

# U.S. NEWS

THE NUMBERS | By Jo Craven McGinty

## Activity Trackers: Fit for Motivation, Not Precision



Electronic wristbands that count footsteps and calories produce imprecise data. But that's beside the point. The devices are motivational tools to promote fitness, and the numbers they generate are good enough for that.

even if the metric is imperfect, users who wear a tracker religiously will accumulate a consistent log that is valuable for quantifying changes in activity.

"Having a device that is incredibly accurate is less important than developing a device that is relatively accurate but that can be worn for long periods," said Matthew P. Buman, a professor in the School of Nutrition and Health Promotion at Arizona State University who studies activity trackers.

"The purpose is to give feedback about what consumers are doing and how they can improve." Typically, activity trackers allow users to store and view data online or with a smartphone, track trends and set goals. But the trackers don't actually count steps or calories. Instead, they measure acceleration, and algorithms devised by the manufacturers convert those measurements into estimates of the number of steps taken and calories burned.

The component in the devices that takes the measurement is an accelerometer, which records movement in three dimensions: up and down, side to side, and forward and backward.

"When you put an accelerometer on the wrist, all it is measuring is the swinging motion of the arms," said Ken

Fyfe, who developed one of the first activity trackers, a shoe-mounted sensor designed for runners to measure speed, distance and pace. "Of course, because arms move in a rhythmic fashion with feet, it's a good step counter."

Activity trackers worn on the hip or foot are more accurate than wristbands, but consumers seem to prefer wrist-mounted devices, trading accuracy for convenience.

"It may not be the best place, but it's where people are willing to wear them," said Gregory J. Welk, a professor of kinesiology at Iowa State University and co-author of the activity-tracker study with doctoral students Jung-Min Lee and Youngwon Kim; both have since graduated.

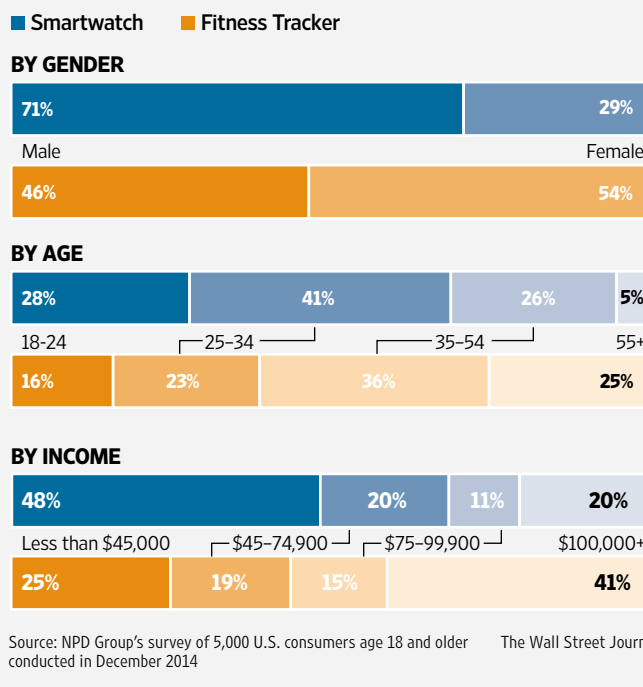
The researchers, whose work was published in *Medicine & Science in Sports & Exercise*, a journal of the American College of Sports Medicine, examined 60 healthy individuals, half men and half women, ages 18 to 43 who wore eight different devices while performing 13 activities over a period of 69 minutes.

The activities included writing at a computer, playing basketball and walking and running at different speeds.

The accuracy of the measurements varies by activity.

### What We Wear

As wearable tech gains popularity, fitness trackers are emerging as the early winner. One in 10 U.S. adults owns a fitness tracker versus 1 in 50 adults who own a smartwatch.



The experiment considered the activities together in an effort to gauge the accuracy of the devices for "normal adult behavior" rather than a single task.

But most consumers purchase fitness bands for two reasons: to count footsteps taken and calories burned, according to NPD Group, a market-research firm that conducts a consumers and wearable-tech survey twice a year.

"The devices are better, but the type of person buying the devices has changed," said Weston Henderik, director for connected intelligence for NPD Group. "They're getting people who don't exercise and want to start, or people who walk and want to do more."

Activity trackers are best at detecting brisk walking, jogging or running—activities that produce strong arm movements. Steps taken around an office or while puttering around a home are difficult to pick up, according to Ray Browning, a professor at Colorado State University who directs the Physical Activity Energetics/Mechanics Laboratory.

"Cycling, not great," Mr. Browning said. "Elliptical training, not great. Yoga, terrible. There are some pretty significant limitations."

Limits aside, how useful the trackers are ultimately depends on the dedication of the user. Mr. Henderik said about a third discard the devices in a matter of weeks—but more than half stick with them past three months.

So far, no researchers have documented whether the bands actually induce wearers to increase physical activity. The bigger challenge for users may not be documenting their behavior, but taking steps to improve it.

## Hiring Grows, but Soft Wages Linger

Continued from Page One recent polls.

"The simple fact is we cannot consider an employment report a success, no matter how healthy the headline may be, if wage data does not begin to accelerate," said Dan Greenhaus, chief strategist at the brokerage BTIG.

Federal Reserve officials have flagged tepid wage gains as a sign of a labor market operating far from its full capacity.

Minutes of the central bank's December meeting, released Wednesday, said most Fed officials "saw no clear evidence of a broad-based acceleration in wages." That may give central bank officials pause before they raise their benchmark interest rate, pinned near zero for six years, by the middle of this year as many policy makers and economists expect.

Paltry wage gains help keep overall inflation in check but also limit household budgets and blunt consumer spending. Average hourly earnings for private-sector workers fell 5 cents, or 0.2%, to \$24.57 in December. The average workweek held steady at 34.6 hours in December.

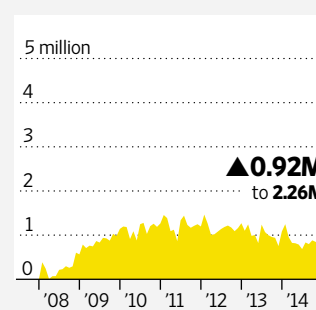
One reason for the slow pickup: A wide swath of Americans are underemployed or on the sidelines of the labor market, serving as a large pool of available labor. The share of Americans working or looking for work in December fell to 62.7%, matching the lowest level since 1978. The latest figure shows more Americans dropped

### Underused

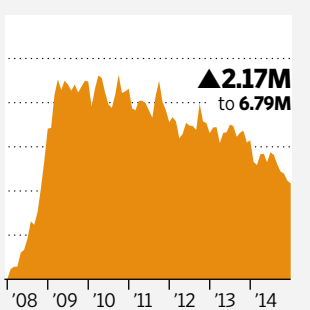
Wage growth remains sluggish as the underemployed and the long-term unemployed remain significant factors, even as the overall unemployment rate has fallen.

#### Change since the start of the recession

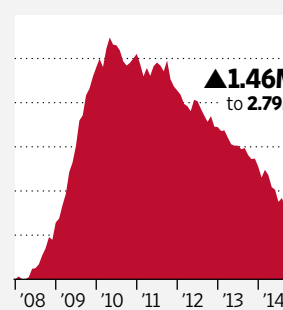
**Marginally attached:** those who want to work but haven't looked for a job in the prior four weeks



**Involuntarily working part time:** they couldn't find full-time work or their hours were cut back



**Long-term unemployed:** those who have been looking for work for 27 weeks or more



Note: All figures, except for marginally attached, are seasonally adjusted. Source: Labor Department

out of the workforce.

And while strong hiring has helped push the jobless rate down, a broader measure of unemployment, which includes involuntary part-time workers and people marginally attached to the labor force, was 11.2% last month, down from 11.4% in November. Though down nearly two percentage points from a year earlier, the level remains well above prerecession levels around 8% to 8.5%.

The mix of jobs created since the recession also may be restraining overall wage growth. Lower-paying positions in the retail, temporary-help and leisure

and hospitality sectors have seen some of the strongest job growth, while the better-paying construction and manufacturing sectors have been slower to make gains.

That split is showing signs of narrowing. For instance, December marked the biggest year-over-year increase in construction employment since September 2006. And there is hope that steady hiring will start to inflate wages.

Messer Construction in Cincinnati plans to add 60 to 70 workers this year as demand for non-residential building heats up, particularly in health care and higher education, said Tim Steigerwald, senior vice president of the company. "The signs are more positive this year than any year since the recession," he said.

Messer is adding a mix of project engineers, business managers, accountants and tradesmen to its current staff of about 950. Mr. Steigerwald expects wages to rise 2.5% to 3% this year for skilled workers, on top of a 17% gain in the firm's health-care costs.

"The biggest thing that keeps me up at night is the skills shortage," Mr. Steigerwald said. There simply isn't a readily available pool of men and women who want to work physically demanding construction jobs where entry-level pay is around \$15 an hour and an experienced carpenter can make more than \$20 an hour, he said. "Fewer people are willing to come onto a job site so we have to pay more."

Even with last month's soft wage data, recent labor-market

gains underscore the relative strength of the U.S. economy, especially compared with Japan, the eurozone and many developing nations.

U.S. gross domestic product, the broadest measure of output, expanded at an annual pace of 5% in the third quarter, the healthiest advance in 11 years. Economists expect growth was slower in the first three months of 2014, though estimates are still broadly positive. Forecasting firm Macroeconomic Advisers on Friday projected 3.4% growth to round out the year, J.P. Morgan Chase economists raised their forecast to 3.3% from an earlier estimate of 2.5%.

The economy has been gathering strength from consumers, who despite paltry wage gains have benefited from steady job growth and plunging gasoline prices. Business investment also has been robust and U.S. manufacturing output climbed past its prerecession peak this fall.

Not all sectors of the economy appear strong, however. Exports may get squeezed by a stronger dollar, home building has been lackluster and plummeting crude-oil prices threaten companies responsible for pumping oil out of the ground and other businesses that have expanded swiftly to support the oil boom.

Broadly, though, momentum appears positive. The 2.95 million jobs added in 2014 marked the biggest calendar-year increase since the figure topped 3 million in 1999. Of course, the U.S. population has grown significantly in that time, to more than 318 million in 2014 from 279 million in 1999.

## Jobs Report Bolsters Fed's Rate Patience

By JON HILSENDRATH

A mixed December jobs report likely keeps the Federal Reserve on course to remain patient about raising short-term interest rates, meaning no action at least until April and probably longer.

Employment growth has clearly picked up and the jobless rate fell to 5.6%, news Fed officials have been waiting for. At the same time, hourly worker wages fell from the month before and other measures of unemployment are high, a sign that inflationary pressures aren't building as hiring broadens.

One reason is hidden economic slack. When part-time workers who want full-time jobs and discouraged people who stopped looking for work are added, the jobless rate was 11.2% in December—down notably from 13.1% a year earlier but still well above prerecession levels.

"I just don't see why we should be in a hurry to move off our current accommodative policy," Chicago Fed President Charles Evans said Friday in response to the report during an interview on CNBC.

The Fed said in its December policy statement it could be "patient" in deciding when to increase its benchmark short-term rate from near zero. Fed Chairwoman Janet Yellen said that means officials would wait at least two meetings before moving. The next two are scheduled for Jan. 27-28 and March 17-18.

A first step toward liftoff would be dropping "patient" from the statement. But that looks unlikely to happen at this month's meeting, given the December wage decline and a high level of global economic uncertainty marked by tumbling oil prices, weak growth overseas, puzzling declines in long-term bond yields and a strengthening dollar.

Many Fed officials expect to start raising interest rates by midyear. While they watch and wait, a debate is brewing about how low they can let the jobless rate go before it starts creating wage and inflationary pressure.

Fed officials estimate that in the long run the jobless rate can settle between 5.2% and 5.5% without generating inflation above their 2% target.

The unemployment rate is now close to that zone, yet the

economy shows little sign of generating the kind of inflation the estimate presumes. Consumer prices, by the Fed's preferred measure, were up 1.2% in November from a year earlier, marking the 31st straight month of inflation below its target.

Hourly wages were up 1.7% in December from a year earlier, well below gains in excess of 3% before the 2008 financial crisis.

The Fed's estimate of a neutral, noninflationary unemployment rate is an educated guess and could be revised lower if actual unemployment keeps falling without generating wage pressures. This estimate has moved around a lot in just the past few years. It was as high as 6% in June 2013, and some officials in December put it as low as 5%. A Chicago Fed study in December estimated it is 0.6 percentage points lower than most assessments.

"There is more uncertainty than normal about what the [level] is," said Laurence Meyer,

### A debate is brewing about how low the jobless rate can go before it creates inflationary pressure.

co-founder of Macroeconomic Advisers, an economic consulting firm, and former Fed governor.

Fed officials are likely to discuss the matter at their next policy meeting and will update their estimates in March.

The Fed has debated before how low unemployment can go without sparking inflation. In the late 1990s, then-Fed Chairman Alan Greenspan decided the jobless rate could go much lower without causing inflation because rising worker productivity was restraining inflationary forces. One of the Fed officials who initially resisted him was a young Fed governor named Janet Yellen, who, along with Mr. Meyer, encouraged Mr. Greenspan to raise rates at a September 1996 meeting after the jobless rate had fallen to 5.1%.

In that case, the Fed held off on interest-rate increases for another six months and ultimately let the jobless rate fall below 4%.

This is your invitation.

To realise that yesterday's best is just a starting point for today.

There's more to take on. More to risk. And more to earn.

Just remind yourself that it's easier to keep going if you never stop.

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To value yourself against one set of standards.

Your own.

It's up to you to create expectations.

And then to shatter them over and over again.

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To be never satisfied.

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## CORRECTIONS & AMPLIFICATIONS

**The law firm Hogan Lovells** was incorrectly called by its former name, Hogan & Hartson LLP, in some editions Friday in a World News article about French surveillance laws.

**Cayuga Milk Ingredients Inc.** has found more global buyers for its products. A photo caption with a Marketplace article Friday about the U.S. dairy business incorrectly said the company has experienced a downturn in its global business. The caption also misidentified the machinery in the photo as a butter and milk separator; a cream separator was shown.

**Razer Inc. is in talks with Ubisoft Entertainment SA** to support the development of its virtual-reality platform. A Technology article Wednesday incorrectly said Razer had signed up Ubisoft for the platform's launch.

**The surname of Mark Mai,** chief executive of **Mengzhou Senlong Fur Co.**, was incorrectly spelled as Mei in a Money & Investing article Wednesday about slowing sales of lambskins to China's tanneries.

**Ohio State beat Alabama** in the Sugar Bowl Jan. 1. An Arena article Friday about the culture clash in the coming Ohio State-Oregon matchup incorrectly said Ohio State's victory had taken place at the Rose Bowl.

**Carrie Lund** was one of five cast members in a photo accompanying an Arena review on Friday of the play "One Slight Hitch." The photo caption incorrectly failed to include her name.

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