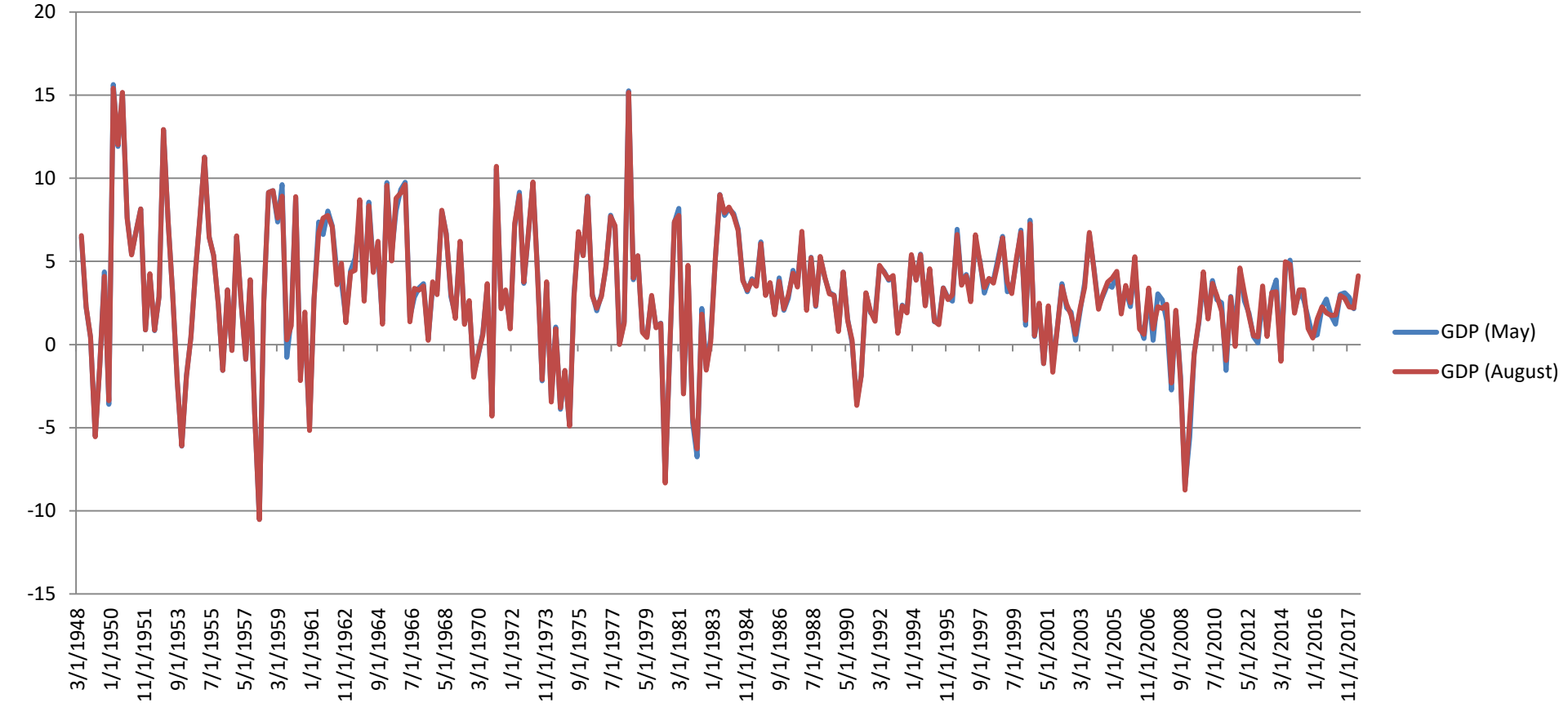
Notes on the August 31, 2018, Estimates

- There were minor revisions to input data from the 2018 Comprehensive Update of the National Income and Product Accounts

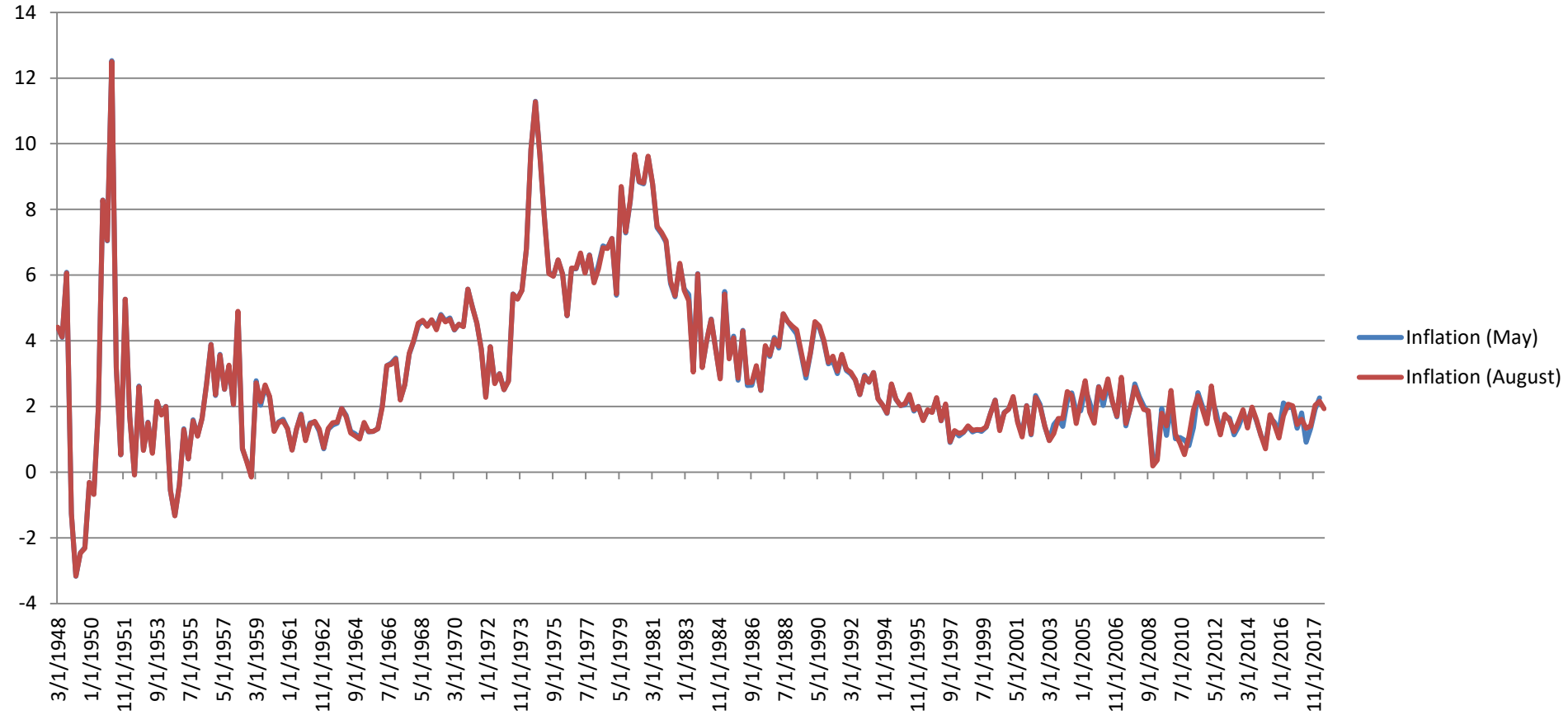
- These caused sizeable revisions to the estimated signal-to-noise ratios λ_g and λ_z

- Revisions to lambdas caused revisions to the two components of r*: g and z

Revisions to input data: Real GDP growth

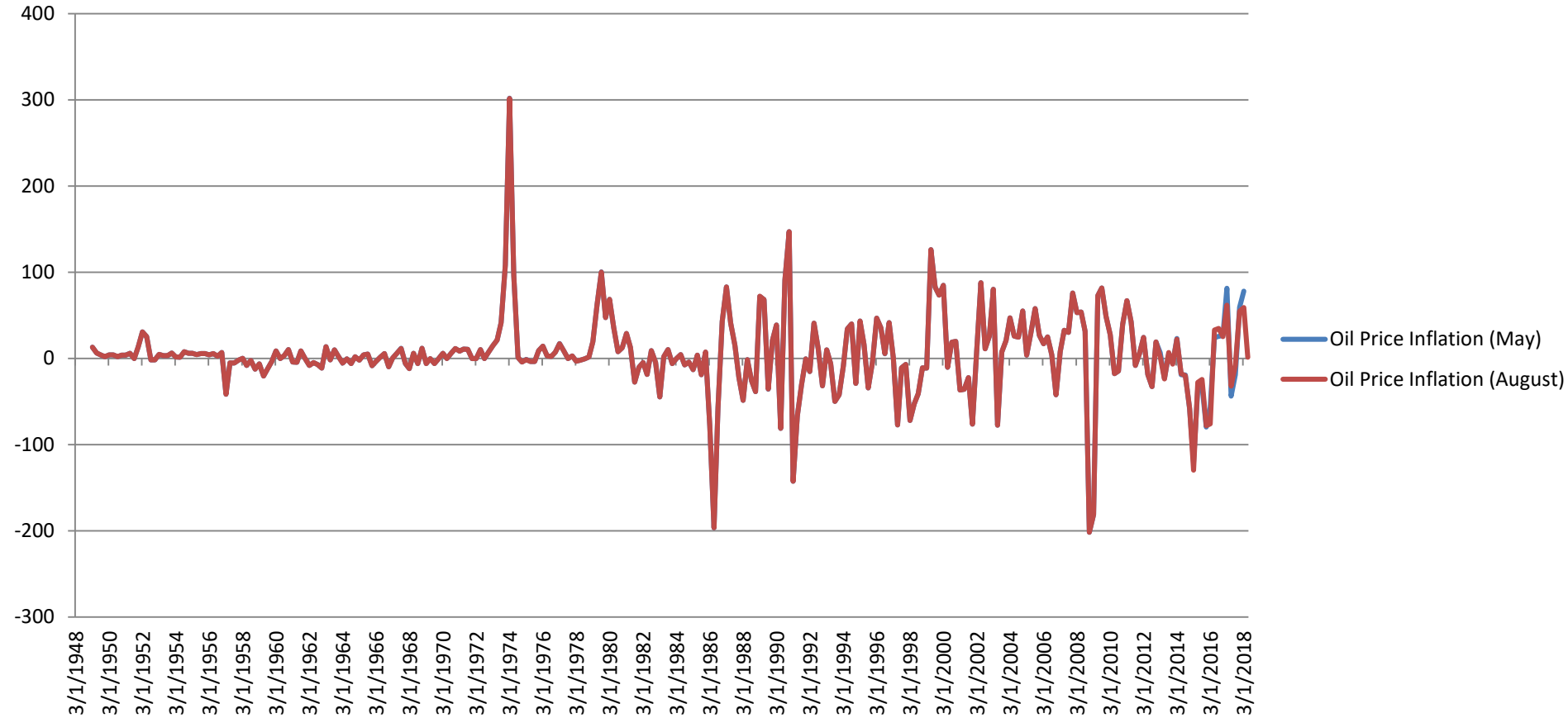


Revisions to input data: PCE inflation

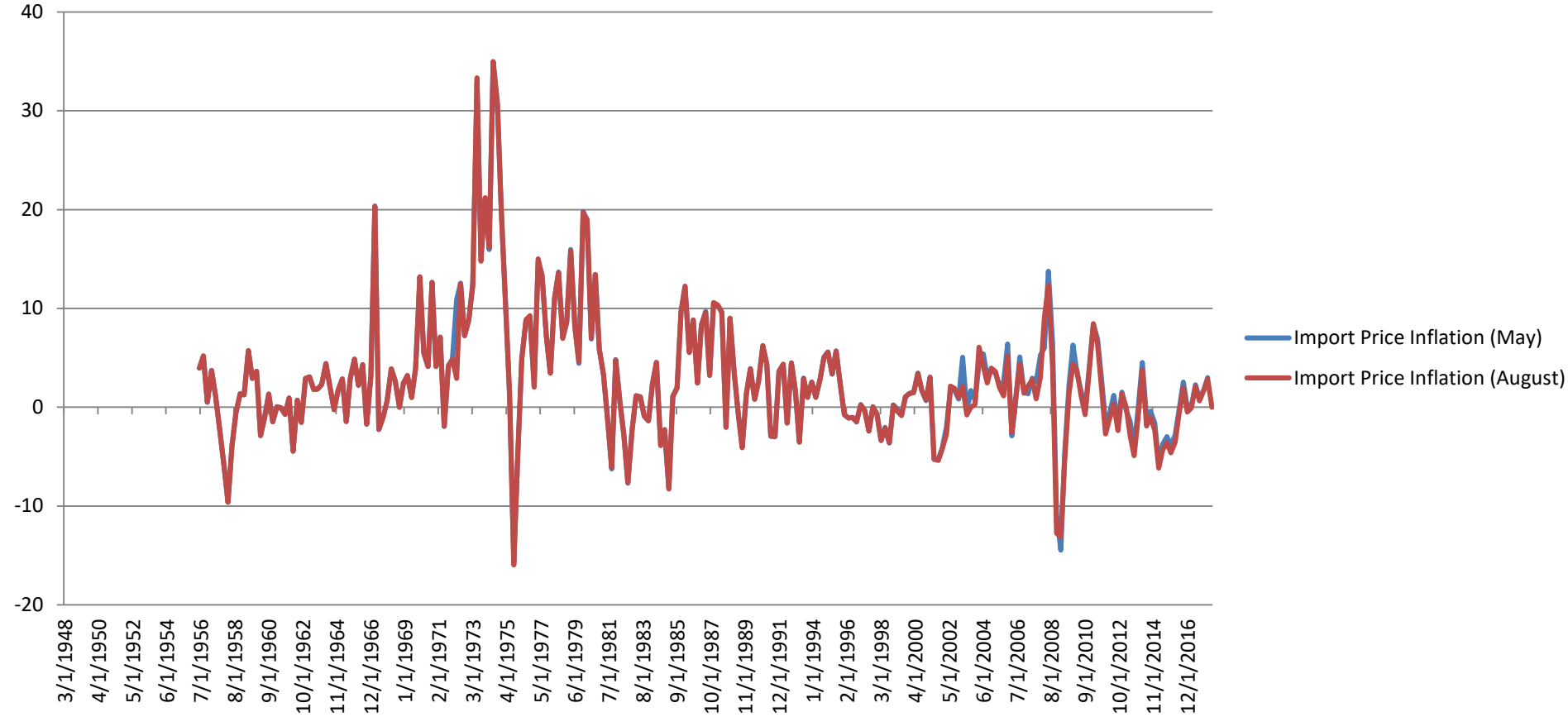


Revisions to input data: PCE inflation expectations

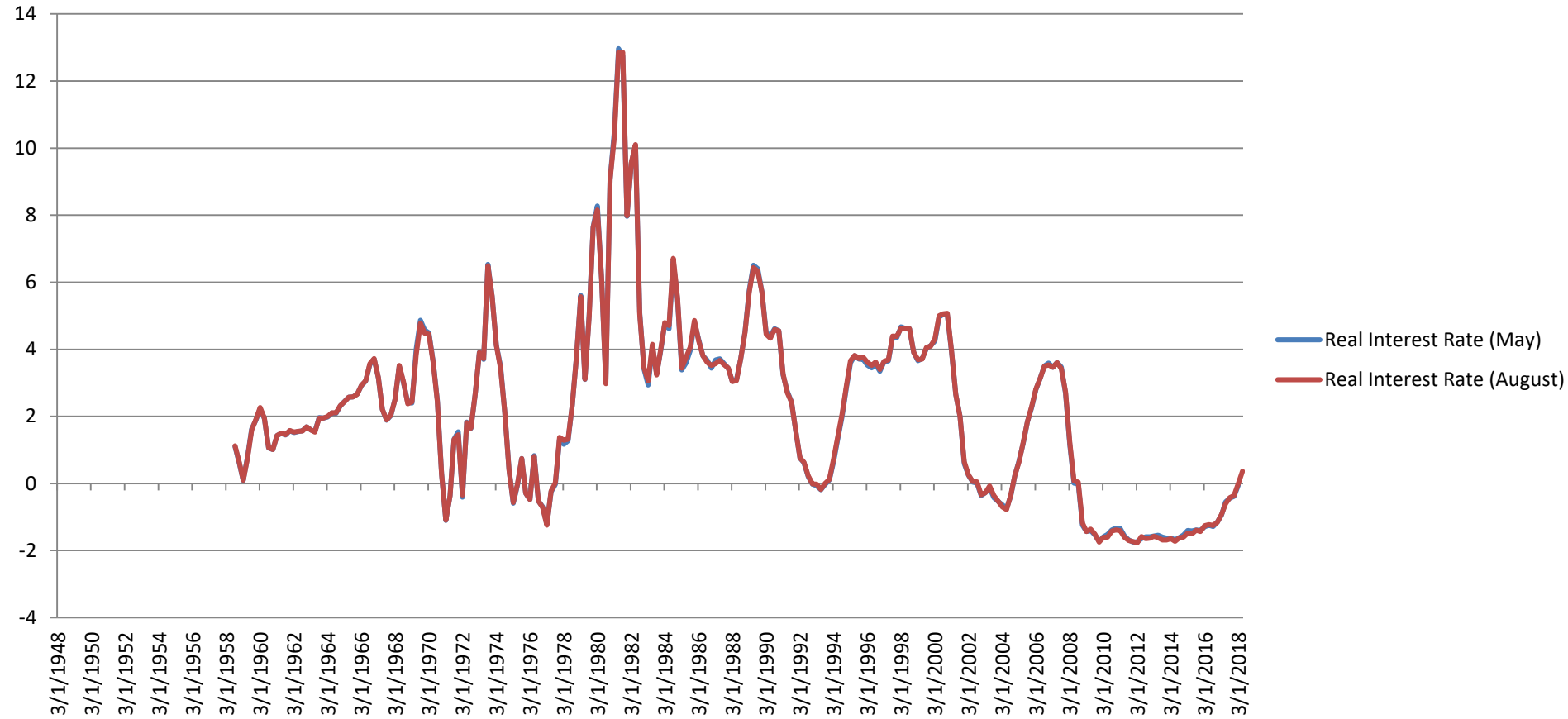
Revisions to input data: Oil price inflation



Revisions to input data: Import price inflation



Revisions to input data: Real interest rate



Note: the real interest rate is computed as the difference between the effective federal funds rate and expected inflation. Effective federal funds rate data were not revised.

Estimates: model parameters

	a_1	a_2	a_3	b_1	b_2	b_3	b_4	b_5	c	σ_1	σ_2	σ_4	a_1+a_2
May	1.5651	-0.6099	-0.0552	0.5742	0.3695	0.0412	0.0023	0.0355	1.4160	0.3465	0.7608	0.5974	0.9552
August	1.5527	-0.5990	-0.0587	0.5606	0.3780	0.0439	0.0023	0.0379	1.2767	0.3459	0.7634	0.5936	0.9537

Signal-to-noise ratios

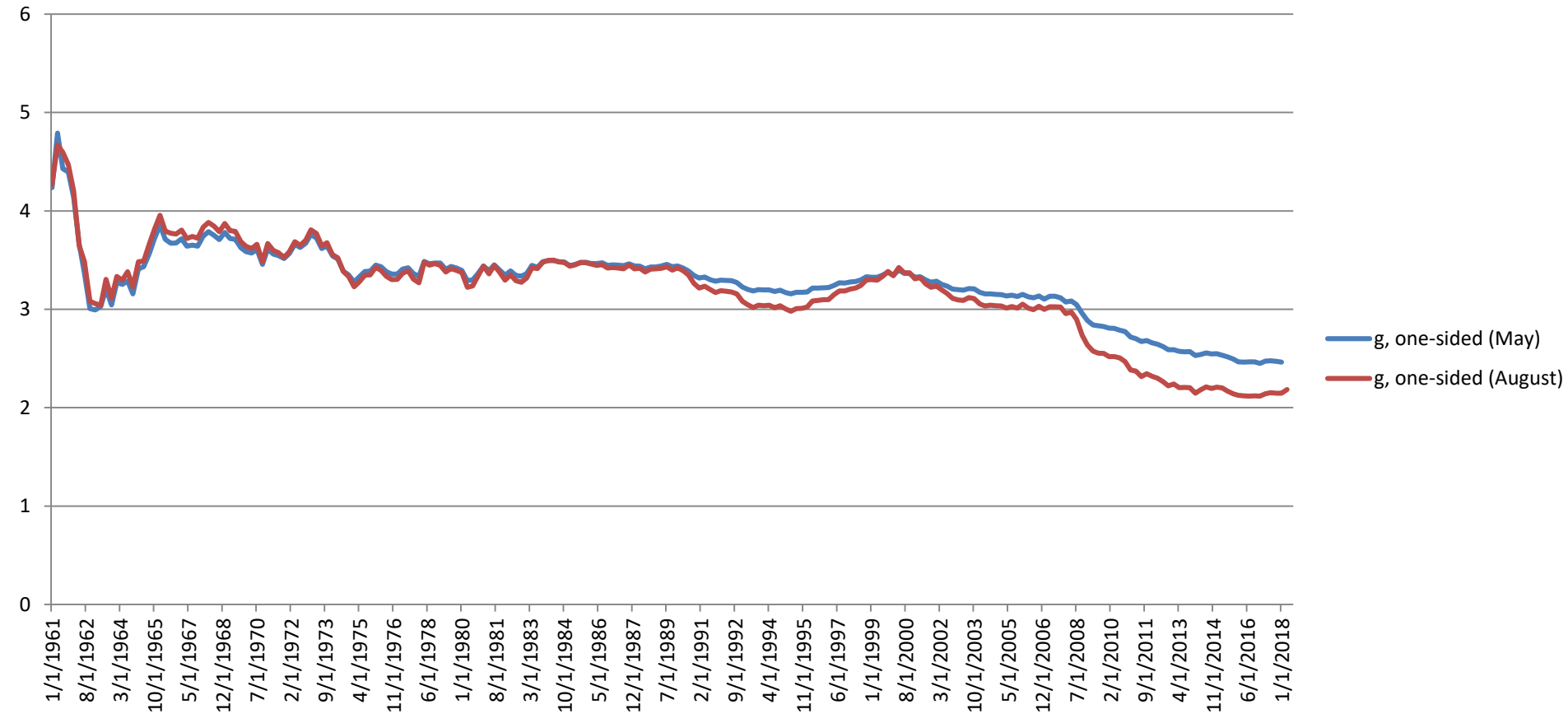
	λ_g	λ_z
May	0.0118	0.0420
August	0.0200	0.0387

Average standard errors

	y*	r*	g
May	2.4188	2.0306	0.2279
August	2.2586	2.4468	0.2739

Estimates:
r* (one-sided)

Estimates: g (one-sided)



Which data caused λ_g and λ_z to change?

Estimate λ_g and λ_z using a mix of revised/unrevised data for GDP and for all other series: **GDP revisions are most important**

Estimates of λ_g

	Using May data for all other series (through 2018Q1)	Using August data for all other series (through 2018Q2)
Using May data for GDP (through 2018Q1)	0.0118	0.0114
Using August data for GDP (through 2018Q2)	0.0209	0.0200

Estimates of λ_z

	Using May data for all other series (through 2018Q1)	Using August data for all other series (through 2018Q2)
Using May data for GDP (through 2018Q1)	0.0420	0.0431
Using August data for GDP (through 2018Q2)	0.0375	0.0387

To what extent are the changes in r* and g due to the changes in the estimated model parameters?

- Use **May data, August parameters**
  - Isolate the impact of new parameter estimates

- Use **August data, May parameters**
  - Isolate the "direct" impact of the new data, ignoring changes in parameter estimates

Estimates varying data/parameters: r* (one-sided)

Estimates varying data/parameters: g (one-sided)

Estimates varying data/parameters

- Shift in estimated trend growth rate appears to be due to a higher estimate of λ_g, not due to a revision to average GDP growth

- Slower potential output growth & no substantial revisions to average GDP growth → larger output gap estimates

- Revisions to real interest rate were negligible, real rate gap coefficient in IS equation is negative ($a_r < 0$) → model seems to "explain" larger output gap by a larger estimate of r*