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Economics Group

Special Commentary

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An Industry Look at Wage Growth & Inflation

Executive Summary

Wage growth has trended higher as the expansion has matured. While the relationship between labor market slack and inflation is weaker than it once was, it is still significant. Further, the relationship differs by industry. Industries where labor accounts for a high share of input costs tend to be more exposed to higher inflation from rising wages. Wages and inflation are not linked across all industries, but do bear a positive relationship in a few key industries. Healthcare services and housing are the most notable industries to watch. Not only are prices in these industries closely linked to rising wages, but given their large weight in the PCE deflator, firmer earnings growth could lead to meaningful upward pressure on inflation.

Does Something Gotta Give?

The risk that a tight labor market sets off inflation appears low in the minds of both investors and monetary policy makers. The gap in yields between traditional Treasury securities and Treasury Inflation Protected Securities (TIPS) are near historic lows, while FOMC members expect inflation will continue to undershoot the committee's 2% target this year. The tepid view comes as inflation has struggled to gain traction despite a tight labor market (Figure 1). The relationship between labor market slack and inflation—commonly referred to as the Phillips Curve—has weakened in recent decades.[1] Instead, inflation expectations, technology and globalization have taken on a greater role in inflation dynamics.[2]

The relationship between labor market slack and inflation has weakened.

Figure 1

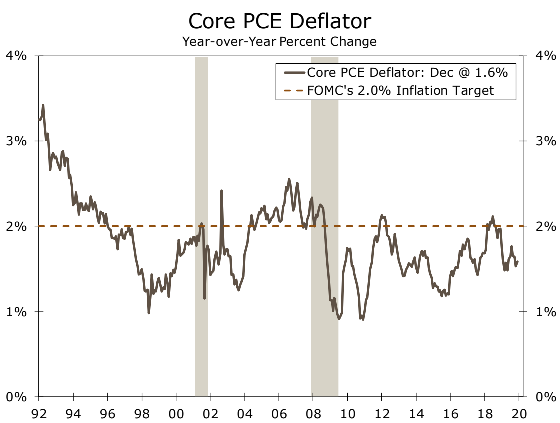
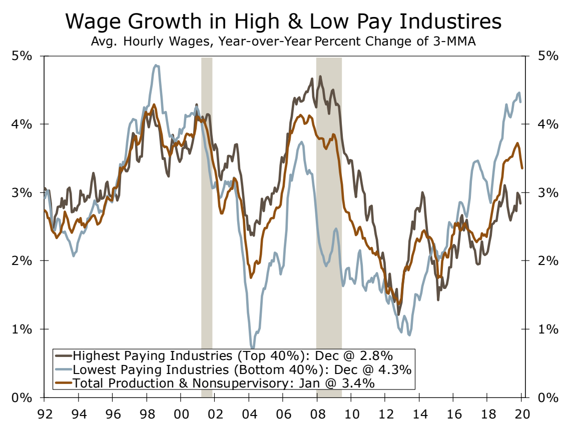


Figure 2



Source: U.S. Department of Commerce, U.S. Department of Labor and Wells Fargo Securities

That said, stronger wage growth is still tied to higher inflation, even if the relationship between labor market slack and price growth has generally weakened. Despite some loss of momentum the past few months, wage growth has trended higher as the expansion has matured. Average hourly

[1] **Engemann, Kristie. "What Is the Phillips Curve (and Why Has It Flattened)?" Federal Reserve Bank of St. Louis. (January 15, 2020).**
[2] **See, "Do Wages Still Matter for Inflation?" (August 31, 2017) for more detail.**

earnings for production and nonsupervisory workers are up 3.3% over the past year compared to an annualized rate of 2.3% from 2010-2018. Wage growth has been particularly strong in lower-paying industries amid revived demand for workers (Figure 2). While the tight labor market has only a modest effect on overall inflation, are prices in some industries particularly vulnerable to rising wages?

Which Industry's Prices Are Susceptible to Rising Wages?

A simple regression of average hourly earnings growth and PCE inflation shows a statistically significant, but very weak relationship between wages and overall inflation. A 1.0 percentage point rise in the year-over-year rate of average hourly earnings corresponds to PCE inflation increasing by only 0.1 percentage point. Although admittedly this does not control for other factors affecting inflation, such as productivity growth or inflation expectations, it does allow us to easily compare the intra-industry relationship between wage growth and inflation.[3]

Industries with a significant relationship have a high share of input costs stemming from labor.

Figure 3 illustrates the basic relationship between an industry's average hourly earnings and inflation for the goods/services provided by those industries.[4] For the most part, industries with a significant positive relationship between wages and inflation are those with a high share of input costs stemming from labor. For example, a 1.0 percentage point rise in the year-over-year change in wages for healthcare workers increases healthcare services inflation by 0.7 percentage points. As shown in Figure 4, labor accounts for 55% of input costs in healthcare. Other industries in which rising wages are associated with a significant increase in industry inflation include professional services, accommodation, food services and leisure, although the impulse is notably smaller than in healthcare. We find a few industries with no significant relationship between rising wages and higher inflation, including transportation, financial services and retail.

Figure 3

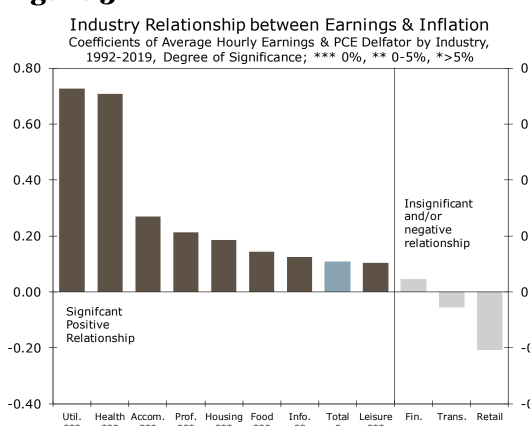
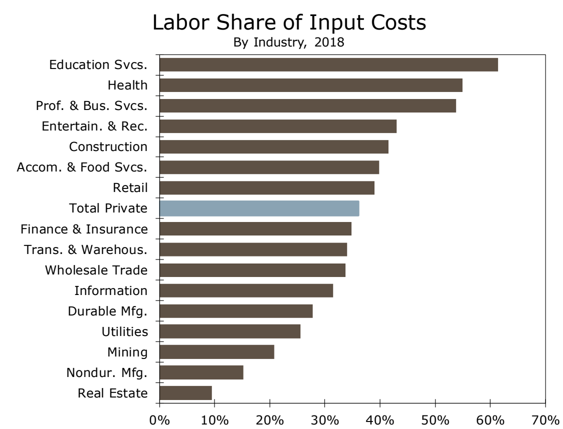


Figure 4



Source: U.S. Department of Commerce, U.S. Department of Labor and Wells Fargo Securities

Another industry where wage increases are strongly associated with higher prices include utilities. However, wage growth explains much less of the variation in industry inflation since the early 1990s for utilities than it does for the healthcare sector (R^2 of 0.07 versus 0.22, respectively). Moreover, when it comes to the inflation outlook, utilities account for only a small share of household spending and the PCE deflator (2.4%). In contrast, healthcare accounts for about 17% of the PCE deflator (Figure 5). At the same time wage growth in the utilities industry is showing no clear uptrend in wages despite a tightening labor market. In contrast, wage growth has been steadily rising in the healthcare industry (Figure 6).

[3] We focus on service-sector industries, since manufactured goods and mined materials are consumed by households from retailers, not at the factory gate. Similarly, since the PCE deflator captures the consumption, rather than the initial investment/purchase of buildings, we bypass construction.

[4] We matched the BLS's Average Hourly Earnings major service industries to the BEA's PCE Deflator categories. See appendix for more details.

Figure 5

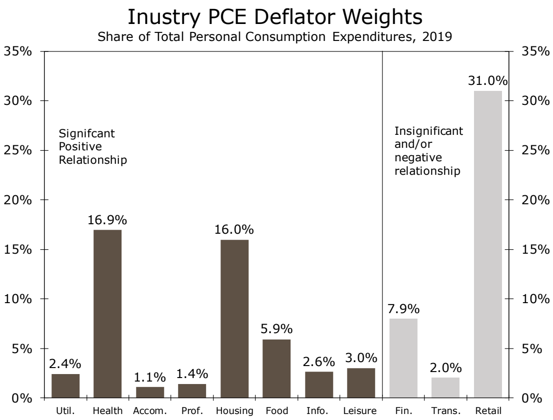
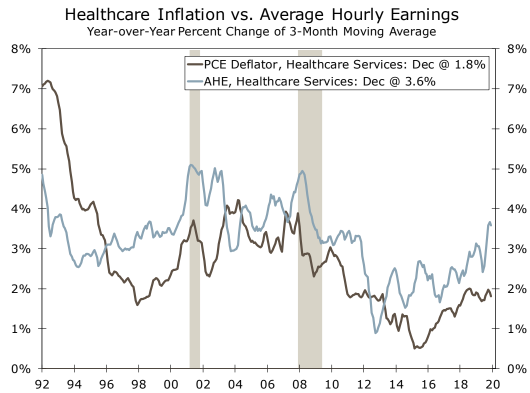


Figure 6



Source: U.S. Department of Commerce, U.S. Department of Labor and Wells Fargo Securities

The link between wages and inflation in the real estate sector is also worth highlighting. Wage growth in the real estate sector has a significant relationship to housing prices, but in this case, the industry link is somewhat misleading. A Granger Causality test suggests that higher wages for workers in the real estate does not cause higher inflation. That may not be surprising given wages for many in the industry are commission based and therefore tied to transaction prices. Furthermore, labor accounts for less than 10% of input costs for the sector (refer back to Figure 4).

Industries Where Wage Growth Stands to Move the Needle on Inflation

We do not expect the tight state of the labor market to lead inflation to rip significantly higher anytime soon. After all, average hourly earnings growth has cooled slightly in recent months, and when adjusted for productivity—which allows companies to pay workers more without raising prices—*unit* labor costs are still running around 2%. That said, prices in a few industries look poised to accelerate as wages have trended higher, and generate some upward pressure on overall inflation.

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Most notable is the potential for healthcare inflation to rise as wage growth in the industry has strengthened. Increases in healthcare wages have been outpacing inflation in the industry for nearly seven years now (refer back to Figure 6). If passed on, increasing labor costs for providers could bear importantly on core inflation, which is closely watched by the FOMC, given the industry's sizeable weight in the PCE deflator (~17%). Subdued healthcare inflation this cycle has been a key reason core PCE has generally fallen short of the Fed's 2% target over the past decade. Core PCE inflation *excluding* healthcare has run an average of 15 bps below its pre-recession average this cycle, whereas *including* healthcare, core PCE inflation has run 40 bps lower.

Housing inflation will be another area to watch as wages rise. While rising wages for the real estate industry do not cause higher housing prices, a more generalized pickup in wage growth is associated with upward pressure on housing inflation. We find the link between *total* average hourly earnings to be stronger than real estate industry wages when associated with housing inflation. Specifically, a 1.0 percentage point increase in overall wages increases housing inflation by 0.5 percentage points. What's more, a Granger Causality test suggests stronger total wage growth contributes to and is not merely correlated with higher housing inflation. This intuitively makes sense from a demand perspective. As households receive higher wages, they are able to afford more housing, which in turn pushes shelter costs higher. Housing also commands a large share of the PCE deflator (~16%), meaning a renewed pickup in average hourly earnings could channel more support to inflation later this year via the housing component.

Conclusion: Wages Still Key for Inflation, at Least in Some Sectors

Although average hourly earnings growth has cooled a bit in recent months, we expect wage growth to resume an upward trend later this year. Measures of businesses' compensation plans have perked back after retrenching in the middle of last year. At the same time, a record share of small businesses report finding qualified labor as their single most import problem. Further signaling that the labor market remains generally tight is a near 50-year low in the unemployment rate, flat trend in jobless claims, and a prime-employment population that has more than recovered from the Great Recession. Job openings have declined over the past year and bear close watching, but vacancies are still at historically high levels.

Healthcare services and housing are two areas to watch for higher inflation.

While labor-intensive industries like accommodation, leisure, food and professional services stand to put some upward pressure on inflation as wage growth firms, we see healthcare as the most significant area to watch. Not only does inflation in that sector bear a relatively strong link with wage growth, but the sector accounts for a large share of the PCE deflator. Wages have been trending steadily higher in this sector and highlights the risk of healthcare inflation picking up from its anemic rate this cycle. Stronger wage growth overall should also buoy housing inflation, another significant share of the PCE deflator. Therefore, while labor market slack and inflation do not have as tight of a relationship today as in prior decades, we still expect to see some upward pressure on inflation stemming from higher wage costs.

Appendix

The BLS reports average hourly earnings data by NAICS industry, but prices are reported by spending categories. The two reporting structures do not always align in terms of the prices of goods/services and the industries that provide them. Therefore, we adjust some of the earnings and inflation categories to better align conceptually. When adjusting categories of earnings, we re-weight based on each included sub-industry's share of employment. Similarly, when we adjust inflation categories, we calculate a weighted average of the year-over-change in each sub-index based on the category's share of that group's spending.

For details on what categories of earnings and inflation are included for each industry, see the table below:

Analysis Categories

Industry/Categories	BLS: Average Hourly Earnings NAICS Industry (NAICS)	BEA: PCE Deflator Inflation Categories
Total	Total Production & Non-Supervisory	Total PCE
Accommodation	Accommodations (721)	Accommodations
Financial Activities	Credit Intermediation & Related Activities (522); Securities, Commodity Contracts, Investments, Funds & Trusts (523); Insurance & Related Activities (524)	Financial Services & Insurance
Food Services	Food Services & Drinking Places (722)	Food Services
Healthcare Services	Ambulatory Health Care Services (621); Hospitals (622); Nursing & Residential Care Facilities (623)	Health Care Services
Housing	Real Estate (531), Rental & Leasing Services (532)	Housing
Information	Information (51)	Telecommunications; Internet Access; Information Services (Cable, Broadcasting, etc.)
Leisure	Arts, Entertainment & Recreation (71)	Membership Clubs, Sports Centers, Parks, Theaters & Museums; Gambling; Other Recreational Services
Professional Services	Professional & Business Services (54-56)	Professional & Other Services
Retail	Retail Trade (44-45)	Goods
Transportation	Air Transportation (481); Ground Transportation (485); Support Activities for Transportation (488)	Other Motor Vehicle Services; Public Transportation; Postal & Delivery Services
Utilities	Utilities (22)	Household Utilities

*** We did not include Education Services in our analysis because Average Hourly Earnings Data was not avilable for the industry.**

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