The Role of BLS Import and Export Price Indexes in the Real GDP

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International Price Program Discussion Series
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Agenda

- What is IPP?
- Where does IPP's source data come from?
- What is so special about IPP's indexes?
- How are IPP's indexes used?
- What is GDP?
- How to deflate?

So, what is IPP?

- The International Price Program's (IPP) indexes measure the average change in export and import prices

So, what is IPP?

- IPP's indexes measure the average change in export and import prices
- 43 years of IPP…

Who provides prices to IPP?

Survey respondents

Secondary source data providers

What makes IPP's indexes unique?

- No similar statistic exists
- They adapt to the changing economy
  - New mix of items
  - Revised item weights

What agencies help IPP's indexes adapt?

U.S. Customs and Border Protection

Statistics Canada Statistique Canada

United States Census Bureau

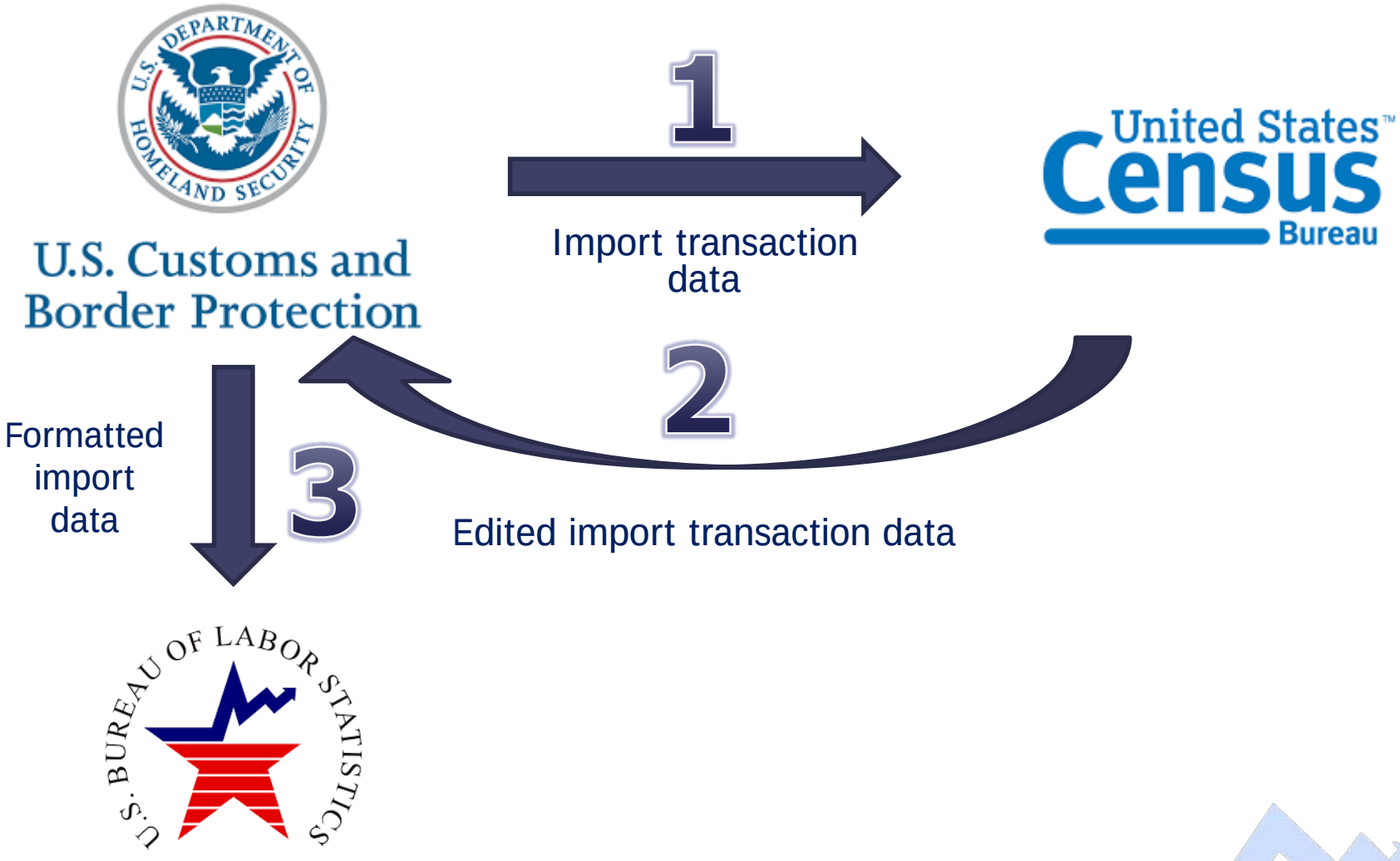
U.S. Bureau of Labor Statistics

How IPP's indexes adapt

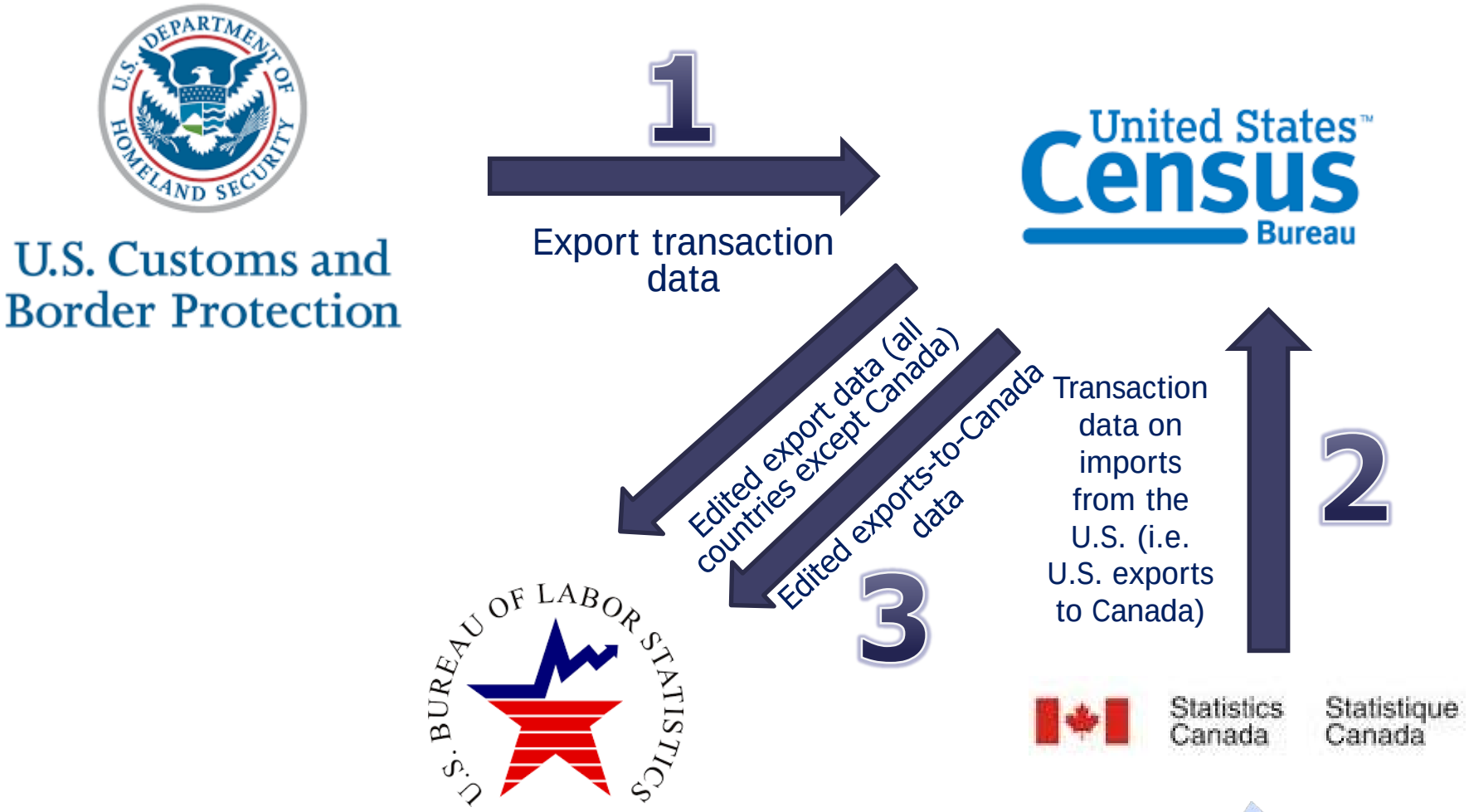
Transaction data from importers and exporters

U.S. Customs and Border Protection

How IPP's indexes adapt (imports)



How IPP's indexes adapt (exports)



How are IPP's data used?

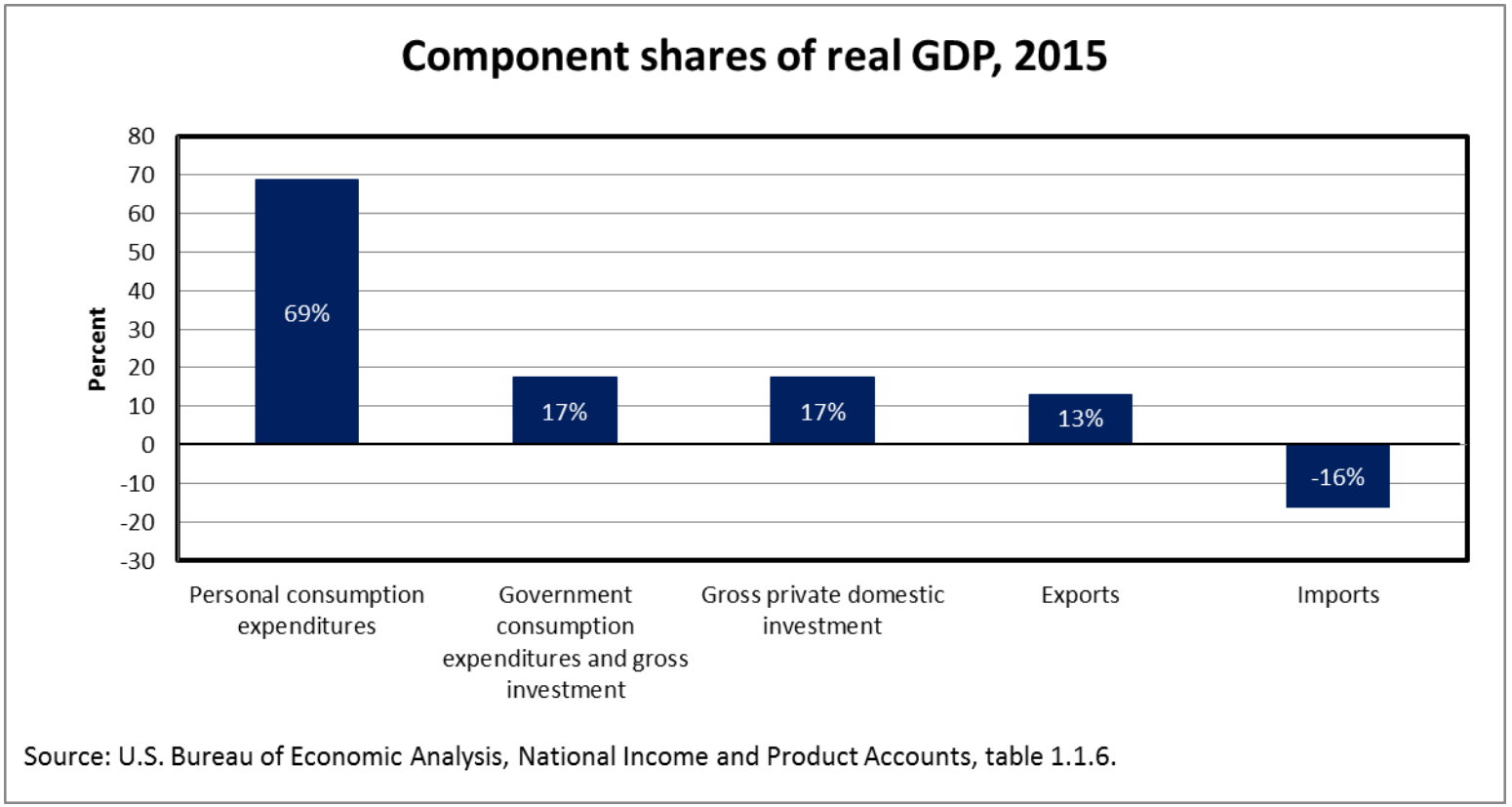
- Used by
  - Policy makers
  - Private businesses
  - Academia
  - Government statistical community

What is GDP?

- Measures output of final goods and services

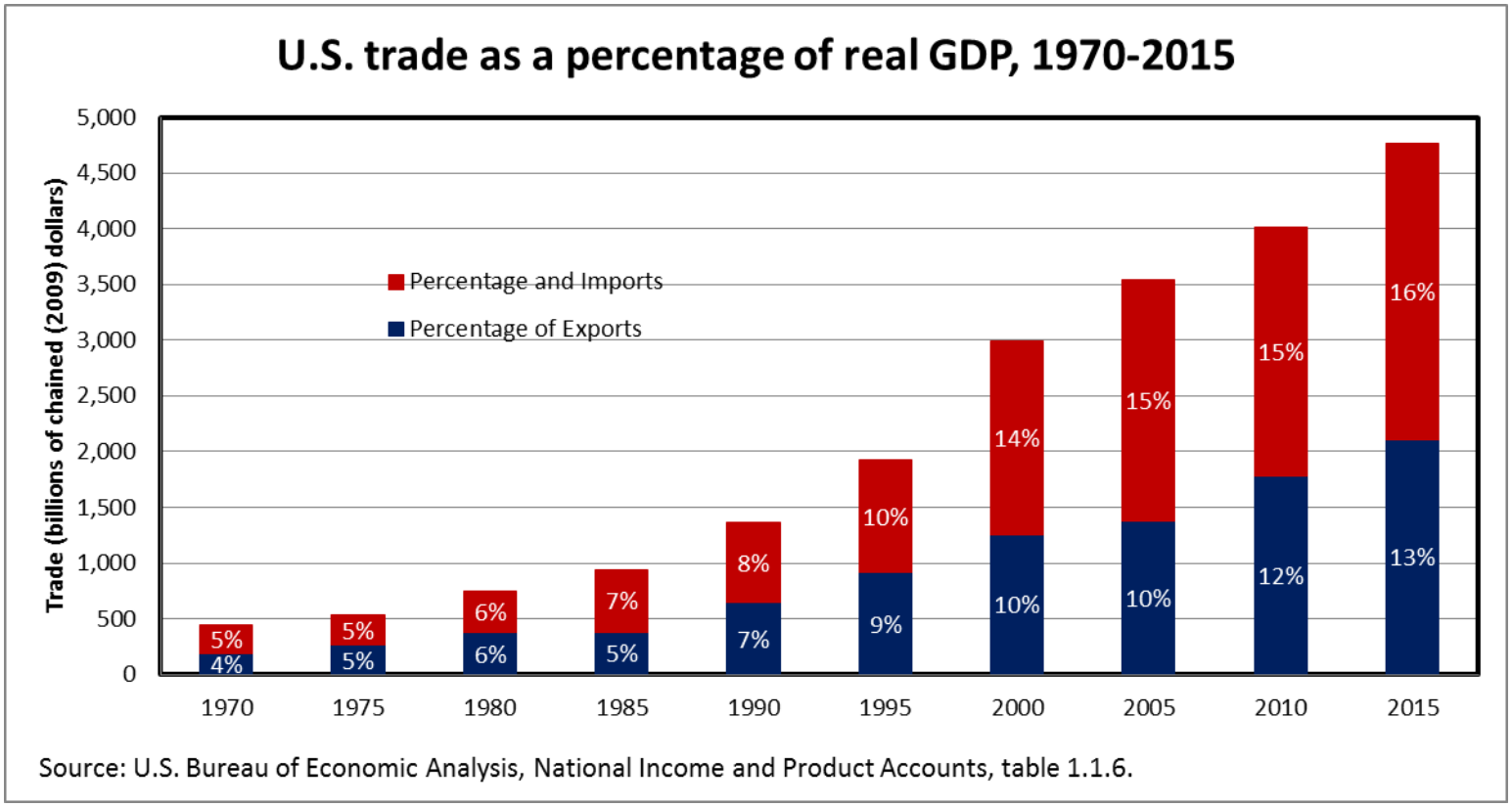
$$GDP = C + I + G + \underbrace{X - M}_{\text{Net Exports}}$$

Net Exports and GDP

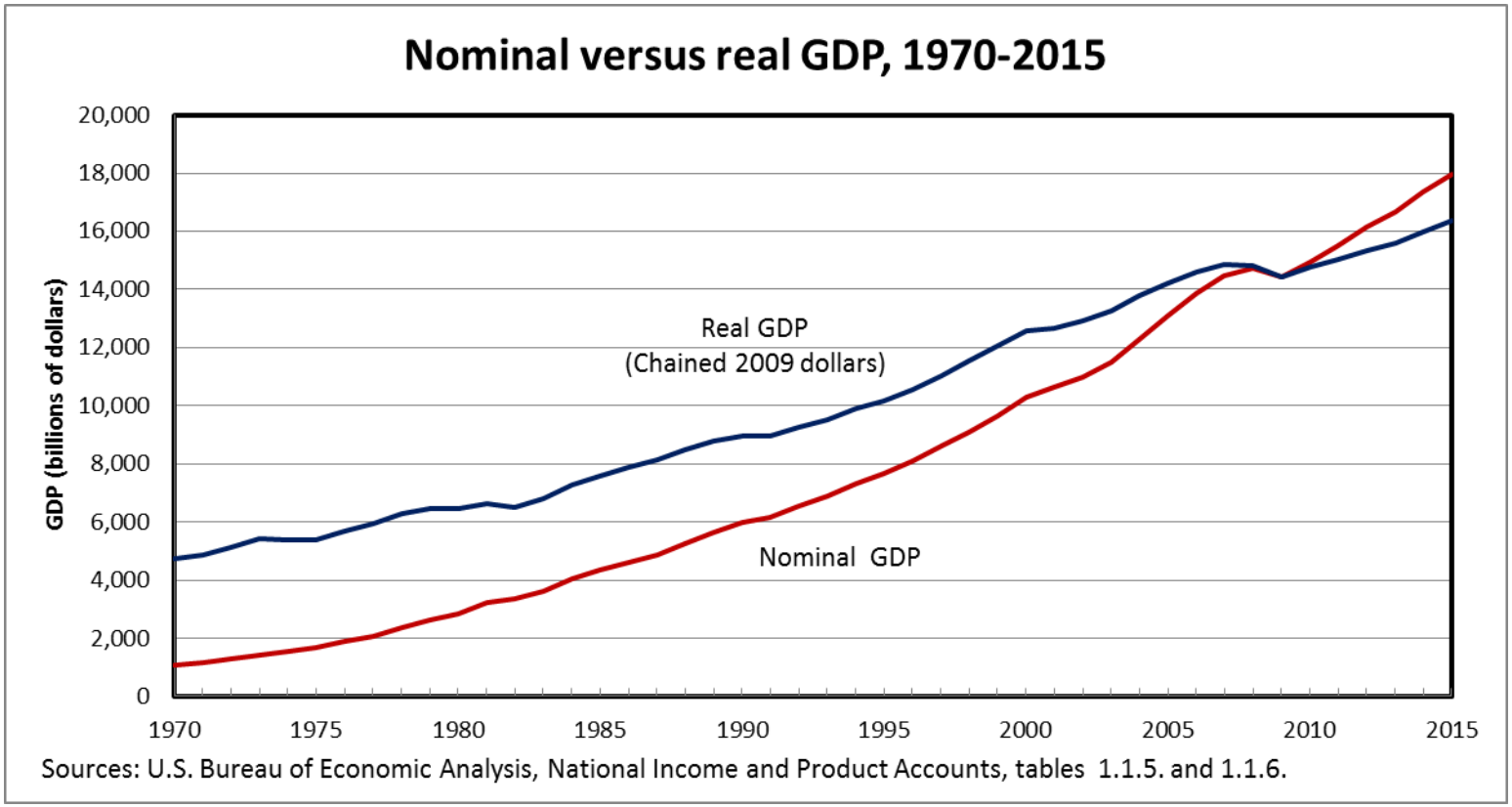


Source: U.S. Bureau of Economic Analysis, National Income and Product Accounts, table 1.1.6.

Total trade and GDP



Deflation: why is it important?



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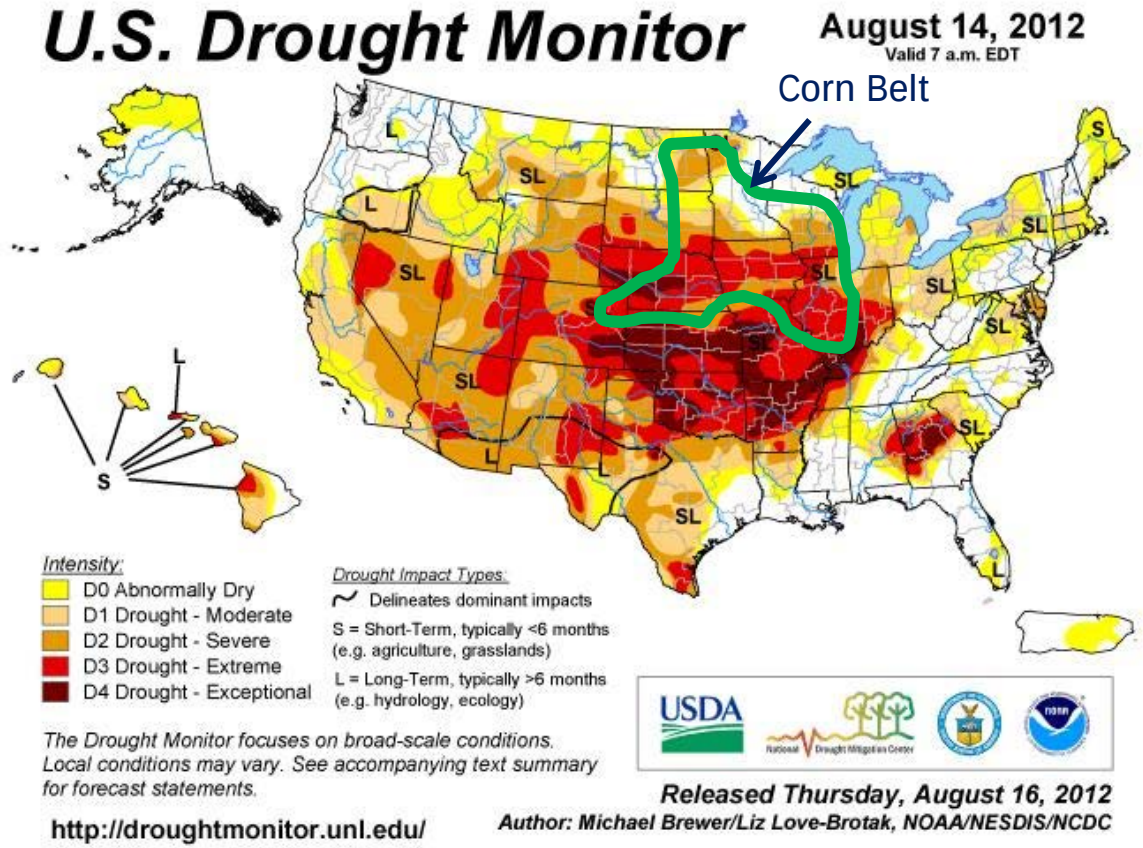

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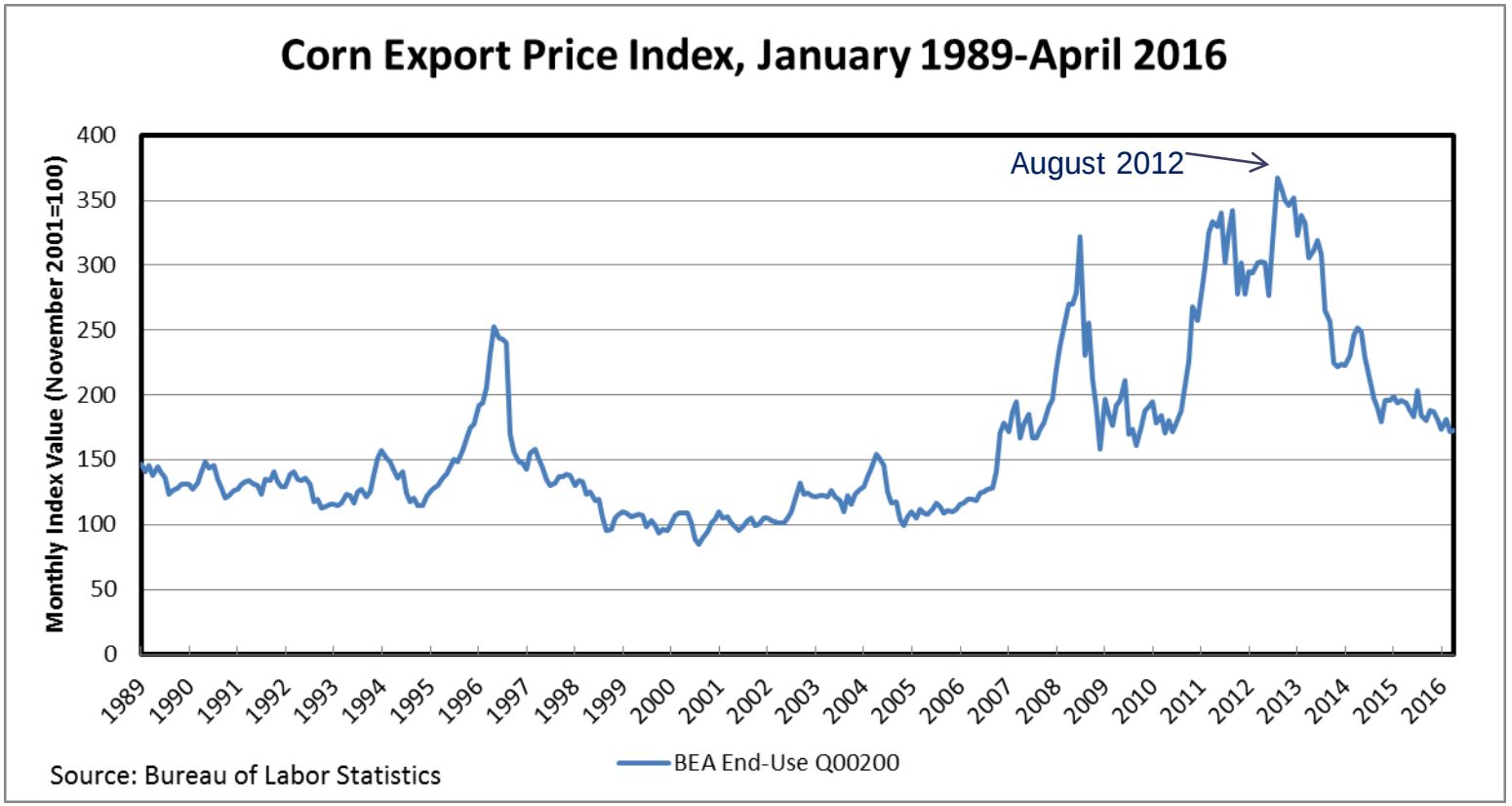

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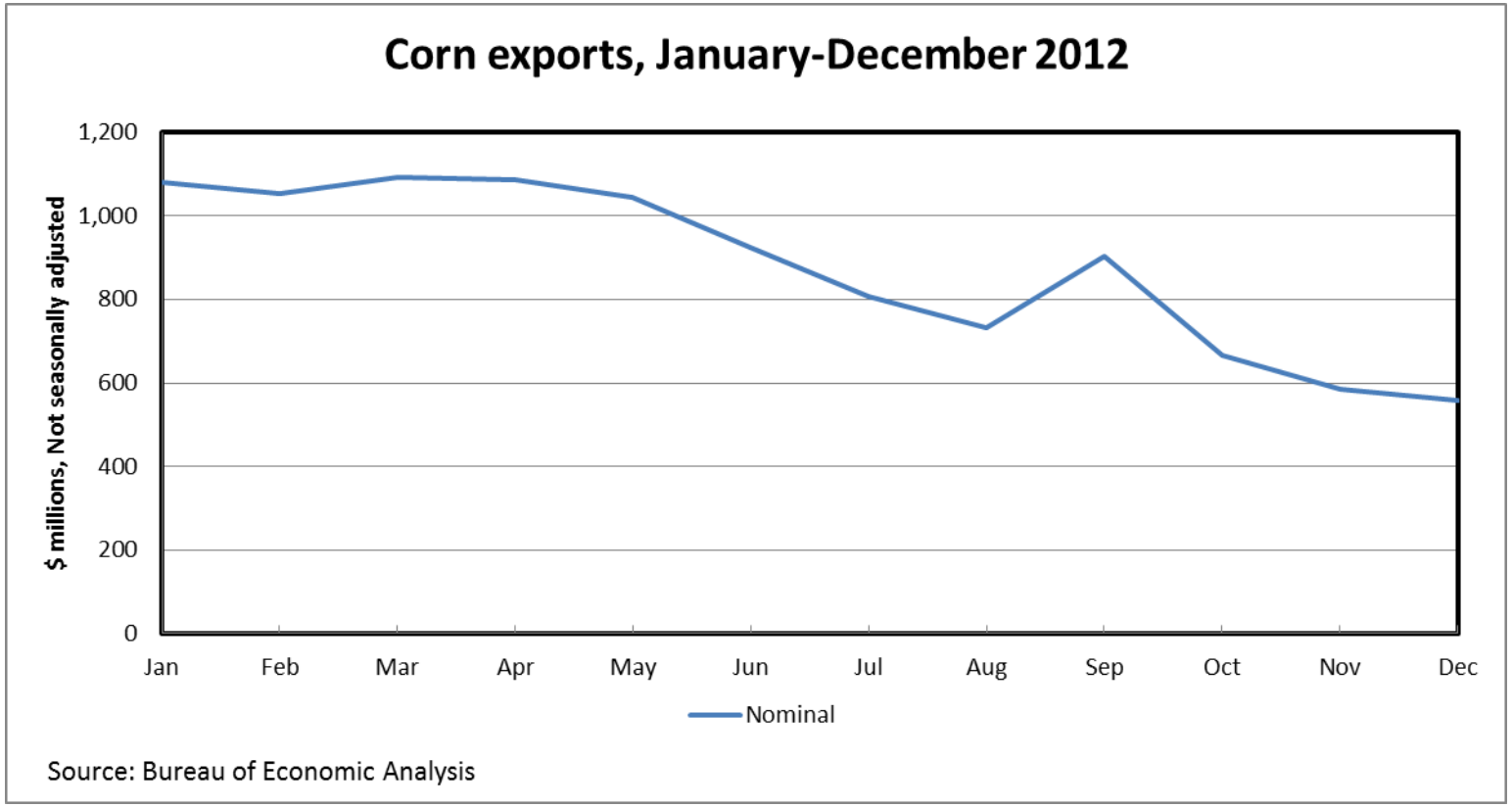

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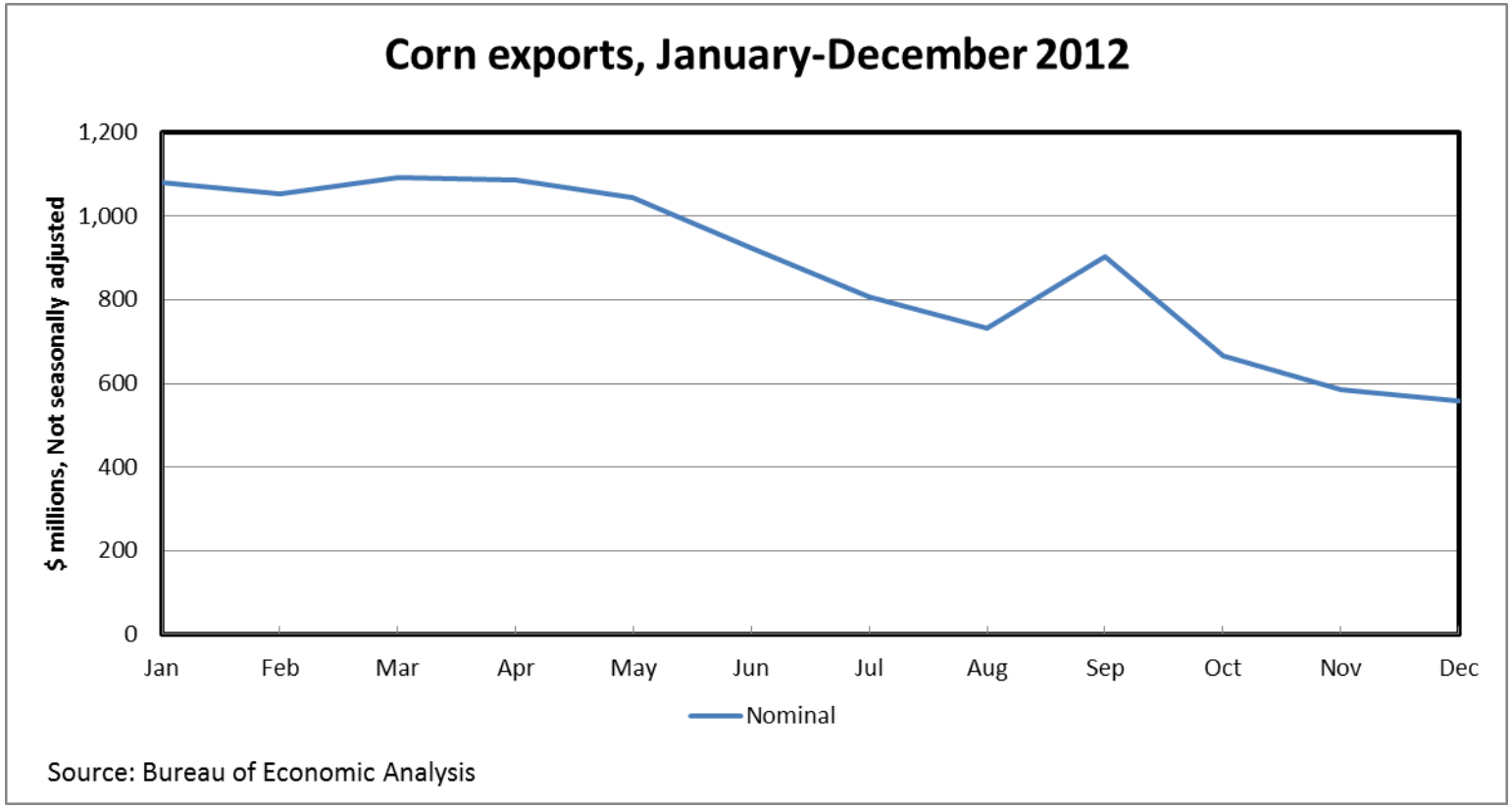
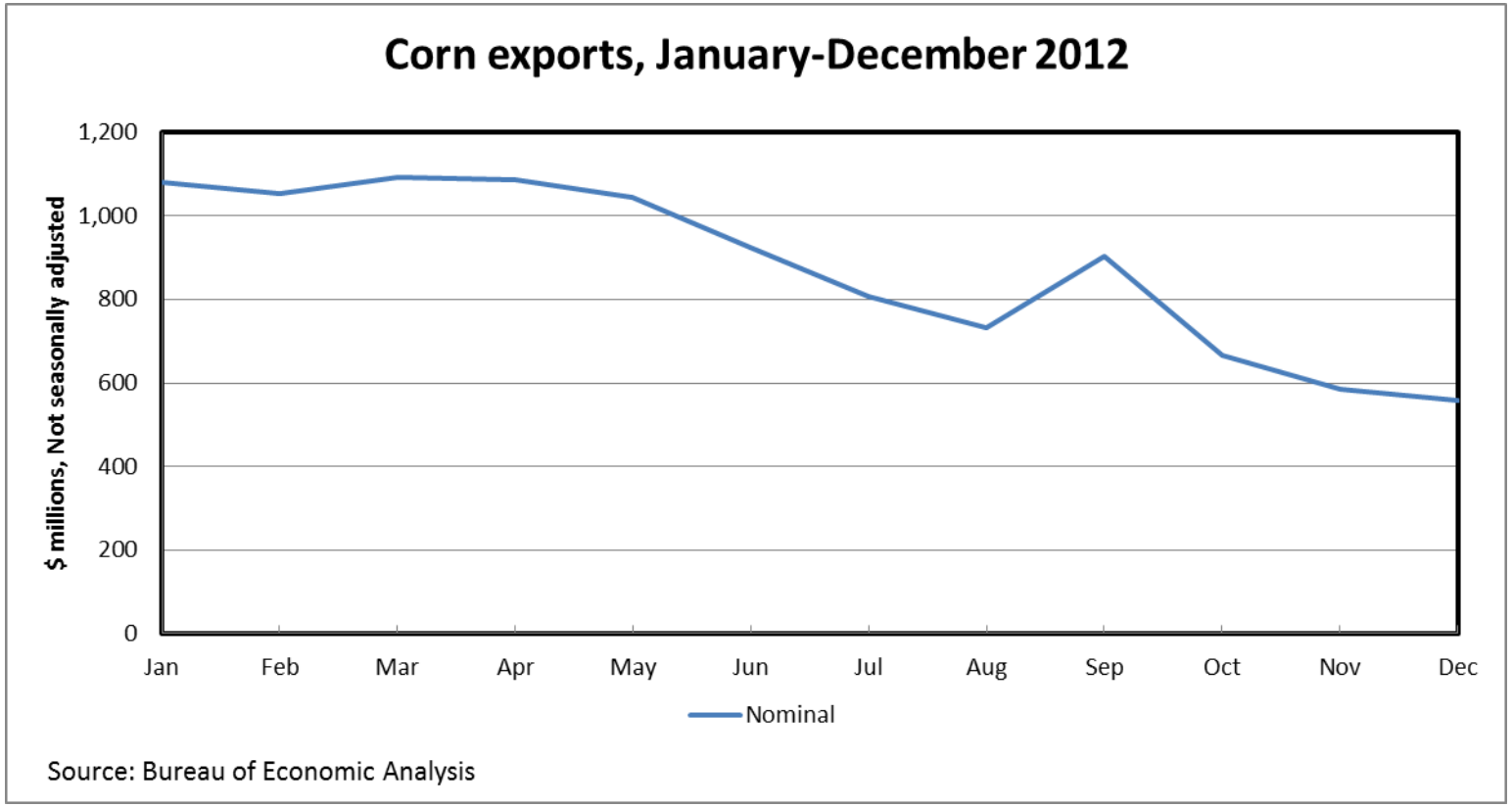


$$Export\ dollar\ value = price \times quantity$$

Deflation: why is it important?



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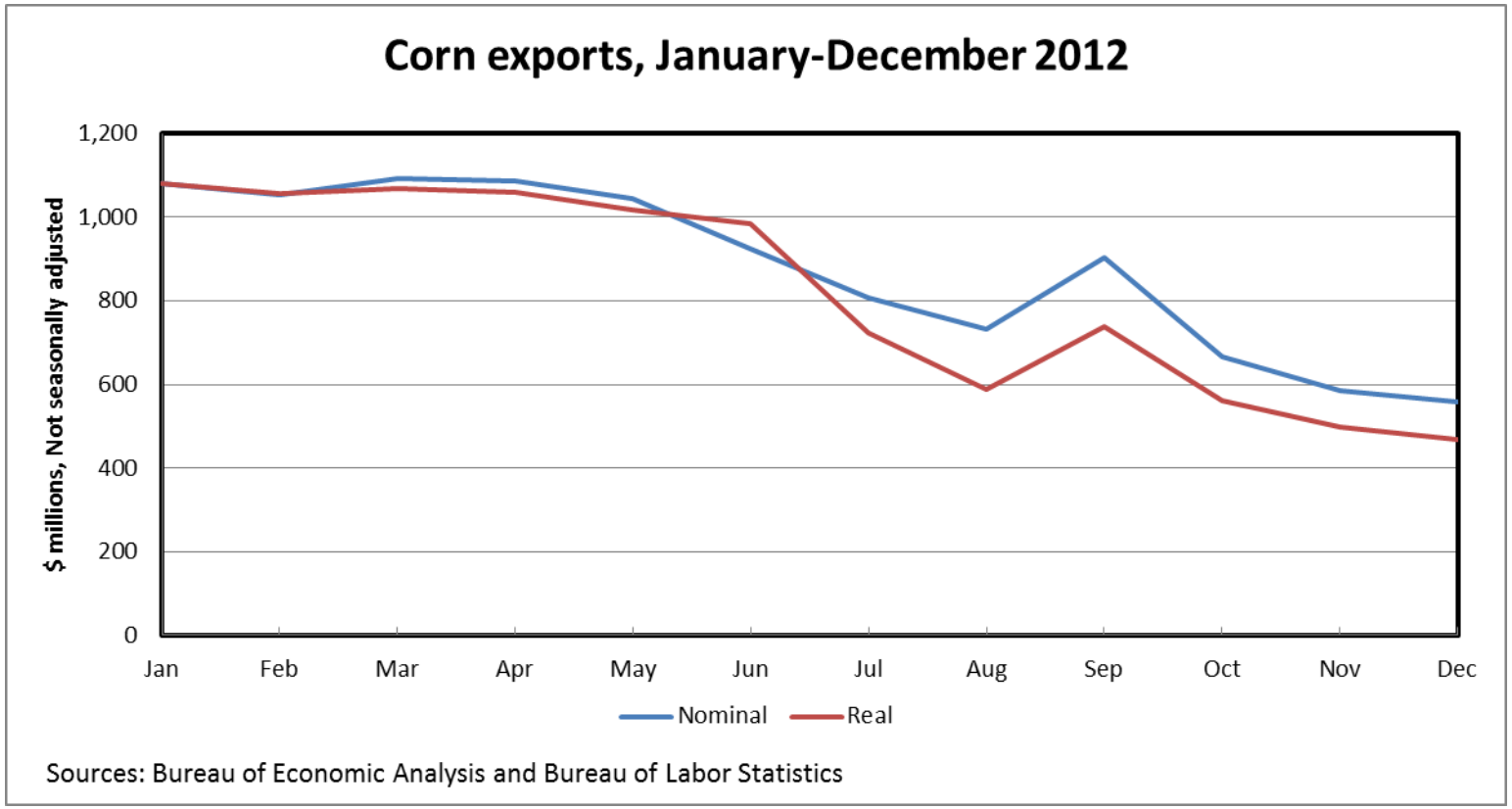


$$Export\ dollar\ value = price \uparrow \times quantity \downarrow$$

Deflation: how to do it

1. Start with the nominal series

Corn exports, January-December 2012	
Month	Nominal Corn Exports ($ millions)
Jan	1,081
Feb	1,054
Mar	1,094
Apr	1,086
May	1,044
Jun	926
Jul	809
Aug	733
Sep	902
Oct	667
Nov	584
Dec	558

Deflation: how to do it

1. Start with the nominal series
2. Take the price index and rebase it

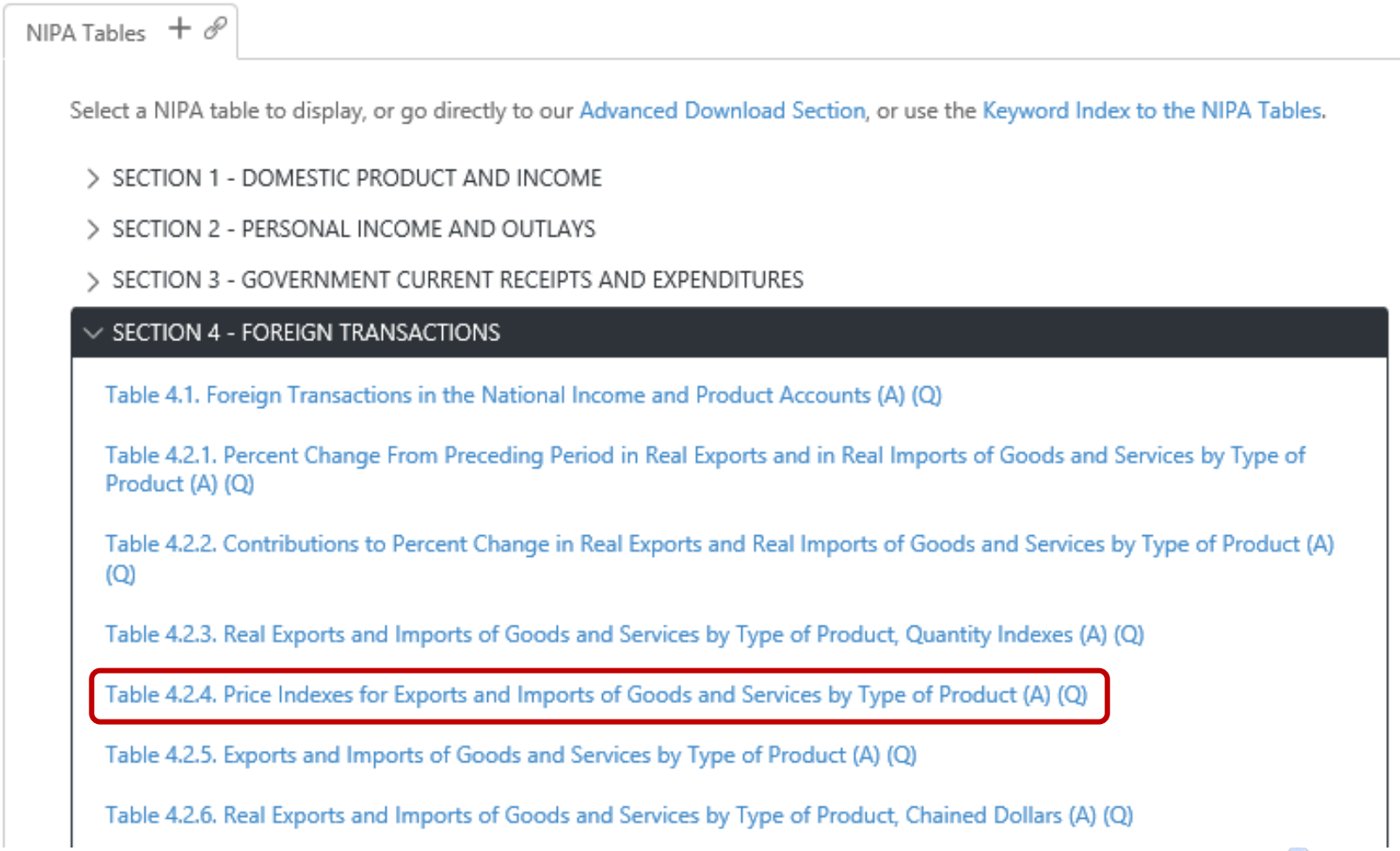
Corn exports, January-December 2012			
Month	Nominal Corn Exports ($ millions)	Price Index	Rebased Price Index
Jan	1,081	295.0	100.0
Feb	1,054	294.1	99.7
Mar	1,094	301.6	102.2
Apr	1,086	302.7	102.6
May	1,044	302.4	102.5
Jun	926	277.1	93.9
Jul	809	330.4	112.0
Aug	733	367.1	124.4
Sep	902	359.7	121.9
Oct	667	349.7	118.5
Nov	584	346.1	117.3
Dec	558	351.9	119.3

Deflation: how to do it

1. Start with the nominal series
2. Take the price index and rebase it
3. $$Real = \frac{Nominal}{Rebased\ price\ index} \times 100$$

Corn exports, January-December 2012				
Month	Nominal Corn Exports ($ millions)	Price Index	Rebased Price Index	Real Corn Exports ($ millions)
Jan	1,081	295.0	100.0	1,081
Feb	1,054	294.1	99.7	1,058
Mar	1,094	301.6	102.2	1,070
Apr	1,086	302.7	102.6	1,059
May	1,044	302.4	102.5	1,019
Jun	926	277.1	93.9	985
Jul	809	330.4	112.0	722
Aug	733	367.1	124.4	589
Sep	902	359.7	121.9	740
Oct	667	349.7	118.5	563
Nov	584	346.1	117.3	498
Dec	558	351.9	119.3	468

Deflation: GDP and IPP, Example 1



Deflation: GDP and IPP, Example 1

Table 4.2.4. Price Indexes for Exports and Imports of Goods and Services by Type of Product

[Index numbers, 2009=100] Seasonally adjusted

Last Revised on: May 27, 2016 - Next Release Date June 28, 2016

Line		2014			
		I	II	III	IV
1	**Exports of goods and services**	**112.884**	**112.895**	**112.615**	**110.607**
2	**Exports of goods** [1]	**113.357**	**113.099**	**112.425**	**109.620**
3	Foods, feeds, and beverages	127.869	132.978	127.375	121.131

Deflation: GDP and IPP, Example 1

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Table 4.2.5. Exports and Imports of Goods and Services by Type of Product

[Billions of dollars] Seasonally adjusted at annual rates

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Line		2014			
		I	II	III	IV
1	**Exports of goods and services**	**2,301.5**	**2,356.2**	**2,360.6**	**2,349.5**
2	**Exports of goods** [1]	**1,585.5**	**1,628.0**	**1,641.9**	**1,616.5**
3	Foods, feeds, and beverages	146.6	145.7	138.6	144.1

$$Real = \frac{Nominal}{Rebased\ price\ index} \times 100$$

Deflation: GDP and IPP, Example 1

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$$Real = \frac{146.6}{127.869} \times 100 = 114.6$$

Deflation: GDP and IPP, Example 1

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3	Foods, feeds, and beverages	146.6	145.7	138.6	144.1

$$Real = \frac{146.6}{127.869} \times 100 = 114.6$$

Table 4.2.6. Real Exports and Imports of Goods and Services by Type of Product, Chained Dollars

[Billions of chained (2009) dollars] Seasonally adjusted at annual rates

Last Revised on: May 27, 2016 - Next Release Date June 28, 2016

Line		2014			
		I	II	III	IV
1	**Exports of goods and services**	**2,038.7**	**2,086.8**	**2,096.0**	**2,123.9**
2	**Exports of goods** [1]	**1,398.4**	**1,439.1**	**1,460.1**	**1,474.3**
3	Foods, feeds, and beverages	114.5	109.4	108.8	118.9

Deflation: GDP and IPP, Example 2

Commodity	Month	BLS price index percent change (not seasonally adjusted)
Corn	January	1.2
	February	3.0
	March	.8
	—	—
Soybeans	January	2.0
	February	1.8
	March	.9
	—	—
Wheat	January	1.0
	February	.7
	March	3.0
	—	—

Source: Data are simulated.

Deflation: GDP and IPP, Example 2

Commodity	Month	BLS price index percent change (not seasonally adjusted)	BEA price index	
			Not seasonally adjusted	Seasonally adjusted
Corn	January	1.2	207	215
	February	3.0	213	210
	March	.8	215	220
	—	—	—	—
Soybeans	January	2.0	214	210
	February	1.8	218	215
	March	.9	220	220
	—	—	—	—
Wheat	January	1.0	202	220
	February	.7	203	210
	March	3.0	209	215
	—	—	—	—

Source: Data are simulated.

Deflation: GDP and IPP, Example 2

Commodity	Month	BLS price index percent change (not seasonally adjusted)	BEA price index		Seasonally adjusted monthly trade value (millions of dollars)	Monthly trade value weight
			Not seasonally adjusted	Seasonally adjusted		
Corn	January	1.2	207	215	$2	0.29
	February	3.0	213	210	1	.14
	March	.8	215	220	4	.57
	—	—	—	—	—	—
Soybeans	January	2.0	214	210	5	.38
	February	1.8	218	215	7	.54
	March	.9	220	220	1	.08
	—	—	—	—	—	—
Wheat	January	1.0	202	220	3	.30
	February	.7	203	210	5	.50
	March	3.0	209	215	2	.20
	—	—	—	—	—	—

Source: Data are simulated.

Deflation: GDP and IPP, Example 2

Commodity	Month	BLS price index percent change (not seasonally adjusted)	BEA price index		Seasonally adjusted monthly trade value (millions of dollars)	Monthly trade value weight	Monthly weighted price index (seasonally adjusted)
			Not seasonally adjusted	Seasonally adjusted			
Corn	January	1.2	207	215	$2	0.29	62.35
	February	3.0	213	210	1	.14	29.40
	March	.8	215	220	4	.57	125.40
	—	—	—	—	—	—	—
Soybeans	January	2.0	214	210	5	.38	79.80
	February	1.8	218	215	7	.54	116.10
	March	.9	220	220	1	.08	17.60
	—	—	—	—	—	—	—
Wheat	January	1.0	202	220	3	.30	66.00
	February	.7	203	210	5	.50	105.00
	March	3.0	209	215	2	.20	43.00
	—	—	—	—	—	—	—

Source: Data are simulated.

Deflation: GDP and IPP, Example 2

Commodity	Month	BLS price index percent change (not seasonally adjusted)	BEA price index		Seasonally adjusted monthly trade value (millions of dollars)	Monthly trade value weight	Monthly weighted price index (seasonally adjusted)	Quarterly price index (seasonally adjusted)
			Not seasonally adjusted	Seasonally adjusted				
Corn	January	1.2	207	215	$2	0.29	62.35	—
	February	3.0	213	210	1	.14	29.40	—
	March	.8	215	220	4	.57	125.40	—
	—	—	—	—	—	—	—	217.15
Soybeans	January	2.0	214	210	5	.38	79.80	—
	February	1.8	218	215	7	.54	116.10	—
	March	.9	220	220	1	.08	17.60	—
	—	—	—	—	—	—	—	213.50
Wheat	January	1.0	202	220	3	.30	66.00	—
	February	.7	203	210	5	.50	105.00	—
	March	3.0	209	215	2	.20	43.00	—
	—	—	—	—	—	—	—	214.00

Source: Data are simulated.

Deflation: GDP and IPP, Example 2

Commodity	Seasonally adjusted quarterly trade value (millions of dollars)	Quarterly trade value weight
Food, feeds, and beverages	—	—
Corn	$7	0.23
Soybeans	13	.43
Wheat	10	.33

Source: Data simulated.

Deflation: GDP and IPP, Example 2

Commodity	Seasonally adjusted quarterly trade value (millions of dollars)	Quarterly trade value weight	Quarterly price index
Food, feeds, and beverages	—	—	—
Corn	$7	0.23	217.15
Soybeans	13	.43	213.50
Wheat	10	.33	214.00

Source: Data simulated.

Deflation: GDP and IPP, Example 2

NIPA table 4.2.4.

Commodity	Seasonally adjusted quarterly trade value (millions of dollars)	Quarterly trade value weight	Quarterly price index	Quarterly weighted price index
Food, feeds, and beverages	—	—	—	212.37
Corn	$7	0.23	217.15	49.94
Soybeans	13	.43	213.50	91.81
Wheat	10	.33	214.00	70.62

Source: Data simulated.

Conclusion

- What have we learned today?
- What to take away?

Questions…

Contact Information

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