

FESAC Meeting on SEASONAL ADJUSTMENT

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1Q Seasonal Distortion

Real GDP Q/Q A.R.

Year	1Q	2Q	3Q	4Q
2010	+1.7%	+3.9%	+2.7%	+2.5%
2011	-1.5%	+2.9%	+0.8%	+4.6%
2012	+2.7%	+1.9%	+0.5%	+0.1%
2013	+2.8%	+0.8%	+3.1%	+4.0%
2014	-1.2%	+4.0%	+5.0%	+2.3%
2015	+2.0%	+2.6%	+2.0%	+0.9%
2016	+0.8%	+1.4%	+3.2%	
Avg	+1.1%	+2.5%	+2.5%	+2.4%

1Q Seasonal Distortion

Contd.

<u>Years</u>	<u>Avg Real GDP Q/Q A.R.</u>			
	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+5.4%	+4.3%	+3.6%	+2.4%
1980-99	+3.0%	+3.3%	+3.4%	+3.5%
2000-16	+1.0%	+2.6%	+2.1%	+1.8%
2000-09	+1.0%	+2.7%	+1.8%	+1.5%
2010-16	+1.1%	+2.5%	+2.5%	+2.4%

Seasonal Distortion in Components?

Avg Real Consumer Spending Q/Q A.R.

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+4.6%	+4.2%	+3.8%	+3.4%
1980-99	+3.2%	+3.1%	+4.3%	+3.3%
2000-16	+2.2%	+2.2%	+2.4%	+2.4%

Avg Real Government Spending Q/Q A.R.

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+2.4%	+1.7%	+3.9%	+1.9%
1980-99	+1.5%	+3.8%	+2.3%	+1.7%
2000-16	0.0%	+2.5%	+1.0%	+0.2%

Seasonal Distortion in Components? Contd.

Avg Real Exports Q/Q A.R.

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+6.4%	+23.9%	-1.5%	+10.0%
1980-99	+5.8%	+7.2%	+5.1%	+8.0%
2000-16	+1.8%	+5.3%	+3.6%	+5.4%

Avg Real Imports Q/Q A.R.

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+6.5%	+12.4%	+7.3%	+5.3%
1980-99	+6.7%	+7.7%	+7.3%	+9.4%
2000-16	+2.8%	+4.4%	+3.3%	+3.6%

Seasonal Distortion in Components? Contd.

Avg Real Residential Fixed Investment Q/Q A.R.

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+7.6%	+5.9%	+3.5%	+2.8%
1980-99	+4.0%	+3.5%	+3.6%	+5.3%
2000-16	+0.4%	+2.0%	-0.3%	+0.2%

Avg Real Nonres Fixed Investment Q/Q A.R.

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+6.9%	+6.8%	+6.1%	+5.8%
1980-99	+3.7%	+4.8%	+5.8%	+6.6%
2000-16	+1.6%	+3.6%	+3.5%	+0.8%

Seasonal Distortion in Components? Contd.

Avg Real DPI Q/Q A.R.

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+3.4%	+4.5%	+3.7%	+4.4%
1980-99	+3.7%	+2.4%	+3.4%	+3.5%
2000-16	+2.4%	+3.2%	+1.8%	+2.4%
2000-09	+3.6%	+3.2%	+1.4%	+1.6%
2010-16	+0.7%	+3.2%	+2.3%	+3.7%

Avg Corporate Profits Q/Q A.R.

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+12.0%	+11.7%	+9.1%	+6.1%
1980-99	+8.6%	+9.1%	+7.3%	+7.0%
2000-16	+14.6%	+8.4%	+10.3%	+2.5%
2000-09	+24.5%	+9.3%	+9.2%	+0.8%
2010-16	+ 0.6%	+7.2%	+11.8%	+5.2%

Corporate profits before taxes, with IVA and CCAAdj.

Are There Seasonal Distortions in Other Macro Indicators?

Avg Real Retail Sales Q/Q A.R.

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1967-79	+3.8%	+4.9%	+3.5%	+3.7%
1980-99	+2.8%	+3.6%	+4.2%	+3.8%
2000-16	+2.6%	+2.3%	+2.0%	+3.3%

Avg Employment Q/Q Chg (000)

<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+523	+513	+432	+507
1980-99	+507	+471	+484	+543
2000-16	+241	+237	+171	+188

Are There Seasonal Distortions in Other Macro Indicators? Contd.

Avg Industrial Production Q/Q A.R.

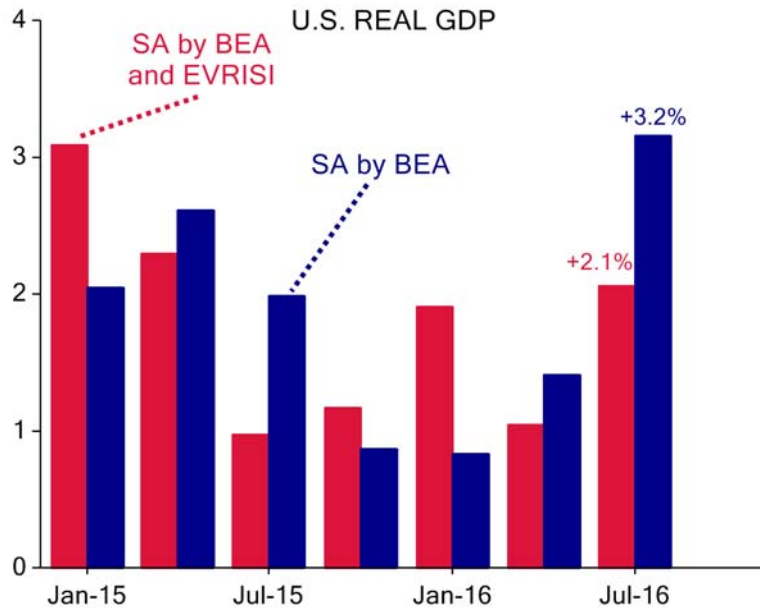
<u>Years</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
1960-79	+3.1%	+2.7%	+3.1%	+3.8%
1980-99	+2.7%	+2.4%	+3.0%	+4.0%
2000-16	+0.7%	+0.8%	+0.7%	+0.7%

Are There Seasonal Distortions in Other Macro Indicators? Contd.

Year	Avg Markit Composite PMI			
	1Q	2Q	3Q	4Q
2010	58.3	57.9	56.5	54.3
2011	56.4	55.9	54.1	55.7
2012	57.7	55.5	51.3	53.2
2013	54.0	54.7	56.7	53.9
2014	55.3	58.3	59.8	55.6
2015	56.9	55.9	55.4	54.9
2016	51.5	51.5	51.9	
Avg	55.7	55.7	55.1	54.7

QUESTIONS AND SUGGESTIONS

1. Can the shift to weak 1Q GDP changes recently, from strong 1Q data during 1960 – 1979 and average performance during 1980 – 1999, be explained?
2. As an interim step until a better solution is found, why not seasonally adjust the top line GDP as well as showing the data as currently being prepared?
3. It is important to be totally transparent on all seasonal adjustment procedures, in particular stating what program is being used, the parameters specified in executing the program, and the level at which the adjustments are being done.
4. It is likely when not seasonally adjusted GDP data are released that there will be many questions and controversies generated by users doing their own seasonal adjustments.



Real GDP Q/Q A.R. SA by EVRISI*

Year	1Q	2Q	3Q	4Q
2010	+3.6%	+2.7%	+2.9%	+1.8%
2011	+0.1%	+2.0%	+0.8%	+4.0%
2012	+4.2%	+1.1%	+0.3%	-0.3%
2013	+4.1%	+0.2%	+2.6%	+3.9%

2014	+2.2%	+2.4%	+2.0%	+1.0%
2015	+1.9%	+1.1%	+2.1%	+2.0%
2016	+1.9%	+1.1%	+2.1%	+2.0%
Avg	+2.4%	+1.8%	+2.0%	+2.5%
Avg as published	+1.1%	+2.5%	+2.5%	+2.5%

*Seasonally adjusted with X-12 program, multiplicative adjustment, and other default settings.

Changing Seasonal Adjustment Specifications Using Retail Sales

Avg Nominal Retail Sales Q/Q A.R., 2000-16*				
<u>Specification</u>	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
NSA	-32.4%	+42.8%	-2.0%	+21.0%
SA based on 1992 -2016	+4.1%	+2.8%	+3.4%	+3.9%
SA based on 2000 -2016	+3.5%	+2.9%	+3.3%	+4.3%
SA using Additive method	+3.8 %	+3.0%	+3.2%	+4.1%
SA discarding outliers	+3.3%	+3.0%	+2.9%	+4.8%

**Seasonally adjusted with X-12 program; multiplicative adjustment except when additive is specified; and outliers discarded if > +/-2 standard deviations from mean.*