



## US Price Inflation – Focus on Labor’s Role

Carl Zulauf

Department of Agricultural, Environmental and Development Economics  
Ohio State University

Gary Schnitkey

Department of Agricultural and Consumer Economics  
University of Illinois

January 11, 2023

*farmdoc daily* (13): 5

Gardner Policy Series

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Recommended citation format: Zulauf, C. and G. Schnitkey. “[US Price Inflation – Focus on Labor’s Role.](#)” *farmdoc daily* (13): 5, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, January 11, 2023.

Permalink: <https://farmdocdaily.illinois.edu/2023/01/us-price-inflation-focus-on-labors-role.html>

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This article examines US consumer price inflation and unit cost of labor since 1952. Labor has drawn increasing attention as a factor in the current high US inflation rate. During the last half of the 20<sup>th</sup> Century, unit cost of labor notably dampened US price inflation. Labor ceased being a dampening factor around 2010. A potentially smaller US labor force over the next 15 years, reinforced by other changes in the US labor market, suggests high inflation may extend well into the future.

### Data

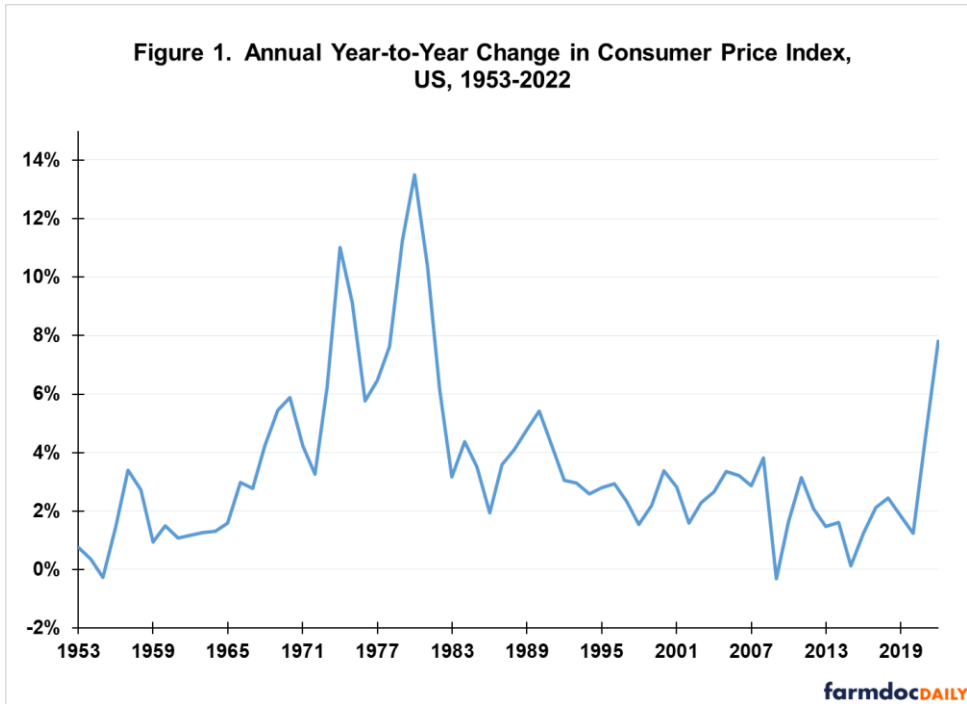
The Consumer Price Index (CPI) used in this article is for all urban consumers. It is computed by the US Bureau of Labor Statistics (BLS). BLS also computes the unit cost of labor index used in this article. Unit labor cost measures changes in wages and other remuneration earned by labor adjusted for changes in labor productivity, specifically output per hour of work. The analysis period is the 60 years from 1953 to 2022. Starting with 1953 allows time for post-World War II adjustments in the US economy. For 2022, a simple average of the data released so far is used.

### US Consumer Price Inflation

Distinct periods with different inflation rates are evident (see Figure 1). Over 1953-1965 and 2009-2020, annual consumer price inflation largely fell within a 0% - 2% range. Over 1966-1972 and 1983-2008, the range was largely 2% - 6%. Over 1973-1982, consumer price inflation exceeded 6% every year except 1976 (5.8%) and averaged 8.8%. It will approach 8% for 2022. For more discussion of US consumer price inflation, see the [October 12, 2022 farmdoc daily](#).

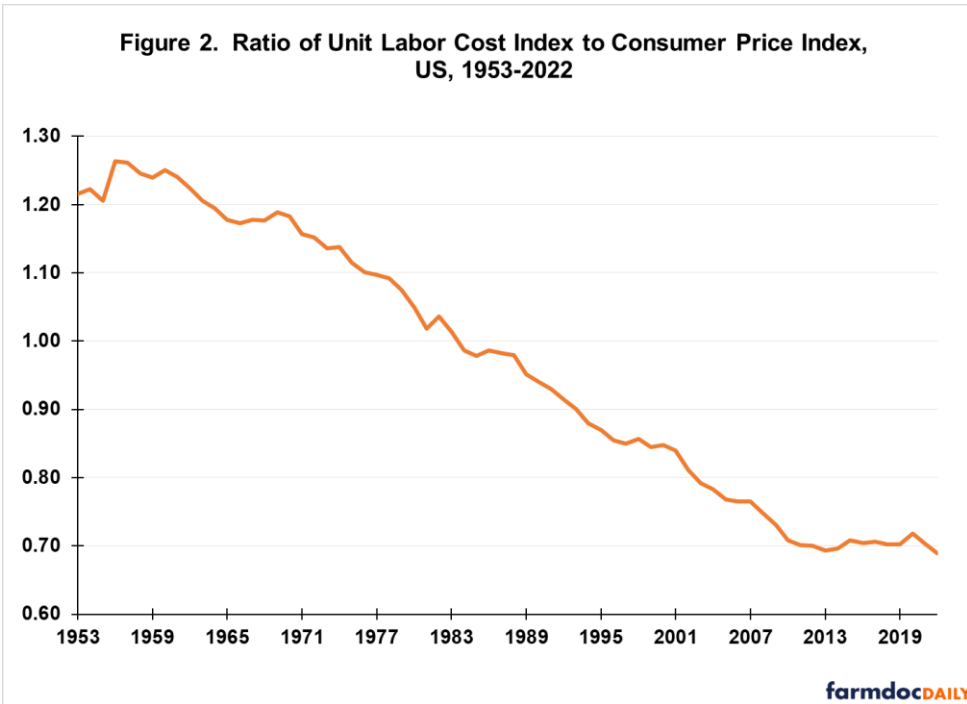
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**Unit Labor Cost**

Relative change in US unit labor cost vs. US consumer price inflation is examined by computing the ratio of the unit labor cost index for a year to the consumer price index for the same year. Excluding the 1950s, unit labor cost consistently declined relative to CPI until around 2010, indicating that unit labor cost was dampening consumer price inflation (see Figure 2). Cumulative effect of this dampening is notable. Between 1953 and 2010, the US consumer price index increased by 715%. US unit labor cost increased only by 375%, or almost less than half as much. Since 2010, the ratio has essentially remained stable, indicating that the two variables are changing at roughly the same rate. US unit labor cost is thus no longer dampening US consumer price inflation. For more discussion of US inflation and US labor market, see the [January 6, 2022 farmdoc daily](#).



To further explore the relationship between CPI and unit labor cost, the following equation was estimated using regression analysis:

$$\text{annual percent change in CPI} = 0.012 + (0.87 \text{ times annual percent change in unit labor cost})$$

$R^2$  (explanatory power) = 74%

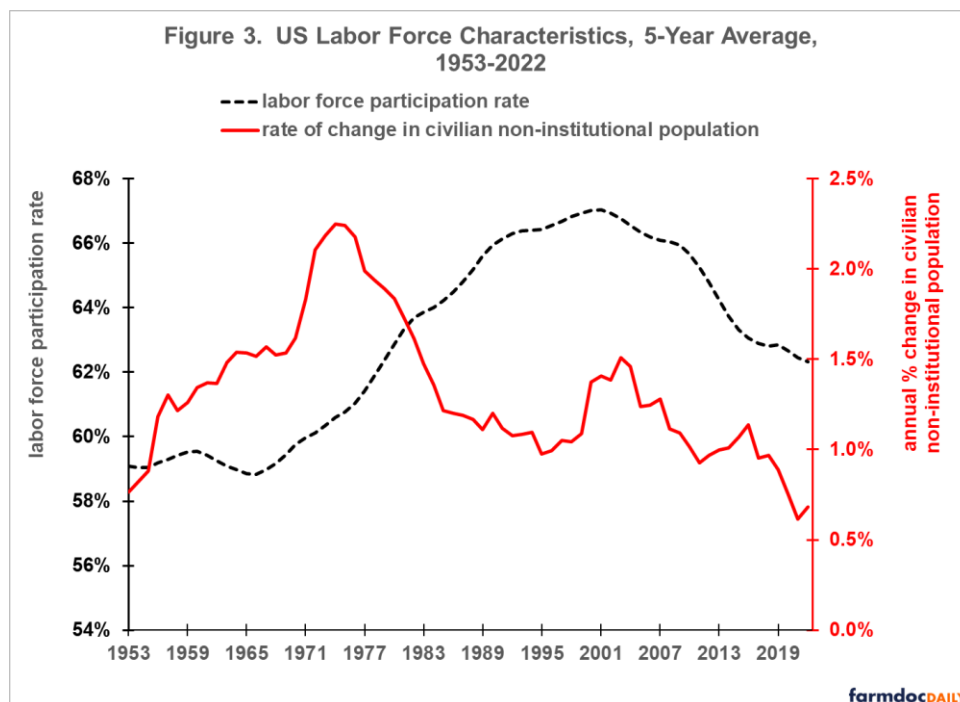
Each coefficient and the equation is significant with 99% confidence.

This equation needs to be interpreted with care. It includes only one explanatory variable, unit labor cost; but, many factors affect consumer inflation and some affect both unit labor cost and consumer inflation. This analysis is an unconditional analysis and thus likely overstates the relationship between unit labor cost and consumer price inflation. Given this caveat, the estimated relationship does suggest that unit labor cost and consumer price inflation have a high degree of association. Explanatory power is 74% and a one percentage point increase (decrease) in unit labor cost was associated with an unconditional 0.87 percentage point increase (decrease) in consumer prices.

### Looking Ahead - Labor's Role

Payments to (i.e. cost of) labor reflect the demand and supply for labor. The US civilian labor force is defined as the civilian non-institutional population, age 16 or older, who are employed or are not employed but seeking employment (BLS, 2023). It includes citizens of foreign countries who reside in the US and do not live on the premises of an embassy. It does not include active duty members of the US Armed Forces and people confined to, or living in, institutions / facilities such as prisons, detention centers, skilled nursing homes, and other residential care facilities. The labor force participation rate is the share of the population that is either working or actively looking for work. It is calculated as (number of people in the labor force) divided by (civilian non-institutional population) (BLS, 2023).

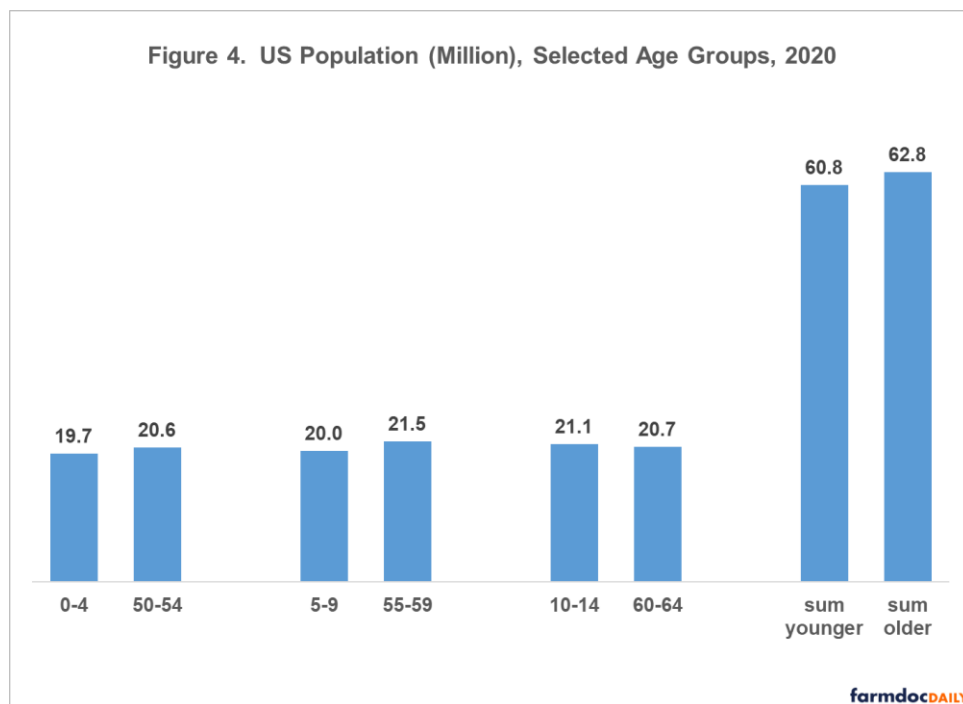
The US civilian non-institutional population increased at an increasingly faster rate until the mid-1970s. Its 5-year average rate was 2.2% in the mid-1970s compared with only 0.5% in the early 1950s (see Figure 3). Moreover, in the early 1960s labor force participation also started to increase, in part due to the large baby boomer generation reaching age 16. Five-year averages are used to dampen year-to-year variability, especially in the rate of change of the civilian non-institutional population.



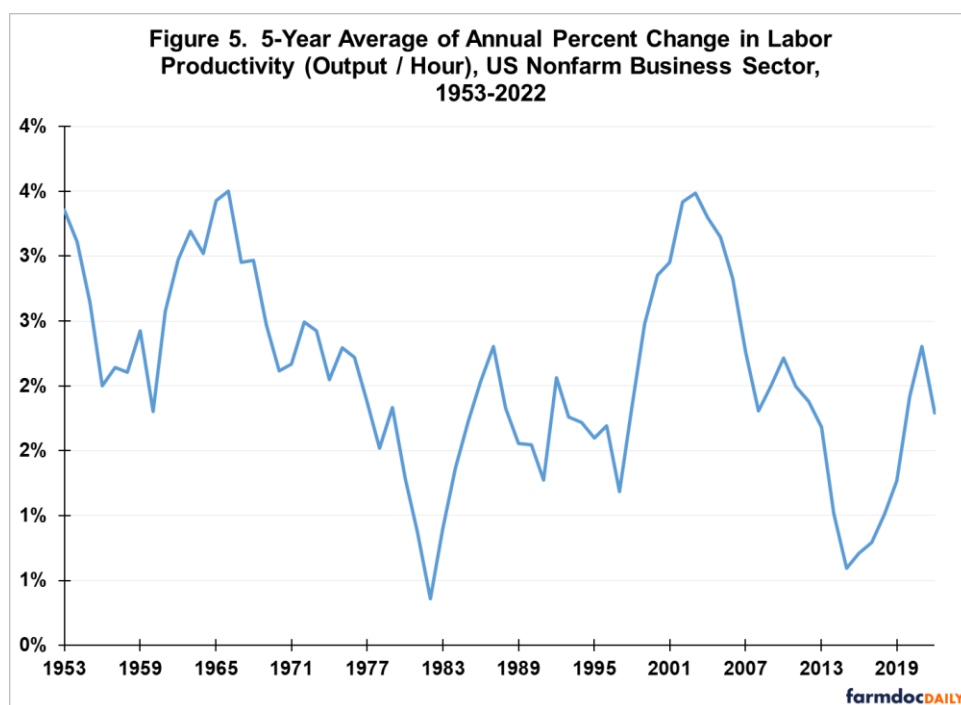
Since the mid-1970s, rate of increase in the US civilian non-institutional population has progressively slowed, averaging 0.7% over the last 5 years (2018-2022). The smaller increase initially reflected the

smaller age cohorts following the baby boomers. Since 2000 labor force participation has also fallen. Its decline has been especially pronounced since 2010: from 66% in 2010 to 62% in 2022.

Assuming immigration is low and labor force participation does not change, a reasonable idea of future changes in the US labor force can be obtained for the next 15 or so years from the current distribution of the US population by age group (i.e. US population pyramid). Specifically, the 5-year age group that will enter the labor force is compared with the 5-year age group that will exit the labor force, assuming 65 remains a common retirement target. For example, individuals who are age 10-14 will enter the labor force within approximately the same timeframe as those individuals who are age 60-64 will exit the labor force. A small net increase in the US labor force appears likely in the near future as those age 10-14 in 2020 enter the labor force and those age 60-64 in 2020 retire (see Figure 4, constructed using data from Population Pyramid.Net). A decline in the US labor force however appears to be a distinct possibility when those age 0-9 in 2020 enter and those age 50-59 in 2020 retire. In total, the US labor force will move toward being approximately 2 million fewer by 2035, assuming no other labor force factors change.



Higher labor productivity can offset the impact of slower growth in the labor force upon the unit cost of labor. Since 1952, the peak 5-year average of annual growth in US labor productivity has been approximately 3.5% (see Figure 5). The latest such peak occurred around 2000 and is usually attributed to advances in computer software and hardware. Annual labor productivity growth has averaged 2.1% per year since 1952, but, since 2010, it has averaged 1.5%, with a range of 0.6% to 2.3%. Changes in labor productivity (i.e. technology) are difficult to forecast, but this recent history suggests that higher than average growth in US labor productivity is unlikely in the near future.



## Summary

Distinct periods of US consumer price inflation have existed since 1950. In other words, high inflation is unlikely to be a one year phenomenon, but is likely to extend over several years.

Consumer price inflation and unit labor cost are closely associated.

After adjusting for changes in labor productivity, labor cost notably dampened US price inflation during the last half of the 20<sup>th</sup> Century. However, since 2010, the cost of labor has not dampened US inflation.

Assuming the US decides to continue to restrict immigration, the US labor force may start to decline in the next 10-15 years as more individuals exit than enter the US labor force. A declining supply of labor will put upward pressure on labor remunerations and thus unit labor cost.

Also suggesting higher labor cost are US businesses' current desires to reduce exposure to foreign supply chains risks and to rethink just-in-time production as well as the post-COVID lockdown desire of many US workers for greater work-time flexibility.

While inflationary periods are caused by the interplay of many factors, the current US labor market situation suggests higher labor cost and thus higher rates of inflation could last for an extended time.

It also suggests higher interest rates (i.e. Federal Reserve policy) is only part of the solution to current US price inflation. In recent years, the US has sought to restrict immigration, invested little in labor productivity research, and not adjusted laws and regulations that discourage labor force participation, such as the tax penalty for people receiving Social Security income who return to work. In short, the US will need to reconfigure its policies and budget priorities if it wants to address labor's role in current US inflation.

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