumer prices.

<sup>2</sup> For a more detailed discussion of inflation, see CRS In Focus IF10477, *Introduction to U.S. Economy: Inflation*, by Lida R. Weinstock.

<sup>3</sup> The Bureau of Labor Statistics (BLS) publishes a Consumer Price Index (CPI) for each state and a number of metropolitan areas, but those figures only allow a comparison of inflation rates over time within the same metropolitan area. A high number for an area indicates that area has experienced relatively more inflation over time, not that it is a relatively more expensive place to live right now. BLS, *Consumer Price Index: Overview*, Handbook of Methods, November 24, 2020, <https://www.bls.gov/opub/hom/cpi/>.

<sup>4</sup> There are private sources of data for geographic COL differences that this report does not cover. For example, a major private source of information on the comparative COL in different areas of the country is the Council for Community and Economic Research Cost of Living Index (COLI), which compares costs and creates an index for COL up to the city level. COLI data are available for purchase. See Council for Community and Economic Research, "Cost of Living Index," <https://www.coli.org/>.

averages of price levels in one geographic region compared to all other regions in the United States. The RPPs are expressed as a percentage of the overall national level, with the national level set to 100. For example, if a state had an RPP value of 110, this would indicate that state was 10% more expensive on average than the rest of the country.<sup>5</sup>

**Table 1** below shows state-level RPPs for 2020 (the most recent data available), 2008 (the first official year of the series), and the change from 2008 to 2020, organized from highest to lowest 2020 RPP. In 2020, Hawaii, the District of Columbia, and New Jersey had the three highest RPPs, and Mississippi, West Virginia, and Arkansas had the three lowest RPPs. Generally, RPPs have not changed by large degrees over the past 12 years, with a few exceptions. For example, Connecticut, the most changed state, became about 5.7 percentage points less expensive during this time period. Arizona, Delaware, Nevada, and Vermont went from more expensive to less expensive than the national average between 2008 and 2020. Over the same period, Oregon went from less to more expensive than the national average.<sup>6</sup>

**Table 1. Bureau of Economic Analysis Regional Price Parities**

United States Average = 100

State	2020 RPP	2008 RPP	Difference
Hawaii	111.985	109.726	2.259
District of Columbia	111.459	111.876	-0.417
New Jersey	111.163	106.864	4.299
California	110.38	109.949	0.431
New York	110.212	111.057	-0.845
Massachusetts	107.442	105.707	1.735
Washington	107.359	103.975	3.384
Maryland	106.472	108.452	-1.98
New Hampshire	103.713	105.908	-2.195
Connecticut	103.439	109.205	-5.766
Alaska	103.239	106.228	-2.989
Colorado	102.866	102.979	-0.113

<sup>5</sup> BEA, *Real Personal Consumption Expenditures and Personal Income by State, 2020*, December 14, 2021, <https://www.bea.gov/news/2021/real-personal-consumption-expenditures-and-personal-income-state-2020>.

Historically, BEA estimated RPPs using rolling averages of annual averages over five years for CPI price levels across different locations (excluding rents) merged with American Community Survey (ACS) data on rents from the most recent year. For example, the 2015 RPP series is an average of 2011-2015 CPI prices plus 2015 ACS rent indexes. See BEA, *Real Personal Income and Regional Price Parities*, February 2021, [https://www.bea.gov/system/files/methodologies/RPP2020-methodology\\_1.pdf](https://www.bea.gov/system/files/methodologies/RPP2020-methodology_1.pdf). In 2020, BEA changed its methodology. First, BEA replaced CPI weights with Personal Consumption Expenditure Index weights. Second, BEA introduced new housing and utilities data from the ACS public use microdata sample. Third, BEA removed seven highly variable CPI categories—hospital services, physicians services, prescription drugs, college tuition and fees, elementary and high school tuition and fees, childcare and nursery school, and club membership for shopping clubs, fraternal or other organizations—from the calculation. Fourth, BEA switched from multiyear moving averages to only annual CPI and ACS data. See BEA, *Regional Price Parity Methodology Revisions*, December 14, 2021, <https://www.bea.gov/sites/default/files/2021-12/rpp1221-methods.pdf>.

<sup>6</sup> Annual, state-level regional price parity data are included in the BEA's "Real Personal Consumption Expenditures and Personal Income by State" release. For the most current version, see BEA, *Real Personal Consumption Expenditures and Personal Income by State, 2020*.

State	2020 RPP	2008 RPP	Difference
Oregon	102.622	97.6	5.022
Rhode Island	101.845	102.04	-0.195
Virginia	100.978	103.274	-2.296
Florida	100.711	101.779	-1.068
Illinois	100.476	100.318	0.158
Texas	99.542	97.512	2.03
Vermont	99.347	101.024	-1.677
Arizona	99.071	102.793	-3.722
Minnesota	98.625	96.351	2.274
Delaware	97.872	100.792	-2.92
Pennsylvania	97.564	99.061	-1.497
Nevada	97.056	101.56	-4.504
Maine	96.776	97.834	-1.058
Utah	95.322	97.4	-2.078
Georgia	94.541	94.78	-0.239
Michigan	94.045	95.54	-1.495
Wisconsin	93.188	93.336	-0.148
Nebraska	92.89	90.842	2.048
Louisiana	92.716	92.83	-0.114
Indiana	92.501	92.538	-0.037
Missouri	92.494	89.35	3.144
Montana	92.443	95.825	-3.382
Kansas	92.364	90.729	1.635
Wyoming	92.257	95.966	-3.709
Tennessee	92.15	92.05	0.1
North Dakota	92.041	86.837	5.204
North Carolina	91.84	92.97	-1.13
Ohio	91.69	92.513	-0.823
South Carolina	91.647	92.693	-1.046
New Mexico	91.567	94.928	-3.361
South Dakota	91.518	85.981	5.537
Oklahoma	91.322	90.868	0.454
Idaho	91.196	95.13	-3.934
Iowa	91.047	88.22	2.827
Kentucky	89.778	90.135	-0.357
Alabama	89.252	89.757	-0.505
Arkansas	89.181	88.996	0.185

State	2020 RPP	2008 RPP	Difference
West Virginia	87.959	88.145	-0.186
Mississippi	87.775	89.157	-1.382

**Source:** Bureau of Economic Analysis, State Area Regional Price Parities.

**Notes:** BEA changed its methodology for estimating RPPs in 2021 (for 2020 data). Comparing two series that have been estimated using different methodologies may not be as accurate as comparing series estimated using the same methodology. Additionally, in 2020, due to COVID-19, response rates for the ACS, which BEA uses in the calculation of RPPs, were low enough that the Census Bureau considers many series coming from the 2020 ACS to be experimental.

BEA additionally provides RPPs for metropolitan statistical areas<sup>7</sup> (MSAs) as well as the metropolitan and nonmetropolitan portions<sup>8</sup> of each state. Within states, metropolitan areas typically have higher RPPs than their nonmetropolitan counterparts. However, across the United States, many MSAs have below-national-average RPPs, and some even have RPPs lower than the national nonmetropolitan average.<sup>9</sup> For example, in 2020, the Albany, GA, MSA had an RPP of 84.6, below both the national average and the U.S. nonmetropolitan average (89.0), while for the state of Georgia, the metropolitan areas still had a higher average RPP (96.1) than the nonmetropolitan areas (85.4) within the state.

## Economic Considerations

### Why Disparities Persist

From a theoretical standpoint, those goods that can be easily transported across locations might be expected to exhibit little geographic variation in price, and for many goods and services, there is likely to be a tendency for prices to equalize across the country.<sup>10</sup> Where there is a premium for a particular good in one area of the country, it would serve as a signal to (and an incentive for) producers to make more of that good available in that area, either through increases in total production or redistribution of current production, thus tending to bring the price more in line with that prevailing elsewhere. However, as previously illustrated by data, geographic COL differences persist. This variability can be explained by barriers to the trade of goods and services across places, notably transportation costs and the inability to transport some goods and services. Differences in transportation costs and transportability are reflected in prices. For example, Hawaii tends to be relatively expensive compared to the national average, in part due to the high transportation costs of having to fly or ship in most goods and services.

<sup>7</sup> BEA uses the U.S. Office of Management and Budget definition of MSAs as “standardized county or equivalent-based areas having at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core, as measured by commuting ties.”

<sup>8</sup> Within a given state, anything that falls within an MSA is considered metropolitan, and everywhere else is considered nonmetropolitan.

<sup>9</sup> BEA, *Real Personal Consumption Expenditures and Personal Income by State, 2020*.

<sup>10</sup> The idea that tradable goods and services should cause prices to equalize over locations is known as the law of one price. While this is a well-known economic theory, economists debate the extent to which this theory holds in reality. For example, see Kenneth Rogoff, Kenneth A. Froot, and Michael Kim, “The Law of One Price Over 700 Years,” *International Monetary Fund Working Papers*, vol. 01, no. 174 (November 2001), <https://www.imf.org/external/pubs/ft/wp/2001/wp01174.pdf>.

## Proxies for COL

Given that it was in 2008 that the federal government began publishing data on geographic COL differences, this may raise the question: Do any previously existing policies account for these differences? The short answer is yes, some do to varying extents. While COL data are relatively new, certain policies take into account regional price and compensation differences that may proxy geographic COL differences fairly well. This section discusses two such proxies—home prices and income—and examples of how they have been used in policy.

### Home Prices

As was stated earlier, some goods and services are not transportable—land and corresponding rents, for example. In addition, local zoning laws can have a significant impact on how much and what kind of housing can be built. For these reasons, housing markets tend to show variability, and any one local housing market may not be priced similarly to the national average. Costs for shelter tend to be a major category of spending in the United States, and therefore differences in housing costs may proxy differences in COL.

Certain federal programs account for home value differences across regions. For example, the Federal Housing Finance Agency sets both a national baseline and high cost area limits for mortgages that Fannie Mae and Freddie Mac can purchase.<sup>11</sup>

### Income

Just as there appear to be some significant differences in living costs in different regions of the country, there are also regional differences in incomes. **Figure 1** below plots national, state, and District of Columbia RPPs against their corresponding median household incomes. As RPPs increase, median household income tends to increase as well, and vice versa. The two variables appear to be correlated, as most points are close to the trend line, with a few exceptions—such as Utah, which has a relatively high median income (\$77,827) given its RPP (95.3), or New York, which has a relatively low median income (\$73,398) given its RPP (110.2).

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<sup>11</sup> Federal Housing Finance Agency, “FHFA Announces Conforming Loan Limits for 2022,” press release, November 30, 2021, <https://www.fhfa.gov/Media/PublicAffairs/Pages/FHFA-Announces-Conforming-Loan-Limits-for-2022.aspx>.

**Figure I. Correlation Between Median Income and Relative Price Parity by State, 2020**



**Sources:** BEA State Area Regional Price Parities and Census Bureau American Community Survey.

**Notes:** Chart includes all 50 states, the United States (in light blue), and the District of Columbia. Due to the impact of the COVID-19 pandemic, response rates for the American Community Survey were low and margins of error therefore higher. As such, the income data presented in this chart are considered experimental by the Census Bureau and do not meet the statistical standards of other Census data.

Just as transportability and transportation costs of goods and services contribute to differences in the prices of those goods and services across locations, barriers to migration may cause differences in income across locations. In a world with no barriers to migration, individuals seeking to maximize their incomes would be able to choose employment in the location that did so, incentivizing employers to compensate workers similarly for similar work across locations. At the same time, there are significant barriers to migration, not least of which is that it can be costly to move.<sup>12</sup>

Given that disparities across locations persist for both COL and income, it could be useful to analyze whether there might be a correlation between the two. People with higher incomes can afford to spend more on goods and services, and employers in areas with a low COL can offer lower wages and still attract workers. Given the apparent correlation between measures of COL and income, measures of compensation for comparable work could arguably be used to reasonably proxy COL in a specific region. This gets reflected in public discussions of federal employee pay. Federal locality pay—place-based differences in compensation of federal government employees—is determined using the Bureau of Labor Statistics' National Compensation Survey,<sup>13</sup> which is given to establishments (as opposed to households) and estimates employer costs for employee compensation and trends in compensation, among other

<sup>12</sup> For a more in-depth discussion of factors related to low migration rates within the United States, see William H. Frey, *U.S. Migration Still at Historically Low Levels, Census Shows*, Brookings Institution, November 20, 2017, <https://www.brookings.edu/blog/the-avenue/2017/11/20/u-s-migration-still-at-historically-low-levels-census-shows/#:~:text=The%20decline%20in%20annual%20mobility,owners%20move%20less%20than%20renters>.

<sup>13</sup> BLS, *National Compensation Survey Frequently Asked Questions*, August 31, 2016, <https://www.bls.gov/ncs/faq.htm#faqd>.



topics.<sup>14</sup> Colloquially, locality pay adjustments<sup>15</sup> are often equated to COL adjustments, although technically they are not the same.

If work in certain sectors of the economy is increasingly done remotely (perhaps because of structural changes occurring in the aftermath of the pandemic), disparities could have significant implications for wages and migration, as relative disparities themselves may change. Fully remote work may remove some barriers to migration—workers would no longer be physically tied to their place of work—which could, in turn, affect local labor markets.

## Policy Considerations

Some government programs and policies are indexed to inflation but not place. Programs that are not indexed for geographical price variation may provide more benefits to some than to others. For example, tax credits, such as the child tax credit, provide a flat credit per qualifying child across locations.<sup>16</sup> For those receiving such tax credits, recipients in low-COL areas are receiving more benefit than those in high-COL areas. Another example is Social Security payments. To the extent that beneficiaries are mobile, they have an incentive to move to relatively less expensive areas, increasing the purchasing power of their benefits without an increase in overall outlays. However, the extent to which this actually occurs is likely not high. Using a simplistic scenario for Social Security as an example, for the 2020-2021 period, 0.8% of people who moved did so for a reason related to retirement. Additionally, about 8.4% of the total population moved in that time, which is relatively low compared to earlier time periods and indicates that there was relatively little migration even in an absolute sense.<sup>17</sup> Given this, some may argue it is appropriate to adjust selected transfer payments to reflect national variations in the COL.

In other cases, thresholds that qualify people or entities for programs are at issue. For example, U.S. poverty thresholds are meant to reflect need based on level of money income, but they do not vary geographically (they are indexed for inflation),<sup>18</sup> despite large differences in the COL within and across states.<sup>19</sup> The standard of living for an individual at the poverty income threshold may be very different in a metropolitan versus nonmetropolitan area or in a state with an above-average RPP versus one with a below-average RPP.

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<sup>14</sup> BLS, *National Compensation Measures: Overview*, Handbook of Methods, December 15, 2017, <https://www.bls.gov/opub/hom/ncs/home.htm>.

<sup>15</sup> For more information about locality pay adjustments, see CRS Report R47033, *Federal Pay: General Schedule (GS) Pay Adjustment Process, Amounts Provided Since 2010, and Issues for Congress*, by Barbara L. Schwemle.

<sup>16</sup> Benefits.gov, *Child Tax Credit*, <https://www.benefits.gov/benefit/938>.

<sup>17</sup> Census Bureau, *Table A-1. Annual Geographic Mobility Rates, By Type of Movement: 1948-2021*, CPS Historical Migration/Geographic Mobility Tables, November 2021, <https://www.census.gov/data/tables/time-series/demo/geographic-mobility/historic.html>; and Census Bureau, *Table A-5. Reasons for Move (Specific Categories): 1999-2021*, CPS Historical Migration/Geographic Mobility Tables, November 2021, <https://www.census.gov/data/tables/time-series/demo/geographic-mobility/historic.html>.

<sup>18</sup> Census Bureau, *How the Census Bureau Measures Poverty*, November 22, 2021, <https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html>.

<sup>19</sup> The Department of Health and Human Services additionally provides poverty guidelines, which are a simplification of poverty thresholds used for administrative purposes. These guidelines include separate poverty levels for Alaska and Hawaii. See Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, *2021 Poverty Guidelines*, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2021-poverty-guidelines>.

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