SPECIAL REPORT

TD Economics

June 22, 2016

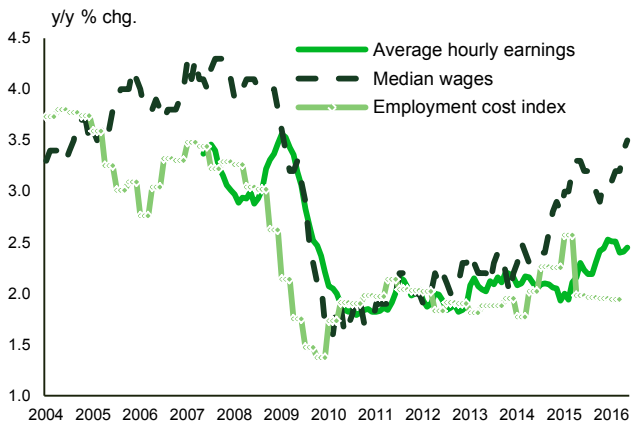
AMERICAN WORKERS DUE FOR A PAY RAISE: IN DEFENSE OF THE PHILLIPS CURVE

Highlights

- The lack of meaningful acceleration in wage growth has called into question the validity of the Phillips curve – the inverse relationship between wage growth and unemployment. In fact, many policymakers, including some on the Federal Open Market Committee, have suggested that the link is weak or even broken altogether.
- The existence and strength of this relationship is of utmost importance for monetary policymaking, particularly at this current juncture, as the labor market nears full-employment.
- Our analysis, which utilizes regional and industry-level data, argues that the Phillips curve relationship is strengthening but has recently been obstructed by transitory factors stemming from the slump in oil prices and the broad-based appreciation of the U.S. dollar.
- As these factors dissipate, we expect wage growth to increasingly approach a pace that is more in line with the labor market fundamentals, exceeding 3% year-over-year next year.
- Encouragingly, our hypothesis appears to be corroborated by the recent acceleration in wage data. These developments have not gone unnoticed by the Federal Reserve, with Chair Yellen's semiannual testimony to Congress this morning noting the "tentative signs that wage growth may finally be picking up."

The recovery from the Great Recession has been anything but great. Chief among disappointments was the lack of a V-shaped bounce-back, with economic growth struggling to break out of the 2% pace. Two was also the 'magic' number for wage growth (see Chart 1) despite predictions of break-out under a tightening labor market. As ranks of the unemployed shrink, the story goes, workers become more demanding and businesses need to pay more to attract and retain them. This inverse relationship between joblessness and inflation is embodied by the Phillips curve.[1]

CHART 1: WILL 2 REMAIN THE MAGIC NUMBER?



Source: Bureau of Labor Statistics, Federal Reserve Bank of Atlanta, TD Economics

The Phillips curve has been a mainstay of economic theory and monetary policymaking for decades. But, it has been called into question as the decline in unemployment failed to manifest in strong wage gains.[2] Many policymakers, including several members of the Federal Open Market Committee, have argued that the link has weakened or even broken down altogether.[3] The strength of the Phillips curve relationship is of utmost importance for monetary policymaking, especially at this juncture. If the link is weak and a tighter labor market does not spur faster wage growth,

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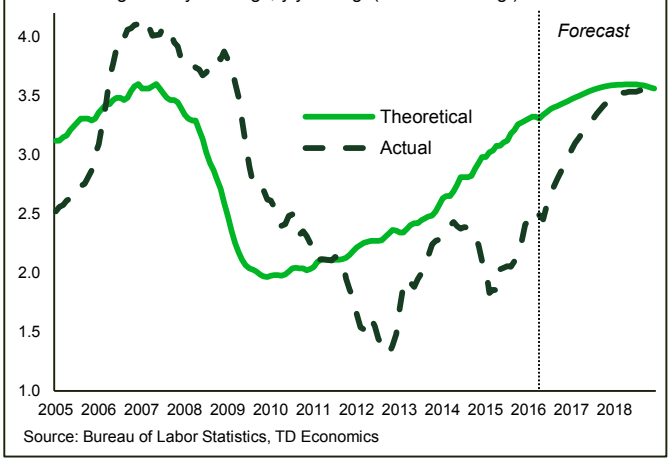
the Federal Reserve has little cause to raise interest rates. On the other hand, if the Phillips curve relationship is intact or strengthening, the Fed may find itself suddenly 'behind the inflation curve.'

There is little doubt that the legacies of the Great Recession, both cyclical and structural, loosened the inverse relationship between unemployment and wage growth, particularly in the early years of the recovery. However, our analysis demonstrates that this important relationship is strengthening but is being obstructed by transitory factors. Wage growth is being dampened by factors related to the recent oil price slump and U.S. dollar appreciation. Importantly, these factors will increasingly dissipate, uncovering the underlying strength visible across most U.S. states and industries, manifesting itself in wage pressures in the national metric.

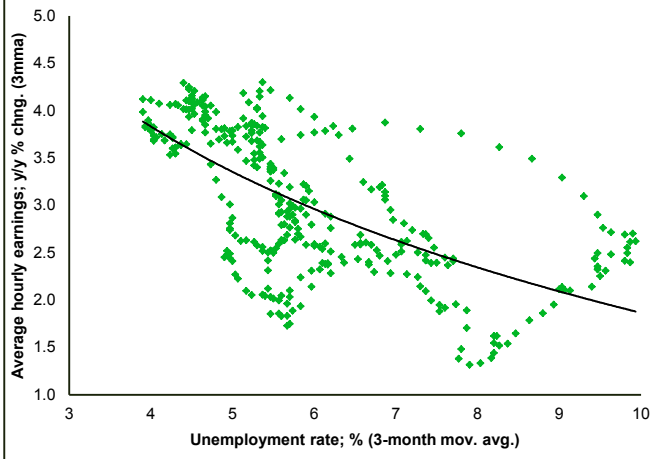
As such, wage growth should accelerate and converge to be more in line with labor market fundamentals, with the pace of wage growth, as measured by average hourly earnings, likely to increase to near 3% y/y by the end of this year and exceed that pace next year (see Chart 2). Alongside stabilization in the value of the U.S. dollar and oil prices, the pass-through of faster wage growth could put significant upward pressure on consumer prices in the United States. This is particularly true in an environment where real wages are increasing faster than labor productivity, as has been the case recently, with firms potentially rising prices to offset the higher unit labor costs. In light of this, the Federal Reserve may be wise to continue the process of removing accommodation in the near-term, albeit at a very gradual manner given the weak global backdrop and heightened risks.

CHART 2: WAGE GROWTH TO ACCELERATE IN LINE WITH FUNDAMENTALS



Source: Bureau of Labor Statistics, TD Economics

CHART 3: A LOOPY PHILLIPS CURVE



Source: Bureau of Labor Statistics, TD Economics

The loopy curve

The inverse relationship between unemployment and wage growth has been well documented. The link suggests that as unemployment falls and labor resources become scarcer wages become pressured upward. With time, wage pressures will feed through to consumer prices in a solid demand market, as firms pass along their rising input costs in order to preserve profit margins.

Phillips observed this relationship in U.K. annual data through 1958. In the U.S. the link is most evident during the environment of stable inflation that followed the early-1980s recession (see Appendix A). The stylized relationship, demonstrated in Chart 3, implies that as unemployment nears its neutral level, wages should be growing at around 3.5%. It also suggests that wage growth should have slowed below 2% as the jobless rate reached double digits, and augurs an acceleration to 4% should unemployment fall to that level. Still, this is a stylized relationship, with actual outcomes highly volatile, particularly at higher frequencies.

Much of the volatility is related to economic cycles themselves. Business cycles tend to distort the relationship between unemployment and compensation. Wages frequently overshoot during recessions, as a result of downward nominal wage rigidities, as many firms are unable or reluctant to cut nominal pay. Over time, these accumulate in pent-up wage deflation. This is a notion the Fed Chair, Janet Yellen, noted in her 2014 Jackson Hole speech as being instrumental in holding back wage growth during the recovery. Compositional and structural factors also lead average wage measures to overestimate actual compensa-

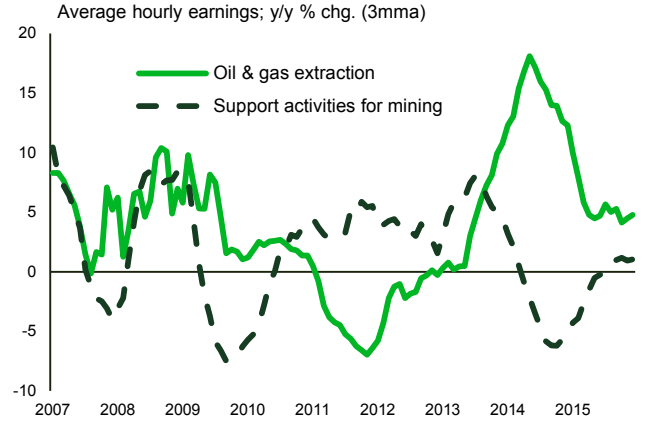
tion growth as firms hold on to more experienced workers, who tend to get paid more, while letting go of inexperienced and lower-paid workers. Opposite dynamics manifest during the recovery as firms attempt to work off pent-up wage deflation and hire the less-experienced employees back. As such, rather than a smooth arc, the Phillips curve is instead made up of a series of overlapping loops.[4]

Wages weighed down by Great Recession legacies

The same dynamics were present during the Great Recession albeit to a larger degree. The magnitude of the distortion was especially pronounced due to the severity of the downturn alongside various structural factors and a low inflation environment. As such, nominal wage rigidities were particularly pronounced, leading to a significant accumulation of pent-up wage deflation. During the downturn, wages were further supported by significant job losses concentrated amongst less experienced workers, while a large cohort of highly-experienced and well paid Baby Boomers delayed retirement.[5] Average hourly wages continued rising at a pace of near 4% despite unemployment nearly doubling. Wage growth slowed to merely below 3% even when the jobless rate approached double digit levels.

The resulting level of pent-up deflation acted to restrain wage growth during the recovery, as firms that had shielded workers from wage cuts were reluctant to raise wages. Moreover, wages were further depressed with the hiring of less experienced workers (including workers that were marginally attached, discouraged, and the long-term unemployed), structural changes that led many to change professions, and a wave of previously delayed retirements.

CHART 4: SUPPORT FIRMS FIRST TO CUT WAGES, BUT PRODUCERS FOLLOWING



Source: Bureau of Labor Statistics, TD Economics

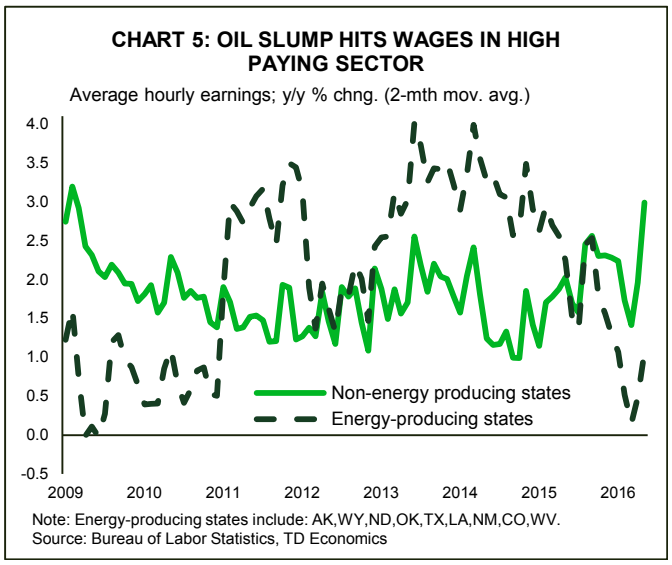
Other factors included the falling share of labor income[6] as well as rising share of benefits in worker's pay.[7]

By 2013, wage growth appeared to be converging to the pace suggested by the Phillips curve, but this proved a head-fake.[8] Much of this dynamic was related to rapid gains in energy-producing states. Moreover, the relationship begun loosening once again in mid-2014, as a rapid slump in oil prices, a surge in the U.S. dollar, and falling inflation stemming from both of these factors impacted wage growth. On the whole, given the scope and magnitude of the repricing that took place in global financial markets, these dynamics not only hindered economic growth in America, but also slowed wage growth– something that is typically insulated from outside factors.

Oil wages slide with crude prices

The most severe external shock to the U.S. economy has undoubtedly been the slump in oil prices. The price collapse decimated investment and resulted in severe job cuts in the oil & gas sector. Intense pressure to cut costs across the industry has also led to decelerating, and in some cases declining, workers' hourly wages. Firms that support drillers were the first to see cuts, with wages declining in the last two years after growing by an average of 5% during the 2011 through 2013 period (see Chart 4). Workers in the extraction industry have been spared nominal wage cuts thus far, supported by gains in supervisory positions, but production and non-supervisory worker wages have in recent months seen declines of as much as 8% from the previous year – a record decline going back to at least 1974. The oil & gas sector is a relatively small employer, making up a mere 0.6% and 0.7% of private payrolls and hours, respectively. As such, it has had limited direct impact on aggregate wages, slowing private sector wage growth by about 0.1 percentage points on an annualized basis.

However, the total impact of the oil price slump on U.S. wage inflation is more pronounced once spillover influences are accounted for. The collapse in demand from the oil & gas industry has weighed heavily on the performance of industries that support it directly, including manufacturing and transport. Moreover, given its high regional concentration, the income shock has severely hurt entire economies in energy-rich regions. Oil & gas producing states[9] have experienced a significant deceleration in wage inflation in recent quarters, with wage growth slowing from 3.5% y/y prior to the oil price slump to nearly flat earlier this year



(see Chart 5).[10] As such, while the energy boom in these states previously boosted national wage growth metrics by 0.2 percentage points, the recent slump has since reversed this contribution, resulting in a 0.4 percentage point drag. Excluding oil & gas producing states, the recent acceleration in wage growth in the remaining 41 states has been far more pronounced, rising from 1.6% in the 2011-14 period, to 3% recently – a notable acceleration and a recovery high.

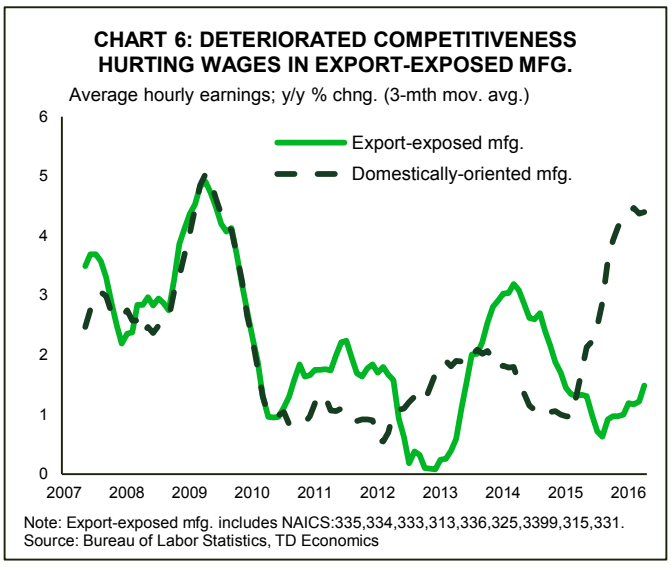
Despite the sharp job losses, unemployment rates across most of these states have barely budged and remain very low after years-long "shale boom." This has been facilitated by a deeper contraction in the respective labor force as workers retired or left the state for other opportunities. This experience was very different from the Great Recession, when workers had little in the way of greener pastures to turn to with the whole country in recession. As such, with the brunt of the adjustment so far exhibiting on hours worked and wages, the normal relationship between labor market slack and wages has significantly weakened. In fact, across eight of the nine oil & gas producing states, the Phillips curve carries a counter intuitive profile of being upward sloping or virtually flat (see Appendix B) This runs contrary to the majority of non-oil producing states, where the normal relationship between unemployment movements and wages holds true with downward sloping curves (Appendix C).

The slump in oil prices is unlikely to continue indefinitely. Already, oil prices have rebounded to near the $50 per barrel level – frequently cited as a profitability threshold for many U.S. shale energy firms. Production of crude oil in the U.S. has already fallen by nearly 1 million barrels per day, with growth in global supply likely to remain under pressure by the significant pullback in investment. As such, alongside some modest increases in demand, crude oil prices should remain reasonably supported with recent rig count figures suggest the trough in drilling activity may be behind the industry. While any remaining pent-up wage deflation that has recently accumulated in the mining (and potentially other) industries across oil-producing states will likely weigh on wage gains in the near-term, the improving economic backdrop will thereafter lead these economies to return to more normal dynamics between wages and joblessness.

Lofty greenback floors manufacturing wage growth

Another instance where external factors are impacting American wages is in the manufacturing sector. U.S. manufacturing has been a relative success story during the 2010-2014 years but the weakness in global growth vis-à-vis that of the U.S. has manifested in diverging monetary policies – the Fed has embarked on a very gradual tightening cycle, while the Bank of Japan and the European Central Banks continue to augment their stimulus measures. The dollar has taken the brunt of the adjustment, with the greenback rallying as much as 20% in trade-weighted basis since-2014. The high-flying dollar is helping keep prices low in the U.S. but has become a huge burden for manufacturers competing globally. For those selling their wares in the global marketplace, the environment is further complicated by relatively lukewarm demand worldwide.

Export-exposed manufacturers face the most difficult business conditions. To compete globally, firms have had to reduce costs leading to job cuts and/or restraint in labor compensation. Wage growth slowed from around 3% in



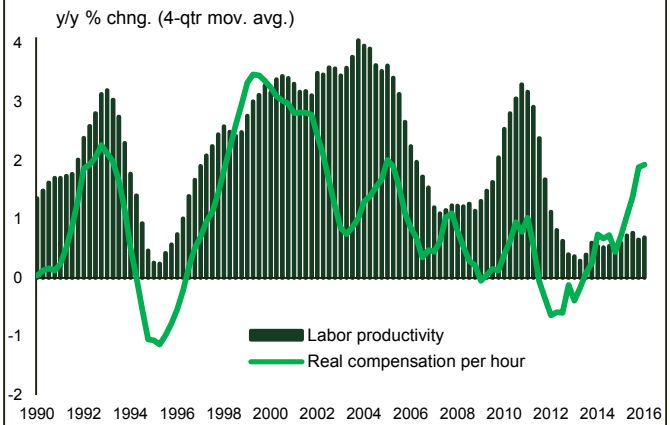
early-2014 to half that pace in recent months (see Chart 6). This dynamic is directly slowing aggregate wage growth by about 0.1 percentage points, and potentially more once accounting for spillovers. On the other hand, while domestically-oriented manufacturers also face international competition in the domestic market, U.S. demand remains robust, helping business conditions for firms in the food & beverage, wood, and furniture production. As such, wages in domestically oriented manufacturing are rising by more than 4% – more than double their average of the recovery.

Still, after hitting a recent peak in early-2016, the dollar has retreated from its sky-high level alongside declining expectations for the pace of Federal Reserve rate hikes. This has enabled exporters to regain some previously lost competitiveness. The improving environment was also corroborated in the manufacturing surveys which appear to be recovering after the recent trough. With most the U.S. dollar strength in the rear view, a premise based on a very gradual Fed tightening cycle alongside some modest improvement in global demand, we expect export-exposed manufacturing to fare somewhat better going forward, with the more constructive business environment potentially enabling these firms to offer higher wage for their workers.

Steady cost of living helps keep wages in check

The combination of collapsing oil prices and a surging dollar has also acted to restrain inflation, which slowed from nearly 2% to zero last year. While the underlying inflation rate is ignored in the original Phillips curve specification, it is plausible that negotiations between workers and firms could depend on the level of inflation rate – actual and/or

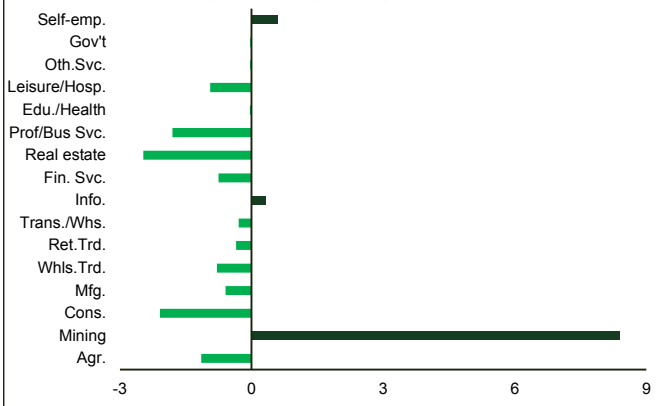
CHART 7: REAL WAGES OUTPACING PRODUCTIVITY



Source: Bureau of Labor Statistics, TD Economics

CHART 8: NEARLY ALL INDUSTRY JOBLESS RATES ARE BELOW PRE-RECESSION LEVELS

Unemployment rate by industry; relative to 2000-07



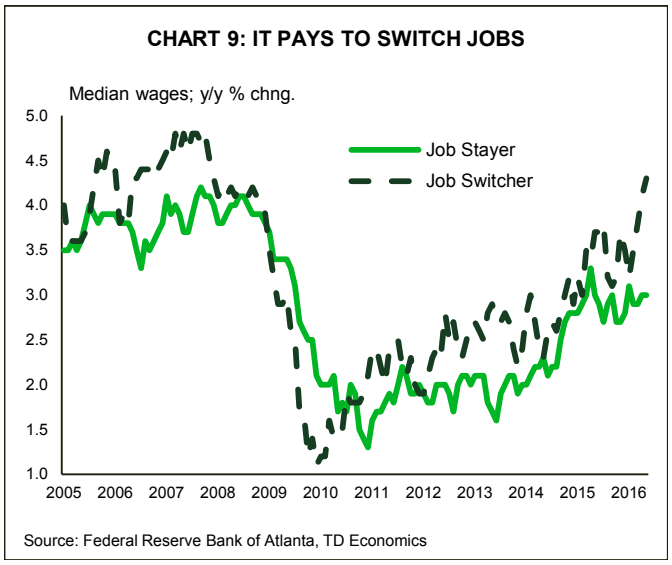
Source: Bureau of Labor Statistics, TD Economics

expected. In an environment of low inflation, where goods and services prices are largely flat, workers would likely require less of a raise to maintain or improve their standard of living. At the same time, low inflation would also weigh on business revenues, thereby hindering their ability to raise wages without passing them on – something that could be challenging in a weak demand environment.

The relationship, which adjusts for underlying inflation, is indeed supported by the data during recent periods of recovery (see Appendix D). In fact, the real Phillips curve offers a better data fit than its nominal cousin since the Great Recession ended. If wage dynamics in fact depend on,[12] as well as help drive inflation, a rise in headline inflation slated to take place in the coming quarters may put significant pressures on wage growth. Importantly, real wage growth has actually been very robust recently, and is ahead of figures consistent with trend productivity gains (see Chart 7). Should labor productivity continue to be outpaced by real wage growth, it could put additional pressure on businesses to raise prices to offset higher unit labor costs and protect their bottom lines – potentially resulting in cost-push inflation pressures.

Wage strength diffusion across industries and states

Aside for the softness in externally exposed mining, manufacturing, and their closely related industries,[13] most U.S. sectors are doing quite well. Robust job growth in recent years has led to a significant improvement in labor market conditions that has been felt broadly across industries. Unemployment rates across nearly all major industries have declined to, or below, their pre-recession levels (see Chart



8). This should limit any potential downward pressure on wage growth from workers changing jobs and/or industries because of weak conditions at their current workplace. In fact, wage growth among persons who switched jobs has accelerated to 4.3% last month,[14] exceeding its 2003-07 average and outpacing wages for those that did not change jobs by the highest margin of the recovery (see Chart 9). Moreover, aside for several externally exposed industries, most industries now exhibit normal downward sloping Phillips curves (see Appendix E), suggesting that further improvement should manifest in wage pressures.

Moreover, the shadow slack which surged during the recession has been substantially reduced. The broadest measure of unemployment, which in addition to the unemployed includes workers who are discouraged, marginally attached, or working part time for economic reasons, has recently fallen below levels registered during the previous two economic cycles. Importantly, there is evidence that wage growth may be more tightly linked with these broader measures of labor market slack,[15] with metrics of marginally attached and involuntary part-time workers appearing better at explaining wage growth than the headline unemployment rate. Of note is the fact that an improvement of the broader measures closer to their pre-recession levels could raise wage inflation by as much as half of a percentage point.

Bottom line

The rapid decline in oil prices alongside a rally in the U.S. dollar has motivated a substantial reallocation of resources in the U.S. economy, with the adjustment impacting wages of American workers. But, this process will not last indefinitely. Already, oil prices have rebounded while the dollar has in recent months retreated from its sky-high levels.

Given our base case forecast of slightly higher oil prices, very gradual interest increases by the Fed, and a dollar near its current level, much of the pain and required adjustment appears to be in the rear-view. As such, we expect wages of American workers to be increasingly responsive to fundamental factors, such as labor market underutilization and cost of living dynamics. This notion appears to be corroborated by state level data, whereby the sensitivity of average hourly earnings to the rate of unemployment is rising.[16]

Importantly, the fundamentals are increasingly encouraging. Many of the legacies that have been weighing on wages in the prior years of the recovery have largely dissipated, or are in the process of doing so. The labor market made much headway since its recessionary trough, and the recovery has been broad across sectors. It has also reduced other measures of underutilization, encouraging more people to rejoin the workforce.

In light of the strong fundamentals and the dissipating transitory impacts that have been holding wages back we increasingly expect that wage growth will accelerate for the remainder of the year, rising near 3% on a year-over-year basis by year end. Alongside rising inflationary metrics, this could make for an increasingly concerning inflation backdrop as both of these dynamics may feed off each other. In order to avoid having to step in and raise rates rapidly should this outcome materialize, the Fed may be wise to try to get ahead of the curve and continue earlier with its very gradual tightening cycle. We believe that another hike this year should help towards the goal of removing accommodation without stifling the recovery, with another likely next year to help the Fed reach its mandate of 2% inflation, while maintaining the full-employment one, which it appears to have largely met already.

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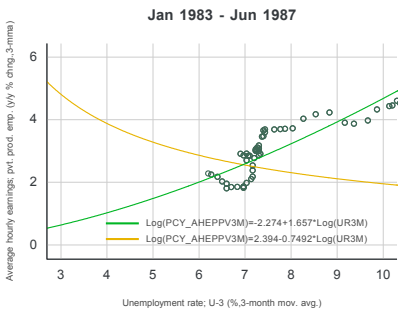
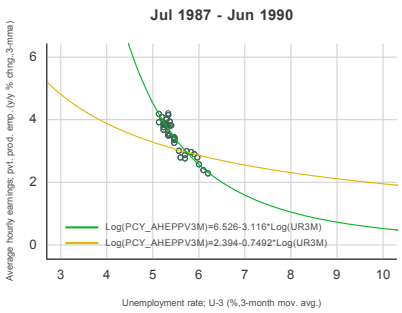
END NOTES

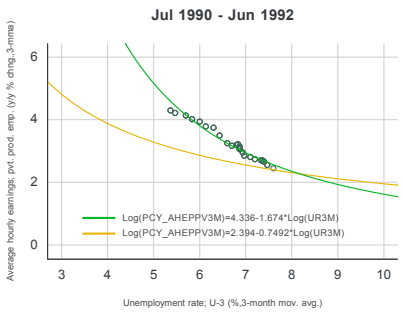
1. The relationship is often referred to as the Phillips curve after the paper by A.William Phillips titled "The Relationship between Unemployment and the Rate of Change of Money Wages in the United Kingdom 1861-1957" published in Economica in 1958. However, the relationship between joblessness and inflation has been previously described by Irving Fisher in the 1926 paper "A Statistical Relation between Unemployment and Price Changes" published in the International Labour Review.
2. This is not the first time that the validity of the Phillips curve has been doubted with many policymakers questioning it in the late-nineties also.
3. See Brainard, Lael. 2015. Economic Outlook and Monetary Policy. North America's Place in a Changing World Economy, 57th National Association for Business Economics Annual Meeting, Washington, D.C.. October 12, 2015 and remarks by Daniel Tarullo on CNBC's "Power Lunch" with Steve Liesman on October 13, 2015.
4. See Daly, Mary C., Bart Hobijn, and Timothy Ni. 2013. The Path of Wage Growth and Unemployment. FRBSF Economic Letter 2013-20. July 15, 2013.
5. See Daly, Mary C., Bart Hobijn, and Benjamin Pyle. 2016. What's Up with Wage Growth? FRBSF Economic Letter 2016-07. March 7, 2016.
6. See Barrow, Lisa and R. Jason Faberman. 2015. Wage growth, inflation, and the labor share. Chicago Fed Letter 349.
7. Benefits have outpaced wages by 50% during the recovery according to the BLS Employment Cost Index.
8. This appears to be the case based both on average hourly earnings and ECI Phillips curve variants.
9. Defined as states where share of oil & gas extraction and support activities for mining exceeds 3% of GDP. They consist, from most to least exposed, of: Alaska, Wyoming, North Dakota, Oklahoma, Texas, Louisiana, New Mexico, Colorado, and West Virginia.
10. Average hourly earnings for oil & gas producing states is a weighted average of individuals states, with weights based on the share of aggregate weekly hours which is the product of average weekly hours and private employment.
11. Export-exposed manufacturers are defined as those that export more than 20% of their gross output. They include: electrical eqpt., electronics, machinery, textiles & fabrics, transport eqpt., chemicals, other misc. manufactured products, apparel, and primary metal products.
12. See Bullard, James. 2015. U.S. Monetary Policy Normalization. OMFIF City Lecture, Frankfurt am Main, Germany. March 26, 2015.
13. Transportation & warehousing and wholesale are highly dependent on demand from goods producing sectors according to input-output tables.
14. According to the Atlanta Fed Wage Growth Tracker which measures median hourly wages of employees 12 months apart. It uses methodology developed by the San Francisco Fed staff and is based on Current Population Survey microdata.
15. Based on regressions of average hourly earnings on measure of labor market slack such as U-3, U-4, U-5, and U-6.
16. Based on rolling panel regressions of state-level data.

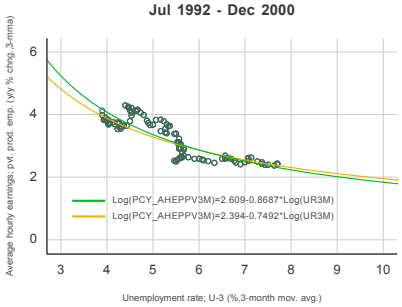
Appendix A

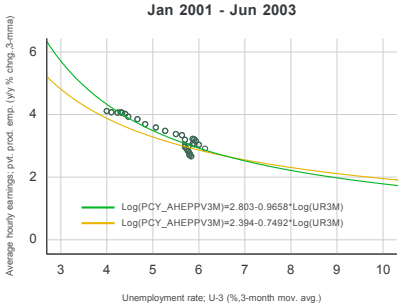
PHILLIPS CURVE (3-month mov. avg.)

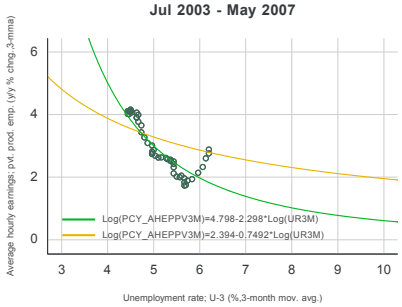


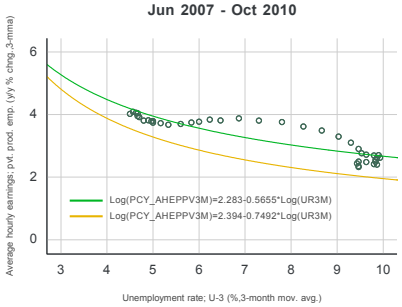


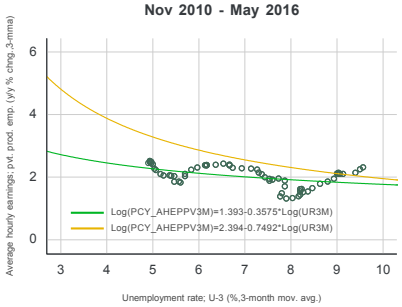


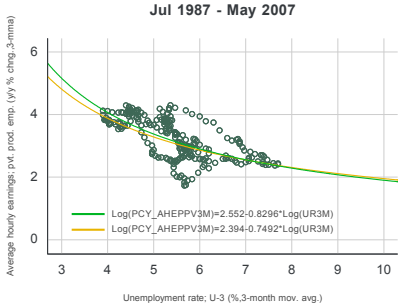




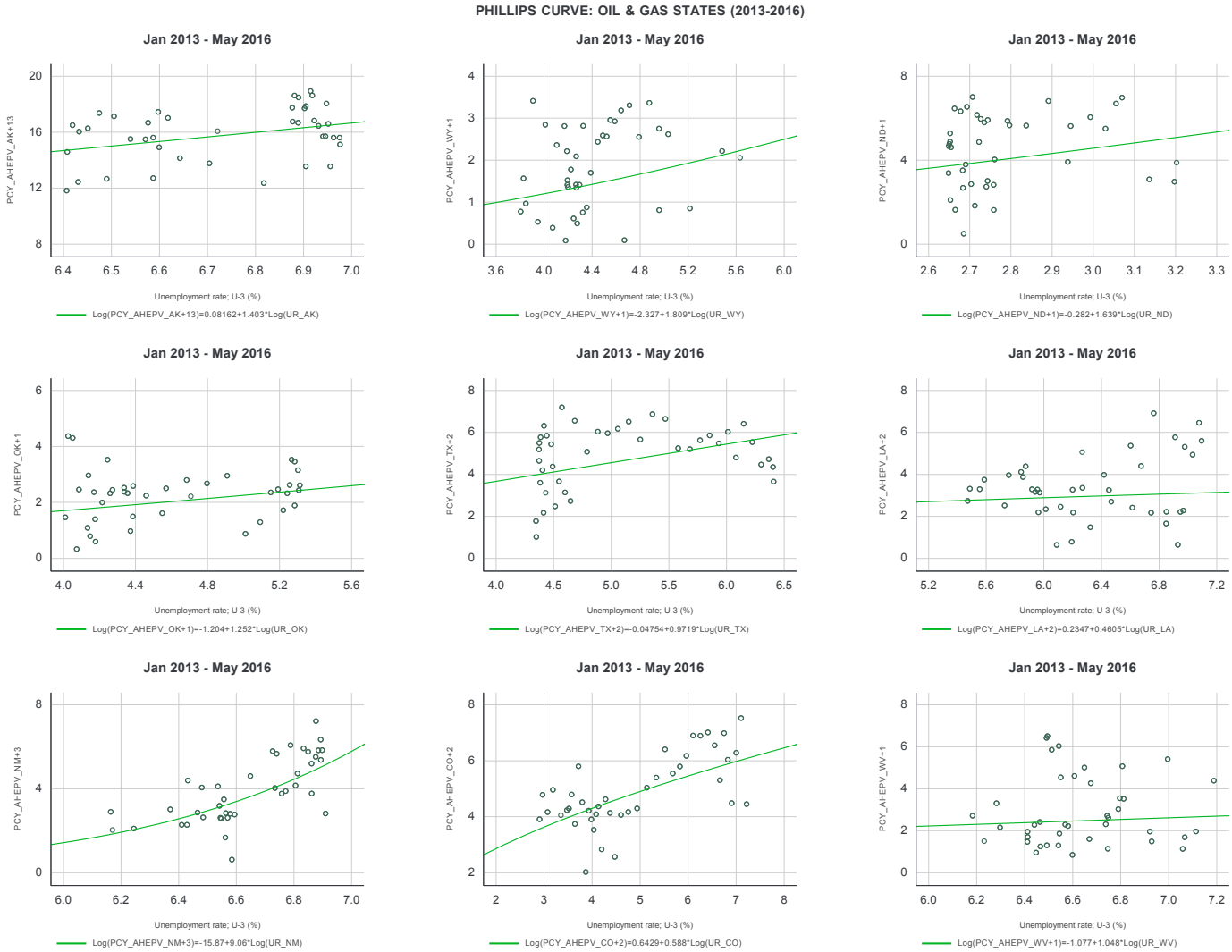




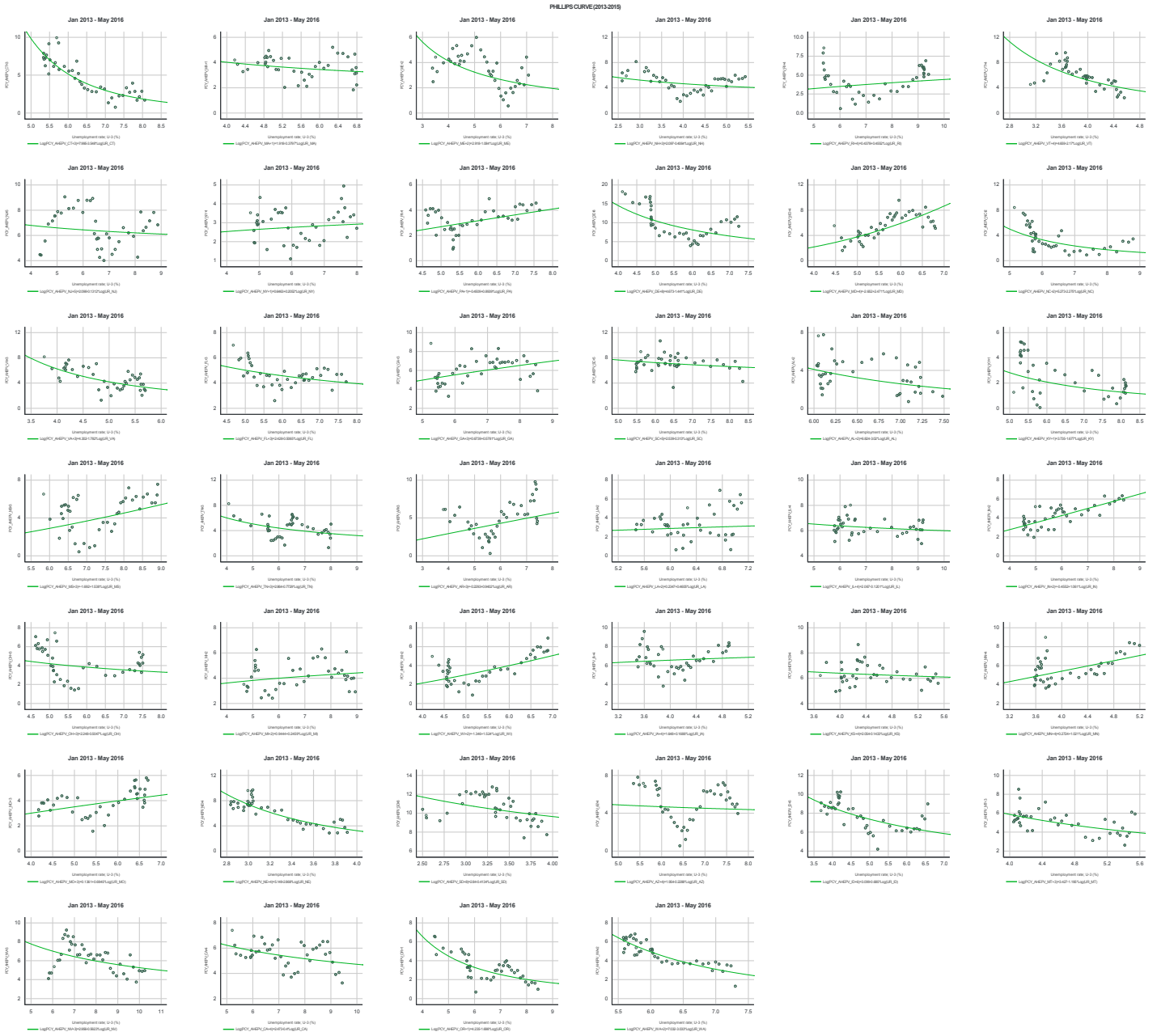




Appendix B


PHILLIPS CURVE: OIL & GAS STATES (2013-2016)
Jan 2013 - May 2016
PCY_AHEPV_AK+13
Unemployment rate; U-3 (%)
Log(PCY_AHEPV_AK+13)=0.08162+1.403*Log(UR_AK)
Jan 2013 - May 2016
PCY_AHEPV_WY+1
Unemployment rate; U-3 (%)
Log(PCY_AHEPV_WY+1)=-2.327+1.809*Log(UR_WY)
Jan 2013 - May 2016
PCY_AHEPV_ND+1
Unemployment rate; U-3 (%)
Log(PCY_AHEPV_ND+1)=-0.282+1.639*Log(UR_ND)
Jan 2013 - May 2016
PCY_AHEPV_OK+1
Unemployment rate; U-3 (%)
Log(PCY_AHEPV_OK+1)=-1.204+1.252*Log(UR_OK)
Jan 2013 - May 2016
PCY_AHEPV_TX+2
Unemployment rate; U-3 (%)
Log(PCY_AHEPV_TX+2)=-0.04754+0.9719*Log(UR_TX)
Jan 2013 - May 2016
PCY_AHEPV_LA+2
Unemployment rate; U-3 (%)
Log(PCY_AHEPV_LA+2)=0.2347+0.4605*Log(UR_LA)
Jan 2013 - May 2016
PCY_AHEPV_NM+3
Unemployment rate; U-3 (%)
Log(PCY_AHEPV_NM+3)=-15.87+9.06*Log(UR_NM)
Jan 2013 - May 2016
PCY_AHEPV_CO+2
Unemployment rate; U-3 (%)
Log(PCY_AHEPV_CO+2)=0.6429+0.588*Log(UR_CO)
Jan 2013 - May 2016
PCY_AHEPV_WV+1
Unemployment rate; U-3 (%)
Log(PCY_AHEPV_WV+1)=-1.077+1.048*Log(UR_WV)

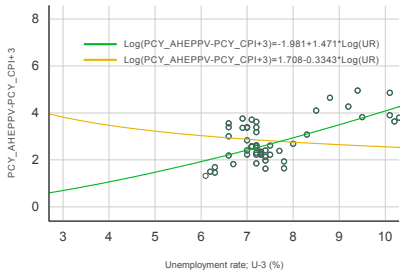
Appendix C


PHILLIPS CURVE (2013-2015)
Jan 2013 - May 2016
Unemployment rate: U-3 (%)

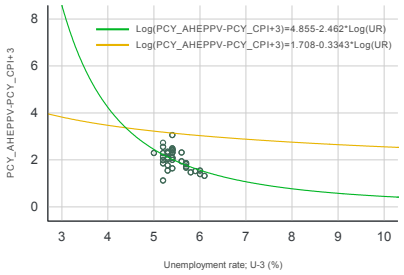
Appendix D

PHILLIPS CURVE (Real)

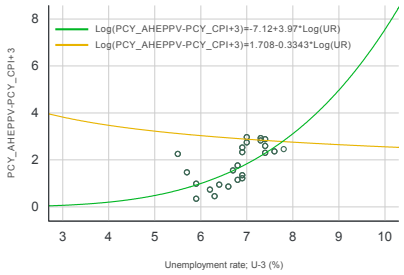
Jan 1983 - Jun 1987



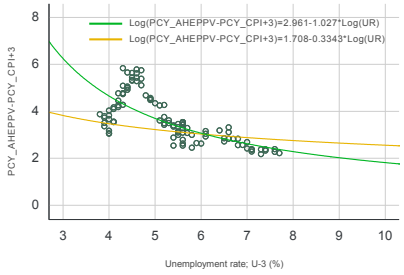
Jul 1987 - Jun 1990



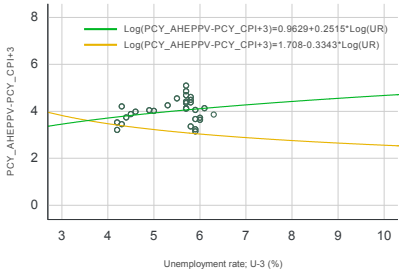
Jul 1990 - Jun 1992



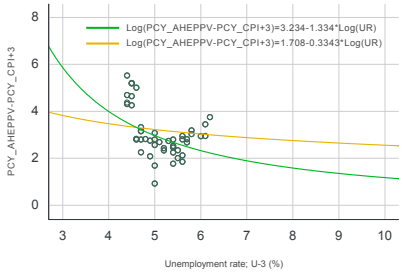
Jul 1992 - Dec 2000



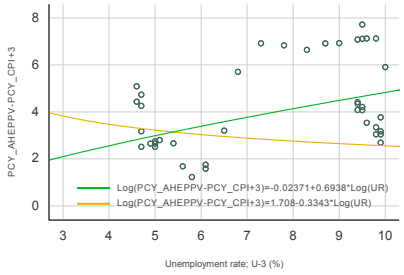
Jan 2001 - Jun 2003



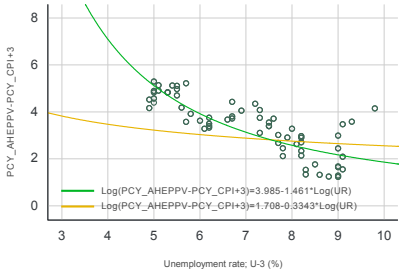
Jul 2003 - May 2007



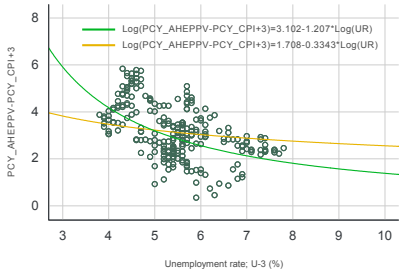
Jun 2007 - Oct 2010



Nov 2010 - May 2016

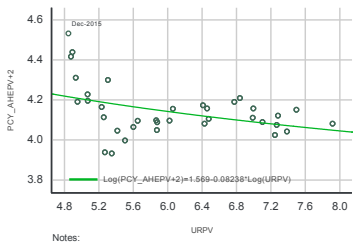


Jul 1987 - May 2007



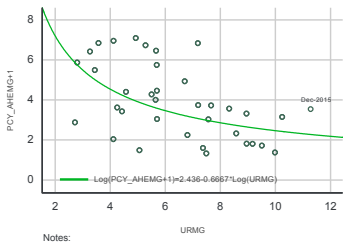
Appendix E

"PV" "; All workers"



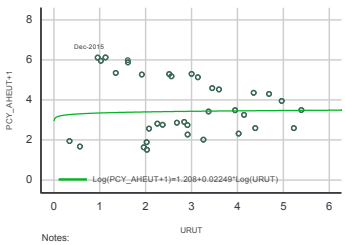
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"MG" "; All workers"



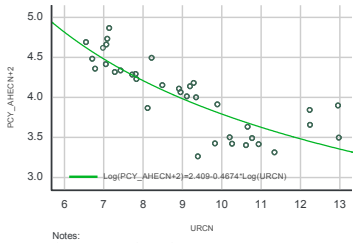
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"UT" "; All workers"



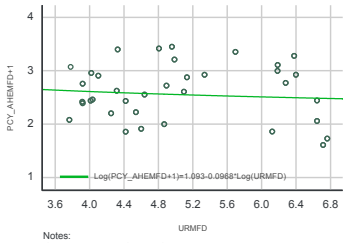
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"CN" "; All workers"



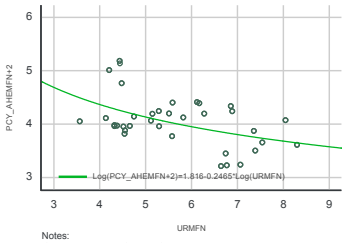
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"MFD" "; All workers"



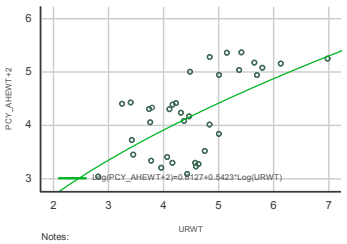
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"MFN" "; All workers"



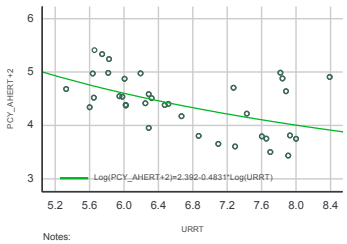
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"WT" "; All workers"



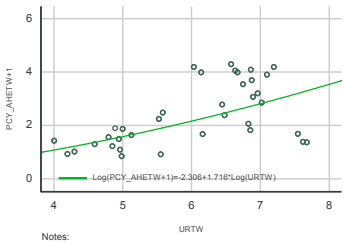
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"RT" "; All workers"



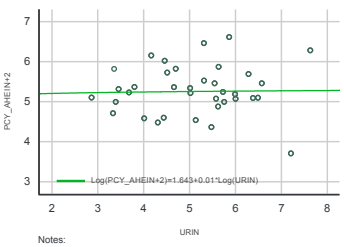
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"TW" "; All workers"



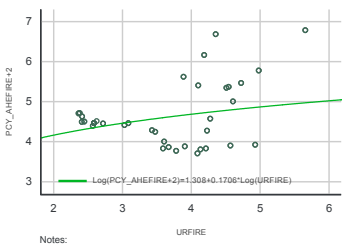
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"IN" "; All workers"



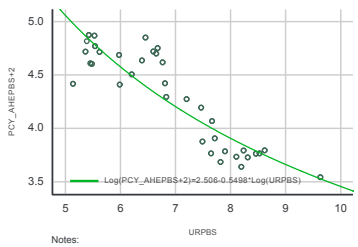
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"FIRE" "; All workers"



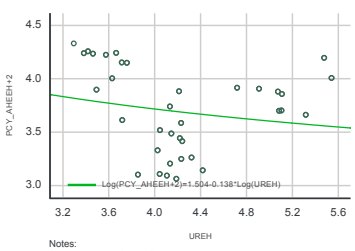
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"PBS" "; All workers"



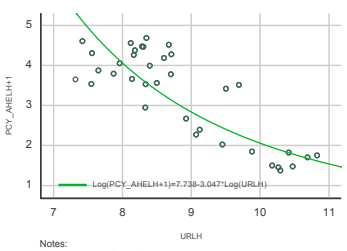
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"EH" "; All workers"



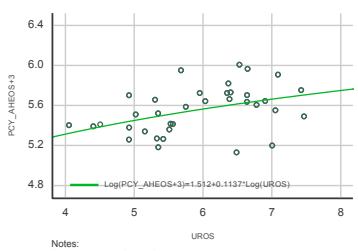
Notes:
Sources: Bureau of Labor Statistics, TD Economics

"LH" "; All workers"



Notes:
Sources: Bureau of Labor Statistics, TD Economics

"OS" "; All workers"



Notes:
Sources: Bureau of Labor Statistics, TD Economics