Does it Matter Whether Government Economics Agencies Frame Monthly Statistical Report Headlines on a 1-Month vs. 12-Month Basis?

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Does it Matter Whether Government Economics Agencies Frame Monthly Statistical Report Headlines on a 1-Month vs. 12-Month Basis?

• What could be more arcane & narrow than that?

• How about:

  “Does It Matter If Statistical Agencies Frame the Month’s CPI Report on a 1-Month or 12-Month Basis?”

  – the title of the existing exploratory paper, with A.Saiki.

  – (We do not yet have the right data to get good estimates for reports on GDP, employment, industrial production...)

• Hypothesis: The answer is, “Yes, it matters.”
The hypothesis potentially has wide implications:

• A clean test of “framing”
  – à la Kahneman-Tversky
  – vs. the Efficient Markets Hypothesis.

• Relevant to suspicions that Americans may be more short-term oriented than others.
  – US financial markets
  – & possibly media and voters too.

• Implying a simple policy prescription to improve the accuracy/usefulness of economic perceptions
  – a prescription nobody else seems to have thought of,
  – and that BLS, BEA & the FRB could easily implement.
Announcements of economic statistics by government agencies

In the US

• Each month,
  – the BLS announces change in employment;
  – the BLS announces CPI inflation rate;
  – the Fed announces industrial production.

• Each quarter,
  – the BEA announces GDP growth. Etc.

• The releases include the most recent month (or quarter) as well as the past time series, including any revisions of preceding periods.
The macroeconomics/finance literature on announcement effects

• Financial markets react to announcements.
  – in particular, to the “surprise” or “news” component,
  – i.e., the announcement measured relative to what the market had been expecting.

• E.g., if the news is “CPI up” => bond prices fall.

• Reactions are far more significant statistically if the market prices are observed tightly before and after the announcement,
  – often ½ hour, rather than using daily data.
  – Reason: lots of other things happen during the day; the noise drives out the significance of the announcement.
How do official agencies frame the economic statistics they report each month?

With primary focus on the most recent month (or quarter)? or on the preceding 12 months?

By “framing,” I mean:

• Which number do they put into the headline of the press release?
• Which number appears first in the body of the press release?
• Which number is featured prominently on the agency’s website?
Does it matter how official agencies frame the economic statistics they report each month?

• In theory, it should not matter at all.

• In the case of the CPI, the news component in the 1-month number is identical to the news component in the 12-month number because the CPI is not revised. Standard tests control for market expectations.

• In the case of GDP and the other variables, the 1-year number includes revisions of previous periods.

• But, still, both forms are made available at the same time. => markets should react to all the information.
  – What is in the headline should not matter.
How do official agencies frame the economic statistics they report each month?

• In the US, the emphasis is generally on the most recent month or quarter.

• Some other countries do it that way: focus on the last 12 months or 4 quarters.

Examples from 2014 releases:

• CPI of July, US vs. UK
• GDP of Q2, US vs. China
• Industrial Production, US vs. Switzerland
The BLS on Aug. 19, 2014, released the **CPI** for the preceding month.

The 1\textsuperscript{st} sentence of the press release, as usual, gave the inflation rate for the month of July.  
(The 2\textsuperscript{nd} sentence gave the 12-month rate.)
As always, the BLS website also featured the change relative to the preceding month.
The wire services & newspapers followed suit, reporting 1-month inflation.

Bloomberg

Housing Starts Rebound in U.S. as Inflation Eases: Economy

By Lorraine Woellert and Victoria Stilwell  Aug 19, 2014

Home construction rebounded in July and the cost of living rose at a slower pace, showing a strengthening U.S. economy has yet to generate a sustained pickup in inflation.

A 15.7 percent jump took housing starts to a 1.00 million annualized rate, the strongest since November, and halted a two-month slide, the Commerce Department said in Washington. The consumer price index increased 0.1 percent after rising 0.3 percent in June, the Labor Department also reported.

The Christian Science Monitor

Food costs up, energy costs down as inflation rises slightly

The Bureau of Labor Statistics announced Tuesday that the Consumer Price Index rose 0.1 percent in July. One of the major drivers of the inflation increase was rising food prices, but they were offset by a dip in energy prices.
On the same day, the UK Office for National Statistics reported its CPI

The 1st sentence of the press release, as usual, gave the inflation rate over the preceding 12 months.
The wire services & newspapers followed suit, reporting 12-month inflation (without even specifying)

Bloomberg

U.K. Inflation Slows More Than Forecast, Supporting BOE Stance

By Scott Hamilton - Aug 19, 2014

U.K. inflation cooled more than economists forecast in July, giving the Bank of England room to keep its key interest rate at a record low.

The rate of consumer-price growth fell to 1.6 percent from 1.9 percent in June, the Office for National Statistics said today in London. Economists had forecast 1.8 percent, based on the median of 32 estimates in a Bloomberg survey. Separate data showed pipeline inflation pressure eased, with factory-gate prices posting the first annual decline in almost five years.

BBC

The rate of UK inflation fell more than expected in July to 1.6%, as the cost of clothing and footwear, food and non-alcoholic drinks eased.

The Consumer Price Index fell to 1.6%, from 1.9% in June, according to the Office for National Statistics.
The wire services don’t *always* follow the lead of the government agency

• But they tend to.

• We code the framing by the agency:

  1 = Emphasis is clearly on the annual basis.
  2 = Some emphasis on annual version, but not consistently.
  3 = Precisely equal emphasis on both versions.
  4 = Some emphasis on monthly/quarterly basis, but not consistently.
  5 = Emphasis is clearly and consistently on monthly/quarterly version.

• Similarly we code the emphasis by Bloomberg & Reuters.
  • and, for the graph, average the two.
Table 1A: Reporting patterns for GDP growth released by official agencies and financial news services across countries

<table>
<thead>
<tr>
<th>Country and Release Agency</th>
<th>Government agency release</th>
<th>Bloomberg</th>
<th>Reuters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>America</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>USA (BLS)</td>
<td>5+</td>
<td>5+</td>
<td>5+</td>
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<tr>
<td>Canada (Stat Canada)</td>
<td>5*</td>
<td>5+</td>
<td>5+</td>
</tr>
<tr>
<td>Mexico (INEIG)</td>
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<td>5</td>
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</tr>
<tr>
<td>Brazil (Statistics Portal Brazil)</td>
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<td>3</td>
<td>5</td>
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<tr>
<td><strong>Eurozone</strong></td>
<td></td>
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<tr>
<td>Belgium (Bank of Belgium)</td>
<td>1</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Finland (Stat Finland)</td>
<td>2</td>
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<td>France (INSEE)</td>
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<td>Germany (Statistisches Bundesamt)</td>
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<td>Ireland (Central Statistics Office)</td>
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<tr>
<td>Italy (Istituto Nazionale di Statistica)</td>
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<td>NL (Centraal Bureau voor de Statistiek)</td>
<td>4*</td>
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<td>Spain (Instituto Nacional de Estadistica)</td>
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<td>Eurozone (Eurostat)</td>
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<td><strong>Non-Euro Europe</strong></td>
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<td>Denmark (Danmarks Statistik)</td>
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<td>Sweden (Statistics Sweden)</td>
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<tr>
<td>UK (Office for National Statistics)</td>
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<td>Swiss (Statistics Swiss)</td>
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<td><strong>Asia</strong></td>
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<tr>
<td>Japan (Cabinet Office)</td>
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<td>5+</td>
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<td>Korea (Bank of Korea)</td>
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<td>China</td>
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<td>1</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note regarding press statement accompanying release of statistics:

1 = Emphasis is clearly on the annual basis.
2 = Some emphasis on annual version, but not consistently, relative to shorter-term basis.
3 = Precisely equal emphasis on both versions.
4 = Some emphasis on quarterly basis, but not consistently, relative to the 12-month basis.
5 = Emphasis is clearly and consistently on quarterly version.

* Month-on-Month
* Annualized Quarter-on-Quarter.
* Canada also reports monthly growth figures as a reference.
* The Netherlands Statistics Bureau (CBS) recently changed its focus from annual to quarterly (in 2012).

An appendix documents the basis of the classification of each country.
The choice by news services whether to frame GDP growth as 1-quarter vs. year-over-year is correlated with the choice by government agencies that release it.

\[ R^2 = 0.41 \]
Our exploratory paper tests effects of CPI announcements on bond prices

• Why? The direction of the effect is theoretically unambiguous: CPI ↑ => Bonds ↓.

• Whereas,
• the effect on the exchange rate could go either way:
  – Inflation => depreciation;
  – But Fed response => appreciation.
  – Similarly with the effect on stock prices.

• Effects of GDP, jobs & IP announcements are ambiguous too:
  – Strong growth => asset prices up.
  – But anticipation of higher interest rates => asset prices down.
Table 2. Reactions to CPI releases in countries that emphasize 12-month vs. 1-month news

<table>
<thead>
<tr>
<th>Framing of CPI Announcement</th>
<th>UK and Canada (12-month-focused)</th>
<th>US and Korea (Month-on-month-focused)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MoM Surprise (≡ announcement minus forecast †)</td>
<td>0.002 [1.09]</td>
<td><strong>-0.019 [-1.48]</strong></td>
</tr>
<tr>
<td>YoY Surprise</td>
<td><strong>-0.006</strong>* [-2.76]</td>
<td>0.002 [1.46]</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.0003 [-1.28]</td>
<td>0.0002 [0.61]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of observations</th>
<th>267</th>
<th>259</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R^2$</td>
<td>0.06</td>
<td>0.01</td>
</tr>
<tr>
<td>F-value</td>
<td>7.4</td>
<td>1.1</td>
</tr>
<tr>
<td>Prob &gt; F</td>
<td>0.0007</td>
<td>0.33</td>
</tr>
</tbody>
</table>

*** Statistically significant at 1% level. (t-statistics are in parentheses.)
† Forecast is average of analysts' forecasts before the announcement (Source: Bloomberg)
Panel regression (with country fixed effects)

**Sample period** (by month of release)
UK: Dec. 2003 – August 2014  
Korea: Feb 2004 – Dec 2013
Preliminary conclusion

- The hypothesis appears to be supported:
- In countries where the official press release & news services frame the CPI in 1-month terms (US & Korea), bond markets react to that number and not at all to the 12-month number.
- Vice versa for countries that frame the CPI in 12-month terms (UK & Canada).

- A truly persuasive study would:
  - get data with ½ hour intervals, rather than 24 hours;
  - try GDP, employment & industrial production releases;
  - and look at reactions also in forex & stock markets.
Policy prescription (assuming the finding holds up)

• BLS, BEA & FRB should switch the focus in their releases to the year-over-year number.

• The media and financial markets would then give their scarce attention to more informative numbers:
  – The 12-month number includes revisions in preceding months.
  – Seasonal adjustment is automatic & natural.
  – It helps focus public attention on important trends
    • as opposed to the distractions of short-term noise.

• Maybe even pundits & voters would find it worth their while to try to monitor the true state of the economy.
Voters

• Polls indicate:
  – 4 ½ years after the end of the great recession in mid-2009, from 74% to nearly 80% of Americans thought that the country was still in recession.
  – As of June 1, 2014, only 43 % thought that the U.S. economy had even begun to recover.

• “Rational inattention”? 
  – In truth, most economic news reports are so noisy as to contain little value.
Appendices

• Literature
  – Effect of inflation news on the bond market.

• Framing
  – CPI news (for 19 countries)
  – Employment news (for 4 countries)

• Recent examples:
  – August 2014 announcements of GDP
  – of Industrial Production
Statistical findings of highly significant positive jumps in interest rates in response to inflationary news


- More recent papers, able to take advantage of larger and higher-frequency data sets, have similarly found interest rates rising or bond prices falling in reaction to news of higher inflation or stronger economic growth: Fleming and Remolona (1999), Gurkaynak, Sack & Swanson (2005), Andersen et al. (2007), Faust et al. (2007), Goldberg & Leonard (2003), and Ehrmann & Fratscher (2005), among others.
The choice by news services whether to frame CPI inflation as 1-quarter vs. year-over-year is (weakly) correlated with the choice by government agencies that release it.
Table 1: Reporting patterns for CPI statistics released by official agencies and financial news services across countries

<table>
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<th>Countries and release agencies</th>
<th>Gov't agency</th>
<th>Bloomberg</th>
<th>Reuters</th>
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<tr>
<td><strong>Americas</strong></td>
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<tr>
<td>United States (BLS)</td>
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<td>Canada (Stat Canada)</td>
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<td>Mexico (National Statistic Institution)</td>
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<td>Brazil (Central Bank)</td>
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<td><strong>Eurozone</strong></td>
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<td>France (INSEE)</td>
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<td>Germany (Statistisches Bundesamt )</td>
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<td>Switzerland (Swiss Statistics)</td>
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<td><strong>Asia</strong></td>
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<td>Japan (Stat Bureau)</td>
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<tr>
<td>Korea (Korea Statistics)</td>
<td>5</td>
<td>3†</td>
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</tbody>
</table>

* English-language media tend to focus on MoM, while the local news services focus on YoY, consistent with the gov’t release.
† English media tend to focus on YoY, while the local news services focus on MoM, consistent with the government release.

1 = Emphasis (e.g., headlines) is clearly and consistently on the 12-month version, even though the monthly basis is also contained somewhere in the announcement.
2 = Some emphasis on the 12-month version, but not consistently, relative to the shorter-term basis.
3 = Precisely equal emphasis on both versions.
4 = Some emphasis on the shorter term basis, but not consistently, relative to the 12-month basis.
5 = Emphasis is clearly and consistently on the monthly (or quarterly) version, even though the 12-month basis is also contained in the release.

Source: The Secrets of Economic Indicators and authors’ investigations from press releases and news services. An appendix available online documents the basis of the classification of each country.
Table 1A: Reporting patterns for employment growth released by official agencies and financial news services across countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Definition</th>
<th>Focus of release</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Definition</strong></td>
<td><strong>Government</strong></td>
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<tr>
<td>Canada</td>
<td>People in Employment</td>
<td>MoM</td>
</tr>
<tr>
<td>Japan</td>
<td>People at Work</td>
<td>YoY</td>
</tr>
<tr>
<td>US</td>
<td>Payroll Non-Farm Employment</td>
<td>MoM</td>
</tr>
<tr>
<td>Korea</td>
<td>Number of Employed</td>
<td>YoY</td>
</tr>
</tbody>
</table>

MoM = Month over month  
YoY = Year over year

*In Japan and Korea, the news services almost exclusively report unemployment rates, not changes in employment.

**National Income and Product Accounts**
**Gross Domestic Product, Second Quarter 2014**
(Second Estimate):

Real gross domestic product -- the output of goods and services produced by labor and property located in the United States -- increased at an annual rate of 4.2 percent in the second quarter of 2014, according to the "second" estimate released by the Bureau of Economic Analysis. In the first quarter, real GDP decreased 2.1 percent.

The 1st sentence of the press release, as usual, gave the GDP growth rate for the quarter. (The 2nd sentence gave the revised QI.)
The US economy grew annualized rate of 4.2 percent in the second quarter, according to revised figures released Thursday by the Bureau of Economic Analysis. While the GDP growth was slightly higher than expected, experts say weak spots in the economy linger.

By Bryan Cronan, Staff Writer AUGUST 28, 2014
In China, the government and the news led the mid-2014 GDP report with growth rates relative to the same quarter in the preceding year.

China’s Economy Showed Moderate but Stable Growth

Since the beginning of 2014, faced with the complicated external and internal conditions, the Central Party Committee and the State Council have taken the initiative of economic development and adopted scientific measures to stabilize economic growth, promote reforms, enhance restructuring and benefit people. The general economic situation has been steady, the structural adjustment achieved stable progress and the transformation and upgrading gained momentum with reform and innovation as the engine and the restructuring as the booster during which the power of the market has been made full use of and more attention paid to targeted regulation.

According to the preliminary estimation, the gross domestic product (GDP) of China was 26,904.4 billion yuan in 2014, a year-on-year increase of 7.4 percent at comparable prices. Specifically, the year-on-year growth of the first quarter was 7.4 percent and 7.5 percent for the second quarter. The value added of the primary industry was 1,981.2 billion yuan, up by 3.9 percent; the secondary industry 12,387.1 billion yuan, up by 7.4 percent, and the tertiary industry 12,536.1 billion yuan, up by 8.0 percent. The gross domestic product of the second quarter of 2014 went up by 2.0 percent.
The wire services and newspapers also report China’s growth rate relative to Q2 in the preceding year.

**Bloomberg**

*China’s Economic Expansion Accelerates to 7.5%*

By Bloomberg News - Jul 16, 2014

China’s economic growth accelerated for the first time in three quarters after the government sped up spending and freed up more money for loans to counter a property slump. Gross domestic product rose 7.5 percent in the April-June period from a year earlier, the statistics bureau said today in Beijing.

**The Wall Street Journal**

*China GDP Grows 7.5% in Second Quarter*

Pickup in World’s No. 2 Economy Suggests Growth Has Stabilized After Slowdown Earlier This Year

By MARK MAGNIER

Updated July 16, 2014 6:49 p.m. ET
The Fed releases Industrial Production statistics.

Industrial production increased 0.4 percent in July for its sixth consecutive monthly gain. Manufacturing output advanced 1.0 percent in July, its largest increase since February. The production of motor vehicles and parts jumped 10.1 percent, while output in the rest of the manufacturing sector rose 0.4 percent. The production at mines moved up 0.3 percent, its ninth consecutive monthly increase. The output of utilities dropped 3.4 percent, as weather that was milder than usual for July reduced demand for air conditioning. At 104.4 percent of its 2007 average, total industrial production in July was 5.0 percent above its year-earlier level. Capacity utilization for total industry edged up 0.1 percentage point to 79.2 percent in July, a rate 1.7 percentage points above its level of a year earlier and 0.9 percentage point below its long-run (1972-2013) average.

The 1st sentence of the press release gives the increase in IP relative to the preceding month. (The 6th sentence gives the 12-month increase.)
The wire services & newspapers follow suit, reporting 1-month IP.

U.S. industrial production edged higher in July
Fri, Aug 15 2014
By Moriah Costa
WASHINGTON (Reuters) - U.S. industrial production edged higher in July, as production of auto parts and motor vehicles jumped 10.1 percent, according to data released by the Federal Reserve on Friday.

Industrial production rose 0.4 percent, which was unchanged from June. The June increase was previously reported at 0.2 percent.

Broad Gain in U.S. Factory Production Signals Strength

Factories in July were the busiest in five months as cars rolled off U.S. assembly lines at the fastest rate in 14 years and a stronger economy encouraged American companies to invest in equipment.

The 1 percent gain at manufacturers followed a 0.3 percent increase in the prior month that was bigger than initially estimated, the Federal Reserve said today in Washington. Total industrial production, which also includes mines and utilities, advanced 0.4 percent for a second month. Another report showed a record cross-border investment outflow from the U.S. in June as foreign investors reduced their holdings of government debt.
The Swiss FSO releases its Industrial Production statistics quarterly.

The press release gives the increase in IP relative to four quarters previously.
The wire services & newspapers follow suit, reporting IP as changes relative to the same quarter in the previous year.

Switzerland's industrial production grew at a faster rate in the second quarter, which was more-than-double the pace forecast by economists, data from the Federal Statistical Office showed Friday.

The working-day adjusted industrial production increased 3.1 percent year-on-year following 0.6 percent rise in the first quarter. Economists had forecast a 1.5 percent growth.