

Inflation has harmed working families under multiple measures

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Over the past few years, Americans have experienced a significant decline in their economic wellbeing. Using multiple measures, Joint Economic Committee Republicans find that incomes have risen more slowly than prices since January 2021. Measures presented indicate that, due to high inflation, real incomes have either stagnated or declined. Moreover, we show that most of the net increase in real wages per adult has come from new entrants and reentrants to the labor force, not raises for the working share of the population.

Wage and Income

Income can be measured in several ways, such as salaried, hourly, and through tips.¹ For example: measuring average hourly wages would omit changes in hours worked, which would be captured in weekly earnings. Similarly, measuring exclusively wages would omit other sources of income like tips. Moreover, omitting benefits like health insurance fails to capture the full extent of the returns of labor.² On the other hand, more inclusive measures of income are not necessarily better at capturing individuals' total compensation. Tips are difficult to estimate, and the monetary value of health insurance does not necessarily correspond to its value, nor is it equivalent to an additional wage by the same amount.³ To account for the variance, economists use multiple measures to chronicle changes in wages and income over time.

Inflation

Inflation occurs when the nominal price of a basket of goods and services increases over time. When this growth is faster than the growth of income, purchasing power is reduced.⁴ In the U.S., there are two principal measures of inflation: the Personal Consumption Expenditures (PCE) price index from the Bureau of Economic Analysis and the Consumer Price Index (CPI) from the Bureau of Labor Statistics.⁵ While household cost of living is determined by a defined consumption bundle, lower

¹ U.S. Bureau of Labor Statistics, "Employment Situation," Table B-1, https://www.bls.gov/news.release/empsit.t17.htm.

² Common benefits are paid-time-off, medical insurance, use of a motor vehicle, and retirement plan matching. Total compensation refers to the combination of wages and benefits.

³ Sebastian Himmler, "Estimating the Monetary Value of Health: Why and How," in *Defining the Value of Medical Interventions: Normative and Empirical Challenges*, ed. by J. Schildmann, C. Buch, and J. Zerth, 2021, https://www.ncbi.nlm.nih.gov/books/NBK585088/.

⁴ U.S. Bureau of Labor Statistics, "Purchasing power and constant dollars," https://www.bls.gov/cpi/factsheets/purchasingpower-constant-dollars.htm.

⁵ The Federal Reserve prefers the PCE price index to CPI because it accounts for the substitution effects of inflation—as the price of one good increases relative to another, an individual may choose to purchase a higher quantity of the good whose relative price decreased. The PCE price index has more comprehensive coverage of goods and services, and historical PCE data can be revised for more than just seasonal factors. As a result, the CPI is typically higher than the PCE price index. From January 2021 to July 2024, the PCE price index rose by 16.2 percent, while CPI increased by 19.4 percent. James Bullard, "President's Message: CPI vs. PCE Inflation:

income households tend to allocate a higher share of their budget for rent, energy, food, and medical care.⁶ Hence, inflation is regressive because it impacts lower income households more than it does higher income households. On top of the strain on household budgets, inflation impacts the federal budget directly. Inflation measures are used to adjust outlays for some programs, so it can drive government expenditures higher.⁷

Comparing wage growth with inflation

This section outlines different metrics to offer a better understanding of real wage growth. Each of these measures have strengths and weaknesses, so considering them together builds a more comprehensive picture of the current economy. The COVID-19 pandemic and the ensuing inflation strongly affected these metrics starting in March 2020. As such, we present projections of each measure using the average growth rate over the three years before March 2020 (February 2017 to February 2020), then we compare these projections with the actual values in July 2024.

Choosing a Standard Measure," July 1, 2013, https://www.stlouisfed.org/publications/regional-economist/july-2013/cpi-vs-pce-inflation--choosing-a-standard-measure.

⁶ Congressional Budget Office, "How Inflation Has Affected Households at Different Income Levels Since 2019," September 2022, https://www.cbo.gov/system/files/2022-09/58426-Inflation.pdf.

⁷ The Social Security Administration uses CPI-W for a cost-of-living adjustment (COLA). The Federal Reserve's 2 percent inflation target refers to the all-items PCE price index. Board of Governors of the Federal Reserve System, "Statement on Longer-Run Goals and Monetary Policy Strategy," January 24, 2012, https://www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals_201201.pdf; Social Security

Administration, "CPI for Urban Wage Earners And Clerical Workers," https://www.ssa.gov/oact/STATS/cpiw.html.

Real average hourly earnings

One of the most popular metrics is **real average hourly earnings**, published by the Bureau of Labor Statistics (BLS).⁸ It is a gross metric that includes basic hourly and incentive wage rates, as well as overtime.⁹ The BLS makes a real adjustment using the CPI and expresses the data in 1982–84 dollars.¹⁰

The strengths of this measure are the monthly frequency and the inclusion of earnings from parttime and hourly jobs.¹¹ A shortcoming is its narrow focus; it does not account for the number of hours worked per week, and it does not include benefits.¹² Furthermore, as an average measure, it includes jobs across the entire income distribution, so can be sensitive to outliers.¹³ The data shows that, per hour worked, the average worker has seen a nearly 2 percent decline in wages after inflation.¹⁴ The value is almost 3 percent lower than it would be if growth had continued at the pre-pandemic rate.



Value in Jan 2021	\$11.40
Value in Jul 2024	\$11.19
Total change	-1.84%
Average monthly change from Jan 2021 to Jul 2024	-0.04%
Average monthly change from Feb 2017 to Feb 2020	+0.08%
Value in Jul 2024, projected at the growth rate from Feb 2017 to Feb 2020	\$11.52
Difference between actual and projection	-2.83%

⁸ U.S. Bureau of Labor Statistics, "Real Earnings," Table A-1, https://www.bls.gov/news.release/realer.t01.htm.

⁹ U.S. Bureau of Labor Statistics, "Chapter 2. Employment, Hours, and Earnings from the Establishment Survey" in *BLS Handbook of Methods* (2011), https://www.bls.gov/opub/hom/pdf/ces-20110307.pdf.

¹⁰ U.S. Bureau of Labor Statistics, "Chapter 2."

¹¹ U.S. Bureau of Labor Statistics, "Chapter 2."

¹² For example, if we were to guide our analysis by this metric alone, we would have inferred that workers' income improved significantly between February and May of 2020.

¹³ Lida R. Weinstock, "A Comparison of Selected Official Wage Measures," Congressional Research Service, January 11, 2023: 6, https://crsreports.congress.gov/product/pdf/R/R47381/2.

¹⁴ U.S. Bureau of Labor Statistics, "Real Earnings," Table A-1.

Real average weekly earnings

The BLS publishes **real average weekly earnings**, derived by multiplying average weekly hours by average hourly earnings.¹⁵ This data therefore reflects variations in the number of hours worked per week and is affected the proportion of part-time workers, unpaid absenteeism, labor turnover, and more. The real adjustment is the same as that applied to the hourly earnings data.

The strengths of this measure are the monthly frequency and that it includes the time worked per week, providing a broader picture of employment. The shortcomings are that it also does not include benefits and can be sensitive to outliers. The data shows that, per week worked, the average worker has seen a nearly 4 percent decline in wages after inflation.¹⁶ The value is over 3 percent lower than it would be if growth had continued at the pre-pandemic rate.



Value in Jan 2021\$397.90Value in Jul 2024\$382.54Total change-3.86%Average monthly change from Jan 2021 to Jul 2024-0.09%Average monthly change from Feb 2017 to Feb 2020+0.08%Value in Jul 2024, projected at the growth rate from Feb 2017 to Feb 2020\$395.04Difference between actual and projection-3.16%

¹⁵ U.S. Bureau of Labor Statistics, "Chapter 2."

¹⁶ U.S. Bureau of Labor Statistics, "Real Earnings," Table A-1.

CPI-adjusted Employment Cost Index growth

The BLS publishes the **Employment Cost Index**, which measures the change in the total hourly labor cost to employers over time. The ECI observes a fixed "basket" of labor that removes the effect of labor moving between positions and industries.¹⁷ It is useful because it observes total compensation, including wages, salaries, and benefits. Additionally, this measure can be calculated at the industry level and reflects data for Q2 2024. The shortcomings of the ECI are that it is published quarterly, is an index not a dollar value, and does not cover self-employed persons. Despite these shortcomings, this index provides a strong, holistic understanding of real economic well-being for American workers in July 2024.

To adjust for inflation, we subtract the year-over-year growth rate of the CPI from that of the ECI. Therefore, the values here are the difference between the year-over-year change of each metric in percentage points, represented by the red line in the figure.



Value in Q1 2021	0.18%
Value in Q2 2024	0.93%
Total change	+0.75 pp
Average quarterly growth from Q1 2021 to Q2 2024	-1.06%
Average quarterly growth from Q1 2017 to Q1 2020 ¹⁸	0.68%
Value in Q2 2024, projected at the growth rate from Q1 2017 to Q1 2020	0.68%
Difference between actual and projection	+0.24 pp

These results would indicate a return to the pre-pandemic growth rate, however, for two years, inflation greatly outpaced the total compensation of workers, creating a lasting effect on overall economic well-being that is difficult to resolve. ECI growth only returned to outpacing CPI growth in

¹⁷ U.S. Bureau of Labor Statistics, "Employment Cost Index," https://www.bls.gov/eci/; U.S. Bureau of Labor Statistics, "Employment Cost Index: Tables," https://www.bls.gov/web/eci/eci-seasonal-dataset.xlsx.

¹⁸ Because this figure shows growth in the ECI, the projected growth rate is a horizontal line. Like the other metrics, it is equal to the average growth rate in the three years preceding the pandemic.

the second quarter of 2023, after a two-year period of real decline. The figure below shows ECI and CPI indexed to Q1 2021 to compare changes since then. It shows that CPI rose sharply at the beginning of the period, while ECI growth was lower and steady throughout. The rapid increase in inflation from 2021 to 2022 was not matched by a sufficient increase in total compensation. Therefore, despite having returned to historically normal growth in ECI, it is inaccurate to say that workers' real compensations are higher across the period.



Real disposable income per capita

The Bureau of Economic Analysis (BEA) publishes **real disposable income per capita**.¹⁹ A measure of disposable income provides a clear insight into the financial well-being of Americans. By only considering after-tax income, this measure shows the amount that individuals can spend, save, or invest.

The strengths of this measure are that it includes all sources of income, taxes, and transfers. Because it is relative to population size it is a good indication of purchasing power. One shortcoming is that this measure is slightly lagged, which decreases its usefulness for contemporary economic analysis. Moreover, it can be greatly affected by shocks in government transfers. For this reason, we do not use January 2021 as the beginning of the analysis due to COVID-19 stimulus payments pushing the measure artificially high.²⁰ The small change across the examined period omits the fact that for almost half of the months between February 2021 and July 2024, real disposable income per capita was lower than it was at the beginning of the period.²¹ As such, the average monthly growth rate is negative at -0.08 percent.

¹⁹ U.S. Bureau of Economic Analysis, "Real Disposable Personal Income: Per Capita," retrieved from FRED, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org/series/A229RX0.

²⁰ Pandemic Oversight, "Update: Three rounds of stimulus checks. See how many went out and for how much," February 17, 2022, https://www.pandemicoversight.gov/data-interactive-tools/data-stories/update-three-rounds-stimulus-checks-see-how-many-went-out-and.

²¹ Real disposable income per capita was lower than the February 2021 value in 19 out of 41 months.

The total growth in this measure is historically weak, and the negative average monthly growth rate is unusual. From February 2017 to February 2020, real disposable income per capita increased by 8.59 percent in total, with an average monthly growth rate of 0.23 percent. From February 2021 to July 2024, about half of the months saw negative growth, but from February 2017 to February 2020, only about 17 percent did.²²



Total change	10.0770
Average monthly change from Apr 2021 to Jul 2024	-0.08%
Average monthly change from Feb 2017 to Feb 2020	+0.23%
Value in Jul 2024, projected at the growth rate from Feb 2017 to Feb 2020	\$54,221
Difference between actual and projection	-6.96%

²² U.S. Bureau of Economic Analysis, "Real Disposable Personal Income: Per Capita."

Measure constructed by Joint Economic Committee Democrats

A September 2024 issue brief by the JEC Democrats concludes that income growth exceeded price growth between January 2021 and July 2024.²³ Their calculation relies on the average increase in wages and salaries distributed across states by consumer unit (an approximation of a household) proportional to population. This method has two main shortcomings. It does not consider the disparate impacts of a small number of high earners across states, and it does not distinguish between gains from continuous jobholders and gains from new entrants. For instance, it counts new entrants to the labor force as if they received a raise equal to the full value of their wage.²⁴ Below, we perform an income distribution analysis and decompose wage gains to improve on the analysis in that brief.

Analysis at the state level

To compare their wage growth estimate to the JEC Republicans State Inflation Tracker data, JEC Democrats divide total wages and salaries across states relative to population.²⁵ The result of this simple division is distorted by the effects of extreme values in each state's income distribution. In some states, the average wage does not represent the average person.

For a data series, the mean and median are both measures of central tendency. A median offers the best representation of the center of a distribution because it is not skewed by a small share of extremely low or high values as is a mean. In this analysis, any mean measure would be skewed by a small number of very high earners in each area.

Box 1: Visualizing the Distribution of Income

The figure below shows a beta distribution model fit to U.S. income data from 2023 that constructs a Lorenz curve, shown in black.²⁶

²³ Joint Economic Committee Democrats, "Incomes Are Rising Faster Than Prices Throughout the Country," September 5, 2024, https://www.jec.senate.gov/public/_cache/files/e86dac93-79f6-4044-af6b-e267930c1b90/september-update-of-jec-fact-sheet---incomes-are-rising-faster-than-prices.pdf.

²⁴ According to the report, workers in DC have seen their wages grow by \$44,838 on average, which is highly implausible over the past three years. Joint Economic Committee Democrats, "Incomes Are Rising Faster Than Prices Throughout the Country," 2.

²⁵ Joint Economic Committee Democrats, "Methodology on Comparing Wage and Salary Gains to Price Changes," https://www.jec.senate.gov/public/_cache/files/1f5bd37a-383d-4427-b6f4-5ef691c8e9dc/jec-wage-and-salarygrowth-methods-september-2024-update.pdf.

²⁶ U.S. Department of the Treasury, "Distribution of Families, Cash Income, and Federal Taxes under 2023 Current Law," Office of Tax Analysis, November 2023, https://home.treasury.gov/system/files/131/Distribution-of-Tax-Burden-Current-Law-2024.xlsx. The dashed gray line represents a normal distribution of income, where incomes are distributed symmetrically about the mean and there is an equal number of extremely low and extremely high earners. The dot-dashed gray line represents perfect equality, where each decile of households earns a decile of the total income.



The asymmetric distribution of income means that the "average" experience is the experience for less than half of the population; whereas the median is the income where 50 percent of households earn less and 50 percent earn more. Skewness is a measure of this asymmetry, where a larger skew is interpreted as more asymmetry.

Below, we estimate the skew as it varies across states. Differences in states' income distributions reflect differences in the composition of their labor forces. The figure below shows how many times greater the mean adjusted gross income (AGI) was compared to the median in each state in 2021, approximately finding the gap shown in the figure in Box 1 at the state level.²⁹ A higher value indicates that the state's mean income is much higher than its median income. States with a heavier skew have labor forces dissimilar to those with lighter skews.

 ²⁷ U.S. Department of the Treasury, "Distribution of Families, Cash Income, and Federal Taxes under 2023 Current Law."
 ²⁸ U.S. Department of the Treasury, "Distribution of Families, Cash Income, and Federal Taxes under 2023 Current Law."

²⁹ Internal Revenue Service, "SOI Tax Stats - Adjusted gross income (AGI) percentile data by state," 2021, https://www.irs.gov/statistics/soi-tax-stats-adjusted-gross-income-agi-percentile-data-by-state.



Ratio of mean to median AGI by state

Florida, New York, Wyoming, California, and Nevada have the strongest rightward skew, each with a mean income value more than 2.3 times greater than the respective median.³⁰ West Virginia, Iowa, Alaska, Hawaii, and Wisconsin have the lightest skew, each with a mean only around 1.6 times greater than the median.³¹ This suggests that a simple division of wage gains across states relative to population is not useful given the heterogenous income distributions across them. For instance, one cannot assume the same level of wage growth across all consumer units in both Florida and West Virginia, and this assumption is implicit in the JEC Democrats' measure. Therefore, one cannot use this metric alone to determine whether the average American has been made better off since January 2021.

New entrants account for the increase in income

Any measure for this analysis must also consider the effect of new entrants into the labor market over the examined period. Due to recovery from the pandemic, employment expanded dramatically from January 2021 to July 2024. Newly employed people would have zero income in one period and an income tens-of-thousands of dollars higher in the next. Without accounting for their entry into the labor market, any per capita consideration of change in wages and salaries is not useful.

One way to account for these compositional effects is to consider average weekly earnings *per adult*, which modifies average weekly earnings to also include those in the population with no earnings. We can then decompose this metric into two parts: a share of the increase explained by wages rising for working adults and a share explained by new entrants to the labor force. This can be expressed as:³²

³⁰ Internal Revenue Service, "SOI Tax Stats;" JEC Republicans calculations.

³¹ Internal Revenue Service, "SOI Tax Stats;" JEC Republicans calculations.

³² Council of Economic Advisers, "How Much Are Workers Getting Paid? A Primer on Wage Measurement," The White House, September 2018: 12, https://trumpwhitehouse.archives.gov/wp-content/uploads/2018/09/How-Much-Are-Workers-Getting-Paid-A-Primer-on-Wage-Measurement-Sept-2018.pdf.

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$$\frac{N_{t+1} \times W_{t+1}}{P_{t+1}} - \frac{N_t \times W_t}{P_t} = (W_{t+1} - W_t) \times \frac{N_t}{P_t} + (W_{t+1}) \times \left(\frac{N_{t+1}}{P_{t+1}} - \frac{N_t}{P_t}\right)$$
Growth in average earnings per adult Growth in average earnings for the working share of the adult population Growth in average earnings for the working share of the adult oppulation Growth in average earnings for the working share of the adult oppulation Growth in average earnings for the working share of the adult oppulation Growth in average earnings for the working share of the adult oppulation working Growth in average earnings for the adult oppulation for the working share of the adult oppulation working Growth in average earnings for the adult oppulation working Growth in average earnings for the adult oppulation working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average earnings for the adult population working Growth in average ear

N = number of private nonfarm workers; P = population level, aged 16 and over; W = average weekly earnings³³



The figure above illustrates this decomposition from January 2021 to July 2024. It shows that the large gains in earnings toward the beginning of the period were mostly explained by an increasing labor force. This remains true for about half of the gains from then until mid-2022.



³³ U.S. Bureau of Labor Statistics, "Real Earnings," Table A-1; U.S. Bureau of Labor Statistics, "Employment Situation," Table B-1; U.S. Bureau of Labor Statistics, "Employment Situation," Table A-1.

Decomposition of growth in average weekly earnings per adult

When adjusting for inflation, we find that almost all of the growth in real earnings per adult can be attributed only to the positive effect of the labor force recovering from the pandemic. The change in real earnings for those employed had a solely negative effect on average earnings growth until mid-2023.



When considering the pre-pandemic economy, the result of this analysis is even more disappointing. In the three years before the pandemic, wage growth for workers typically accounted for a greater share of average earnings growth per adult. The large decline during the pandemic was entirely attributable to a smaller labor force, and the following positive effects on earnings came from the subsequent recovery of the labor force. Due to its strong negative effect on the real wage growth for those employed, high inflation prolonged this recovery. A status quo approximately resembling the pre-pandemic composition has only recently returned, although the real growth in wages for working adults is still much lower on average than it was in the three years preceding the pandemic.

By failing to account for new entrants, the measure constructed by JEC Democrats does not offer a valuable indication of improvements in the economic well-being of the average American.

Conclusion

Stagnant real disposable income per capita and a nearly four percent decline in real average weekly earnings indicate a substantial decrease in economic well-being. Measures that fail to account for distributional effects across states and compositional effects in the labor force do not offer an accurate picture of the well-being of the average American. Most of the metrics we present suggest that, due to high inflation, real incomes have either stagnated or declined since January 2021. Therefore, claims that the income of the average worker is higher over the period after inflation are inaccurate.

Appendix

Table 1

	Real average hourly earnings	Real average weekly earnings	CPI-adjusted Employment Cost Index growth	Real disposable income per capita
Frequency	Monthly	Monthly	Quarterly	Monthly
Measure coverage	Includes hourly and incentive wage rates, as well as overtime. Includes earnings from part-time and hourly jobs.	Includes hourly and incentive wage rates, as well as overtime. Accounts for changes in the length of the work week. Includes earnings from part-time and hourly jobs.	Includes wages and employer costs corresponding to a measure of total compensation.	Includes all sources of income, taxes, and transfers. It is a good indication of purchasing power because it is relative to population size.
Measure omission	Does not count total hours worked. Does not include benefits, irregular bonuses, retroactive items, and payroll taxes paid by employers.	Does not include benefits, irregular bonuses, retroactive items, and payroll taxes paid by employers.	Is published quarterly, is an index not a dollar value, and does not cover self-employed persons.	Can be greatly affected by the government through taxes and transfers (for example, relief payments made in February 2021). Is a slightly lagged metric which decreases its usefulness for contemporary economic analysis.
Change	Jan 2021: \$11.40 Jul 2024: \$11.19	Jan 2021: \$397.90 Jul 2024: \$382.54	Q1 2021: 0.18% Q2 2024: 0.93%	Feb 2021: \$50,017 Jul 2024: \$50,450
Trend	Average monthly change Jan 2021 to Jul 2024: -0.04% Feb 2017 to Feb 2020: 0.08%	Average monthly change Jan 2021 to Jul 2024: -0.09% Feb 2017 to Feb 2020: 0.08%	Average quarterly change Q1 2021 to Q2 2024: -1.06% Q1 2017 to Q1 2020: 0.68%	Average monthly change Apr 2021 to Jul 2024: -0.08% Feb 2017 to Feb 2020: 0.23%