Comparing NAICS-based IPP import data and PPI industry net output data

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Evolution of project comparing Import Price Index (MPI) and Producer Price Index (PPI) data

- Data user feedback – desire to draw valid conclusions about imported vs. domestic price trends
- Recognition that users are already making comparisons
- Complex vs. simpler options for comparing data
  - Complex options include cross-mapping products
  - Complex options require additional funding
  - Simpler options provide value at an affordable cost

Evolution of project comparing MPI and PPI data

- Proceed cautiously
- Decision: examine currently-published NAICS series
- Effects of methodological differences

Differences between MPI and PPI NAICS data

- Primary, secondary, and miscellaneous production
- Relative importance of industries within industry groups
- Net-output weights
- Within 6-digit NAICS product mix

Differences between MPI and PPI NAICS data: Primary, secondary, and miscellaneous production

An industry may have as many as three kinds of production:

1. Primary – products made primarily, but not necessarily exclusively, by that industry
2. Secondary – goods made chiefly in some other industry
3. Miscellaneous – services provided chiefly in some other industry

Primary, Secondary, and Miscellaneous Production

PPI → total production of a NAICS industry

MPI → primary production from a NAICS industry

⚠ Comparisons may be less valid if secondary production or miscellaneous receipts constitute a large share of a industry's production as measured by the PPI

Example: Primary, secondary, and miscellaneous production

Code	Index	Percent primary	Percent Secondary and miscellaneous
31511	Hosiery and sock mills	70.4	29.6
3152	Cut and sew apparel manufacturing	66.9	33.1
33131	Alumina & aluminum production & processing	92.2	7.8
33421	Telephone apparatus mfg	92.8	7.2

Differences between PPI and MPI NAICS data: Relative importance of industries within industry groups

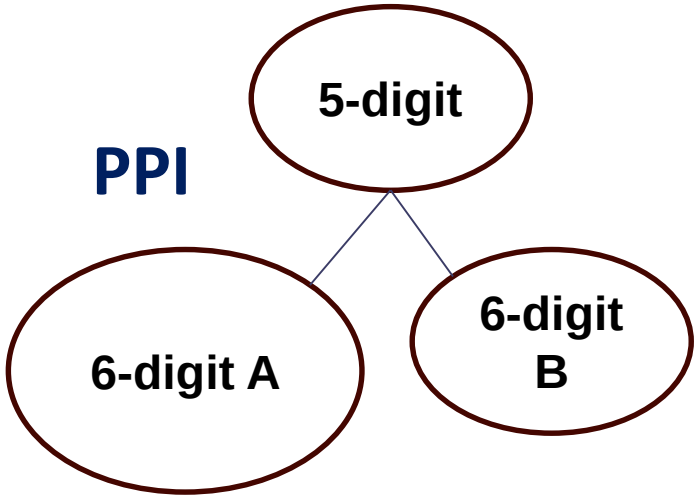
IPP → Published at 5-digit NAICS and higher

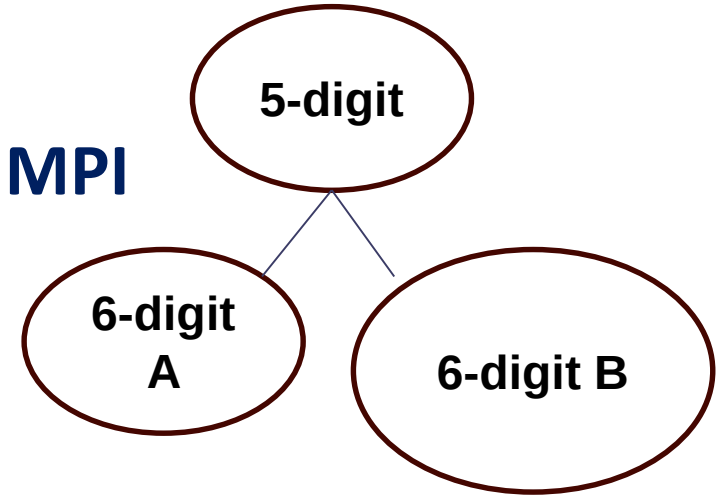
PPI → Published at 6-digit NAICS and higher

⚠ Comparisons must be done at 5-digit level or higher

Differences between PPI and MPI NAICS data: Relative importance of industries within industry groups

Relative importance matters:





Comparisons may be less valid if the relative importance of industries differ for the same higher-level industry group

Example: Relative importance of industries within industry groups

Code	Title	PPI RI	MPI RI
33411	Computer & peripheral equipment mfg	100.0	100.0
334111	Electronic computer mfg	55.46	56.54
334112	Computer storage device mfg	11.47	10.50
334118	Other computer peripheral equipment mfg	33.06	32.94

Example: Relative importance of industries within industry groups

Code	Title	PPI RI	MPI RI
33131	Alumina & aluminum production & processing	100.0	100.0
331313	Alumina refining and primary aluminum production	8.82	63.14
331314	Secondary smelting & alloying of aluminum	12.89	0.00
331315	Aluminum sheet, plate & foil mfg	54.31	26.28
331318	Aluminum extruded product mfg	23.97	10.78

Differences between PPI and MPI NAICS data: Net-output weighting

- PPI industry-based indexes → net weighted
  - Removes within-industry production and sales
  - Eliminates multiple counting
- IPP import (and export) industry-based indexes → gross weighted
  - There are no within-industry production and sales
  - Multiple counting is not an issue

Net-output weighting

- To create a net weight, PPI multiples the gross weight by a net-output ratio
- The net-output ratio reflects the percent of the product sold outside the industry or industry group
- Comparisons may be less valid if the PPI index has components with considerably differing net-output ratios

Example: Net-output weighting

Code	Title	NOR
3314	Nonferrous (exc alum) production & processing	
331410	Nonferrous metal (except aluminum) smelting and refining	0.565
331420	Copper rolling, drawing, extruding & alloying	0.775
331491	Other nonferrous metal roll/draw/extruding	0.866
331492	Other nonferrous secondary smelt/refine/alloying	0.866

Differences between MPI and PPI NAICS data: Within 6-digit NAICS product mix

- ✓ PPI primary production value is high
- ✓ 6-digit NAICS PPI and MPI relative importance values are similar
- ✓ Components' net-output ratios are similar (PPI)
- ⚠ Comparisons may be less valid if the product mix included in PPI and MPI at the 6-digit NAICS level differs considerably

Differences between MPI and PPI NAICS data

- Proposal: Publish a table with data for these three parameters that helps users make decisions about index comparability
  - Primary, secondary, and miscellaneous production
  - Relative importance of industries within industry groups
  - Net-output weights
  - Within 6-digit NAICS product mix

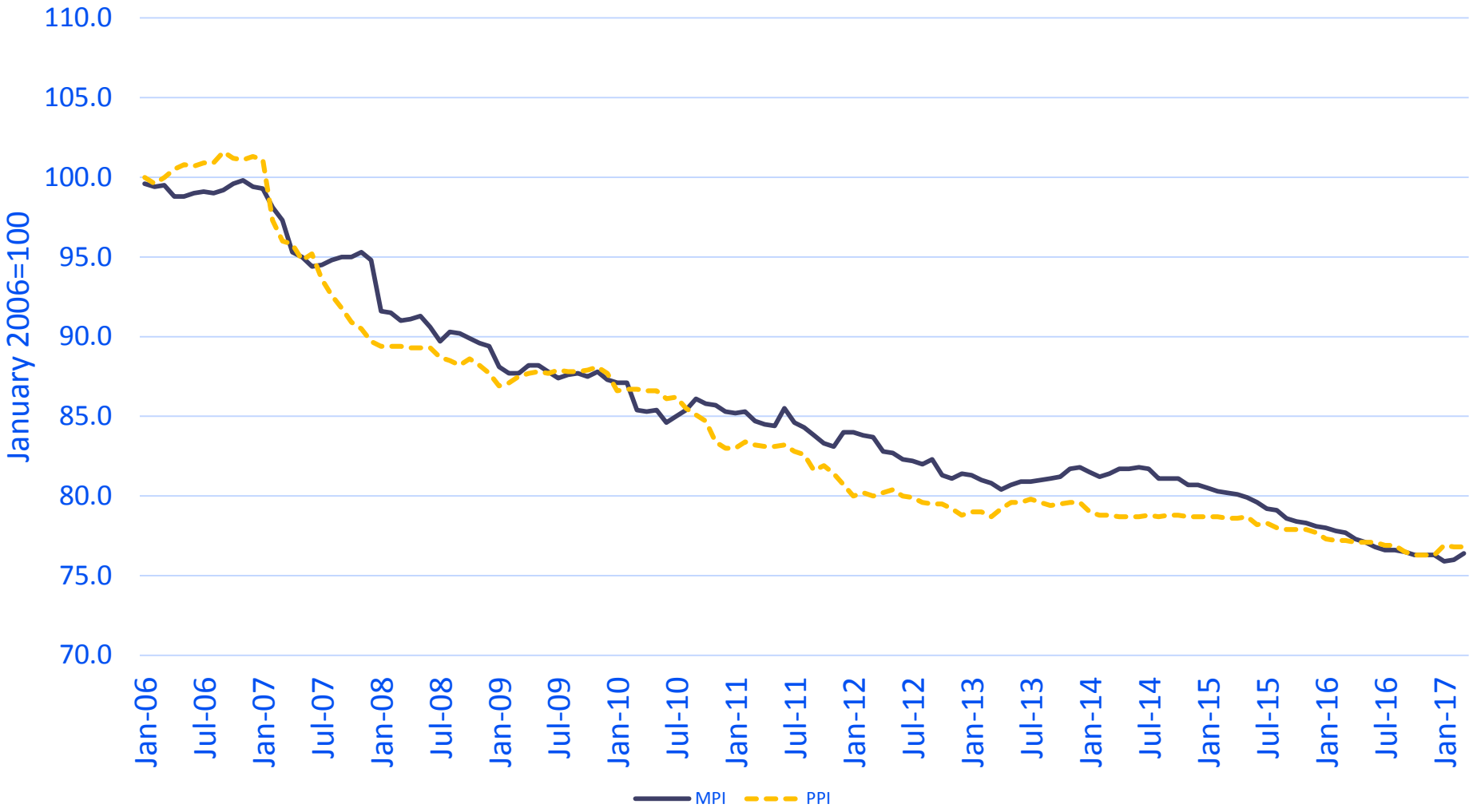
Absolute price levels

- When comparing the PPI and MPI for a NAICS no inferences can be made with respect to differences or similarities in absolute price levels of domestically produced versus foreign produced products
- PPIs and MPIs can only be used to assess relative price trends in domestic versus foreign goods

Example: . PPI / MPI comparability statistics for NAICS 3344 (Semiconductor and other electronic equipment mfg)

NAICS Code	Industry	MPI	PPI		
		Relative importance (December 2016)	Relative importance (December 2016)	NOR	Percent Primary
3344	Semiconductor & other electronic component mfg	100.00	100.00		90.646
334412	Bare printed circuit board mfg	3.04	7.93	0.8731	
334413	Semiconductor & related device mfg	58.56	47.76	0.9290	
334416	Capacitor, resistor, coil, transformer, and other inductor mfg	6.39	3.69	0.8731	
334417	Electronic connector mfg	5.17	5.18	0.8731	
334418	Printed circuit assembly (electronic assembly) mfg	20.75	23.30	0.8774	
334419	Other electronic component mfg	6.08	12.14	0.8731	

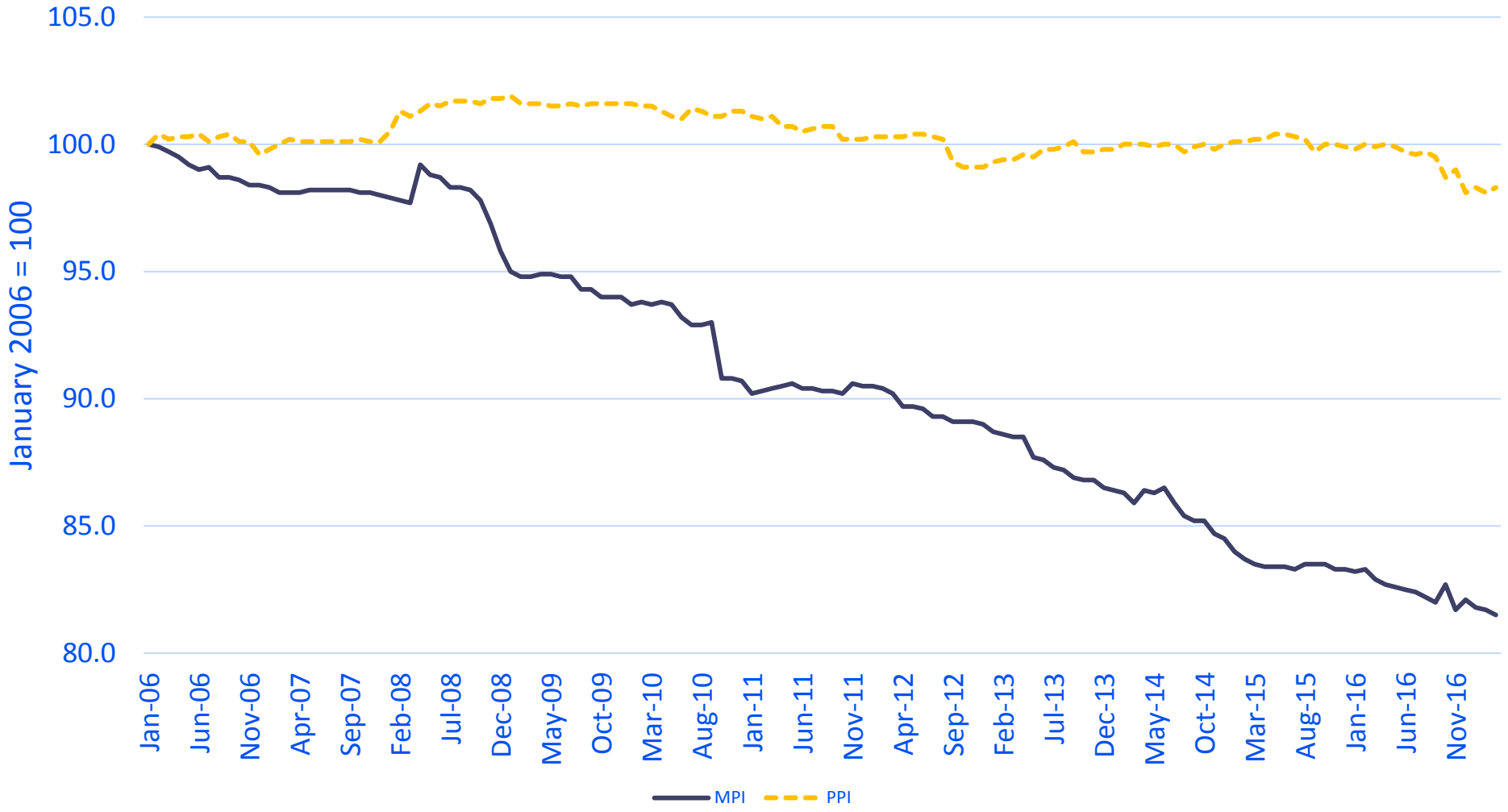
NAICS 3344 (Semiconductor and other electronic equipment mfg) PPI versus MPI



Example: PPI / MPI comparability statistics for NAICS 3342 (Communications Equipment)

NAICS Code	Industry	MPI	PPI		
		Relative importance (December 2016)	Relative importance (December 2016)	NOR	Percent Primary
3342	Communications equipment mfg	100.00	100.00		85.011
334210	Telephone apparatus mfg	1.90	29.77	0.9776	
334220	Radio/TV broadcast & wireless comm equip mfg	96.37	61.49	0.9174	
334290	Other communications equipment mfg	1.73	8.75	0.9923	

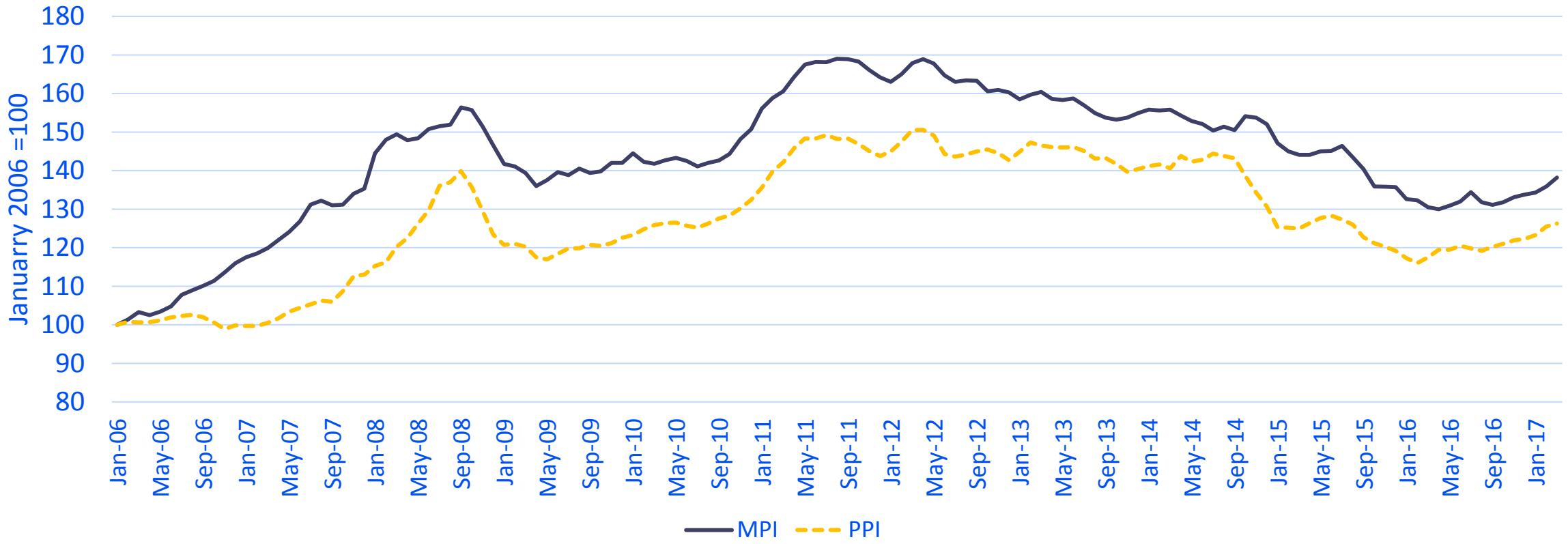
NAICS 3342 (Communications Equipment) PPI versus MPI:



Example: PPI / MPI comparability statistics for NAICS 3251 (Basic Chemical mfg)

NAICS Code	Industry	MPI	PPI		
		Relative importance (December 2016)	Relative importance (December 2016)	NOR	Percent Primary
3251	Basic chemical mfg	100.00	100.00		78.838
325110	Petrochemical mfg	3.73	14.38	0.4874	
325120	Industrial gas mfg	0.37	5.62	0.8926	
325130	Synthetic organic dye and pigment mfg	5.22	3.69	0.9605	
325180	Other basic inorganic chemical manufacturing	22.48	22.22	0.8969	
325193	Ethyl alcohol mfg	1.03	5.95	0.8263	
325194	Gum and wood chemical manufacturing	7.49	3.61	0.8263	
325199	All other basic organic chemical mfg	59.69	44.53	0.8263	

NAICS 3251 (Basic Chemical mfg) PPI versus MPI:



Questions for DUAC

- The FED and BEA like to compare indexes, but are there other potential users?
- We are considering updating the information for users annually – would this be useful?
- Is the audience broader than we think?

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