AEO2017 Preliminary Macroeconomic Results

For

Macroeconomic Working Group

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By

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Macroeconomic Analysis Team

Economic growth in major trading partners slows over the projection period while the dollar gradually depreciates

real trade-weighted GDP of major trading partners
percent
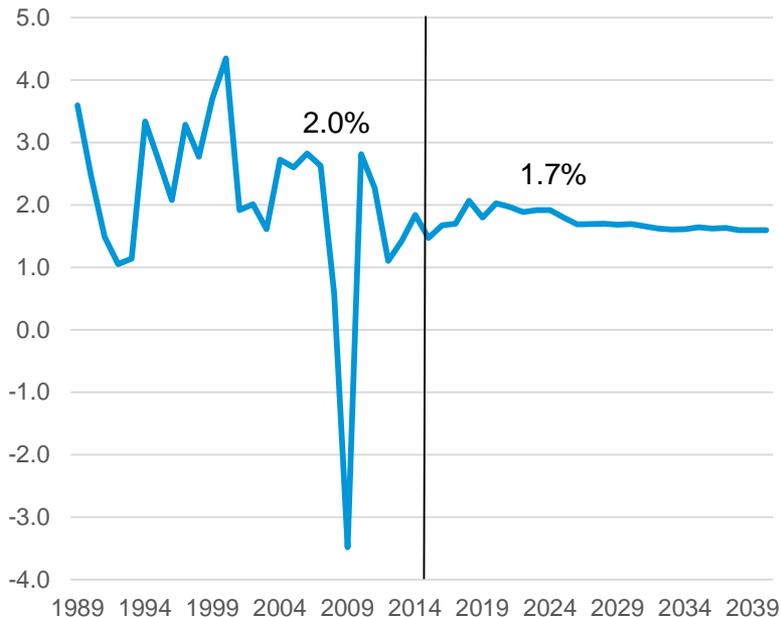
real trade-weighted exchange rate, USD:major currencies
2009 = 1.0
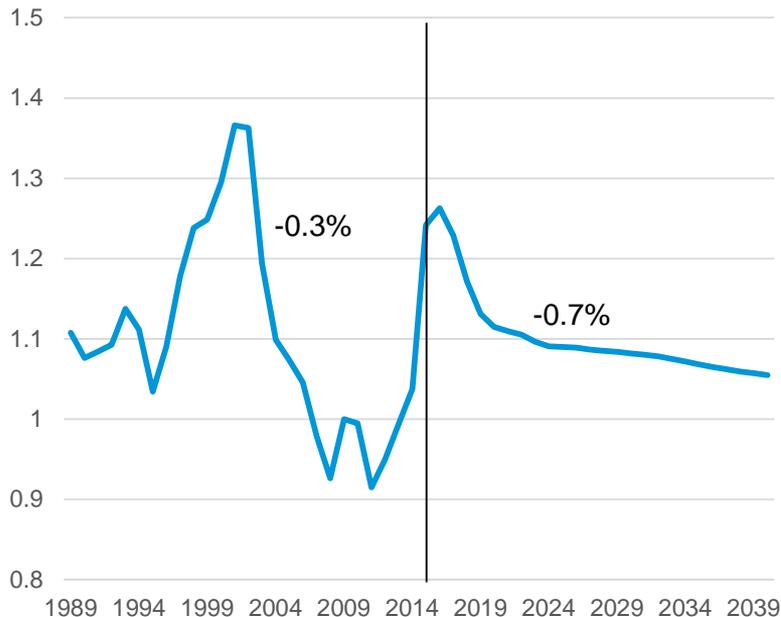
Demographic factors are an important component of the macroeconomic projections
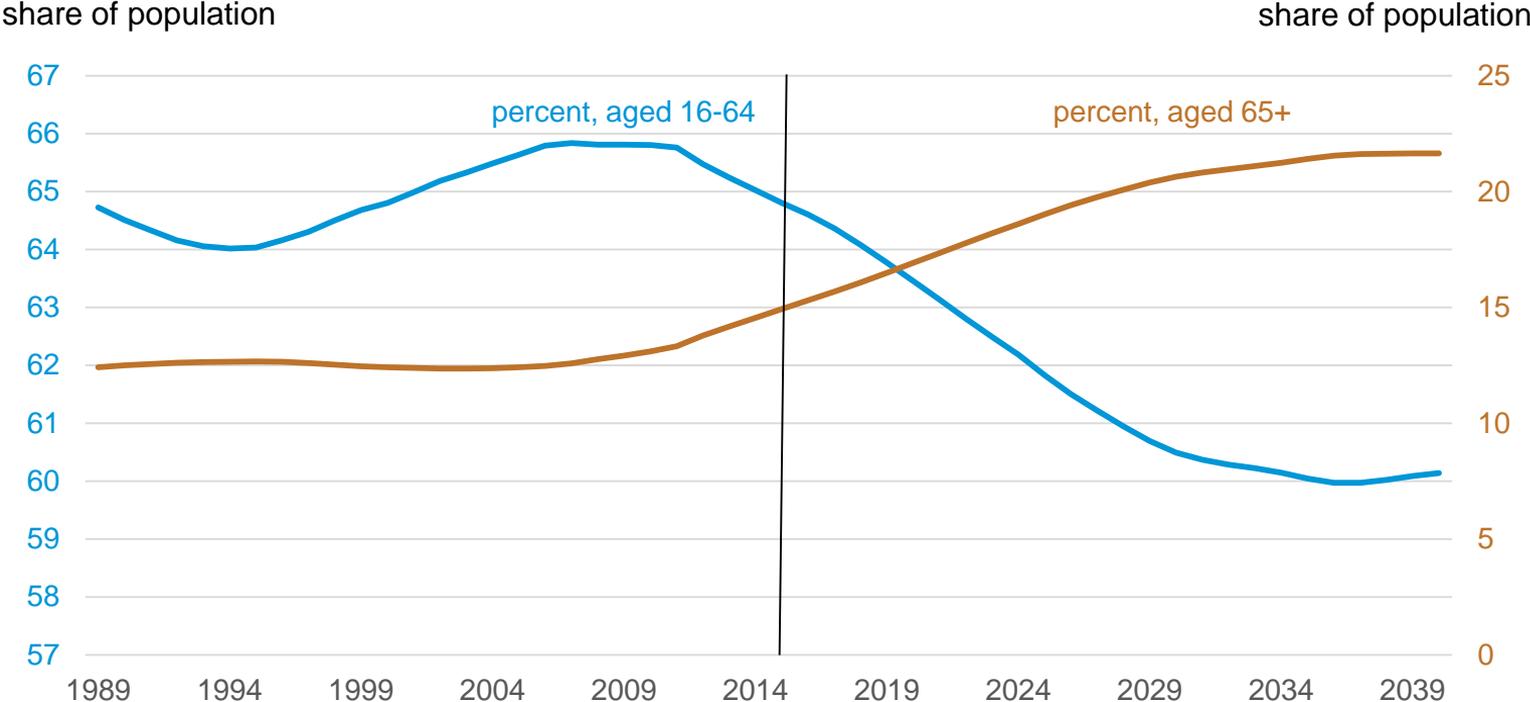
Fiscal policy is slightly looser than in the past

general government
percent of GDP

general government
percent of GDP

spending

20%

22%

-3.3%

deficit

-4.2%
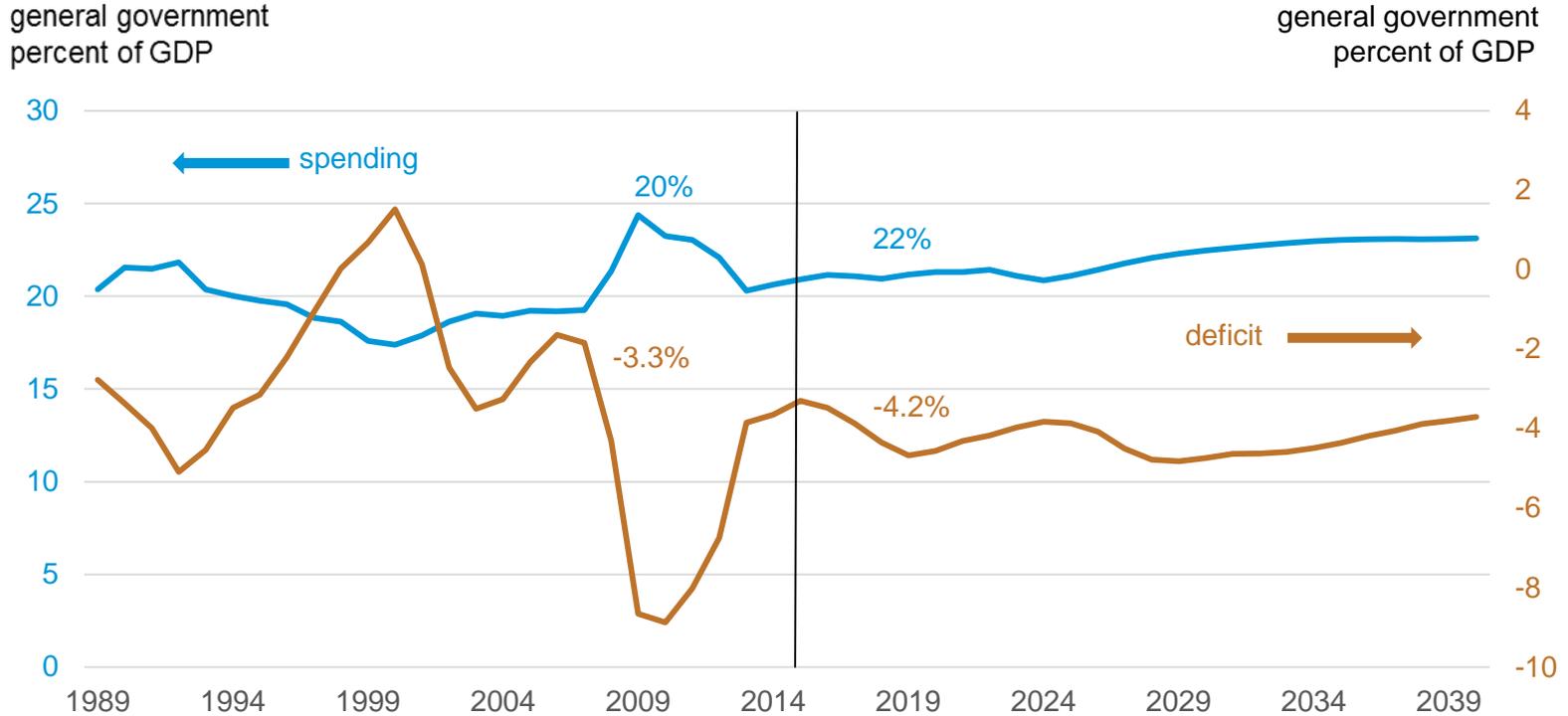
Inflation remains moderate throughout the projection and bond yields gradually rise from historic lows
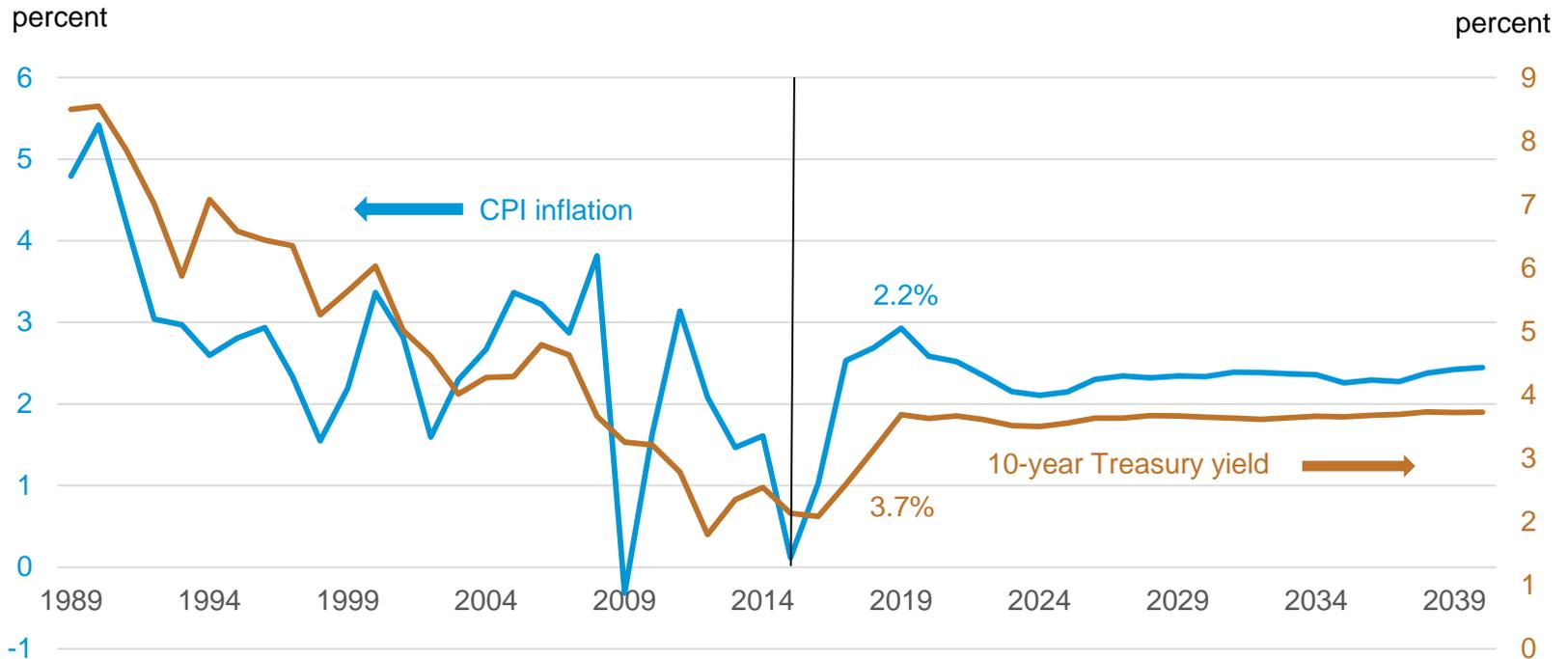
Consumption's importance in the demand mix fades as non-residential investment becomes more important

annual average percent change in period

	2015-2040	1989-2014
Exports	4.4	4.6
Imports	4.3	6.1
Inventories	-0.4	0.0
Residential Investment	0.4	-1.4
Nonresidential Investment	1.9	0.2
Government	-3.9	-2.2
Consumption	1.9	4.9
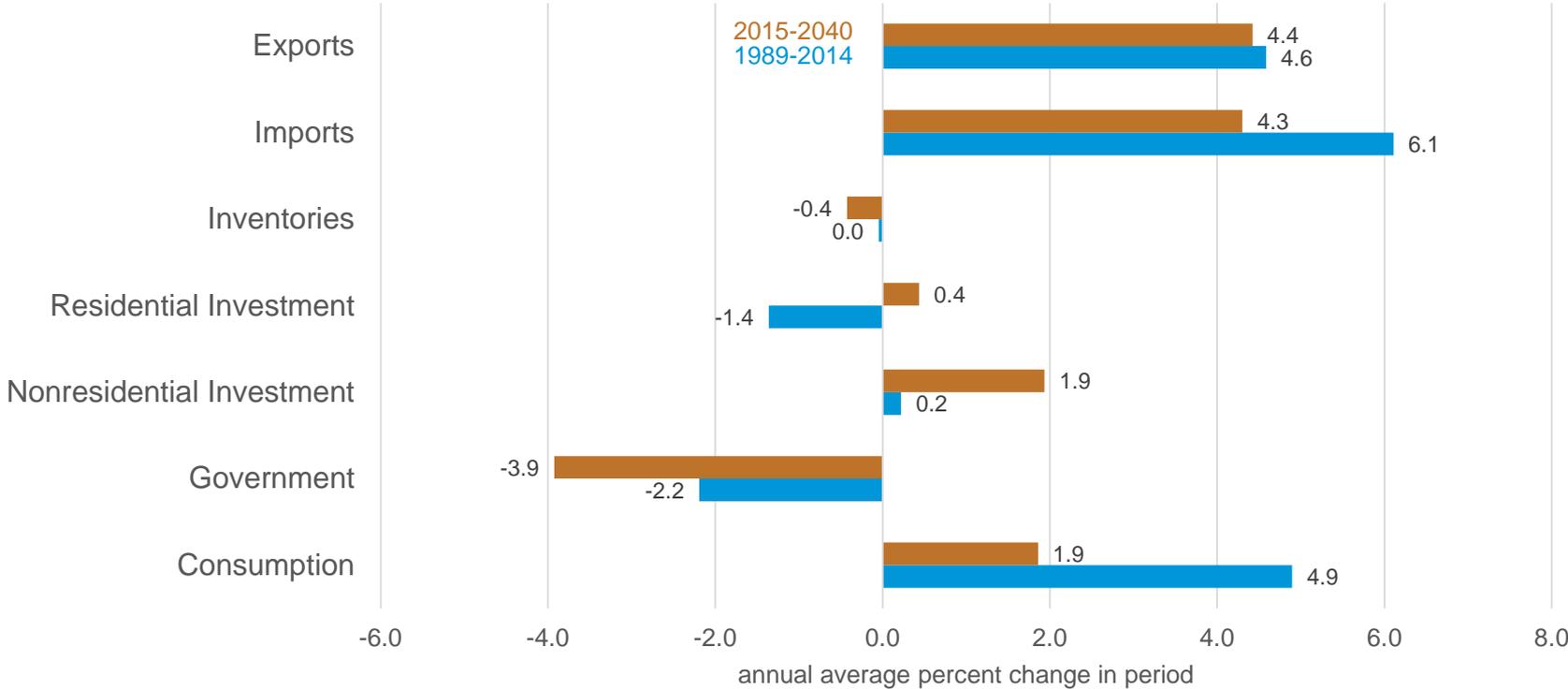
Historical comparisons are skewed because the current U.S. recovery remains the slowest of the past ten

real GDP comparison of historical expansions
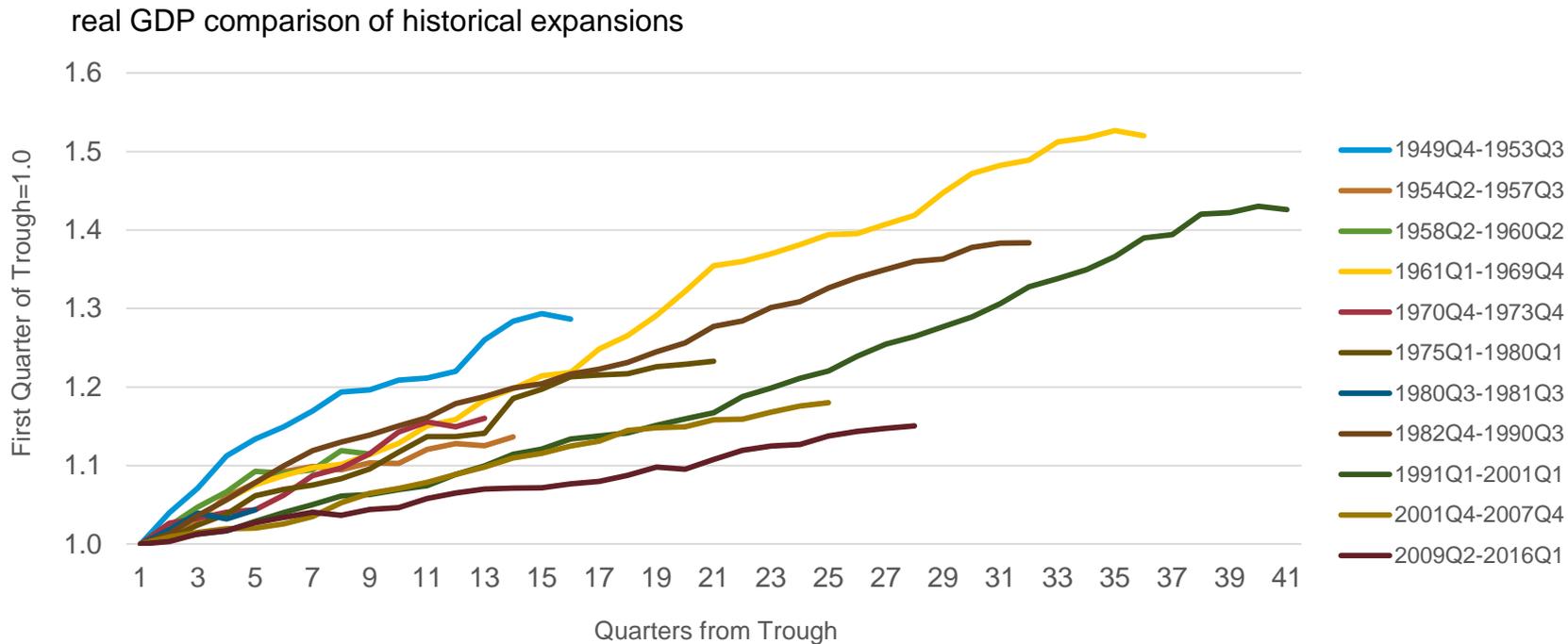
Growth in GDP and most of its components is slower in the preliminary AEO2017 projection than history

	Previous 25 Year Growth (1989 to 2014)	Projected 25 Year Growth (2015 to 2040)
Potential GDP	2.7%	2.1%
Real GDP	2.4%	2.2%
Consumption	2.7%	2.3%
Fixed Nonresidential Investment	4.0%	3.1%
Fixed Residential Investment	0.2%	1.8%
Exports	5.2%	4.2%
Imports	5.3%	3.7%

The preliminary AEO2017 GDP projection continues a trend of falling expectations

annual average growth in real GDP, 2015 to 2040
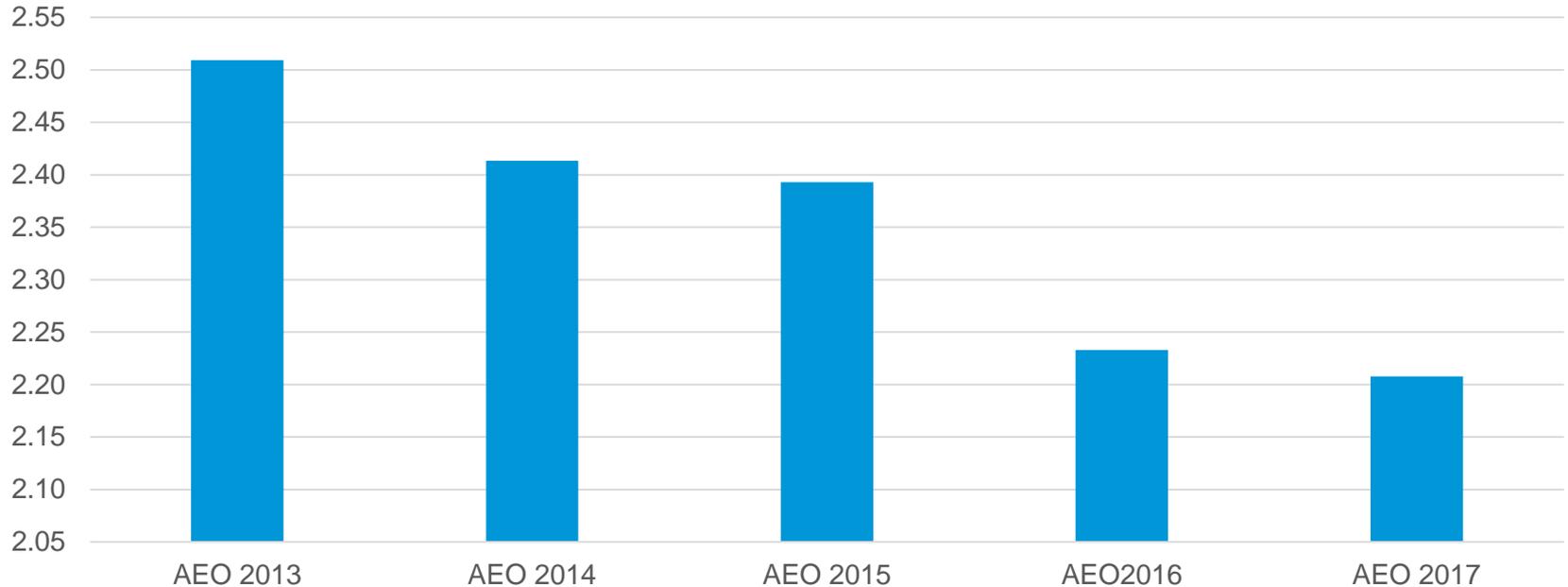
The preliminary AEO2017 projection for GDP and its components is similar to last year

	AEO2017 (2015 to 2040)	AEO2016 (2015 to 2040)
Potential GDP	2.1%	2.1%
Real GDP	2.2%	2.2%
Consumption	2.3%	2.3%
Fixed Nonresidential Investment	3.1%	3.2%
Fixed Residential Investment	1.8%	1.6%
Exports	4.2%	4.3%
Imports	3.7%	3.8%

Preliminary AEO2017 GDP growth is similar to other forecasts

annual average growth in real GDP

Projection	2015-40
AEO 2017	2.2%
AEO 2016	2.2%
IHS (May 2016)	2.2%
CBO (July 2016)	2.1%
OASDI (2016)	2.3%
Oxford (May 2016)	2.0%
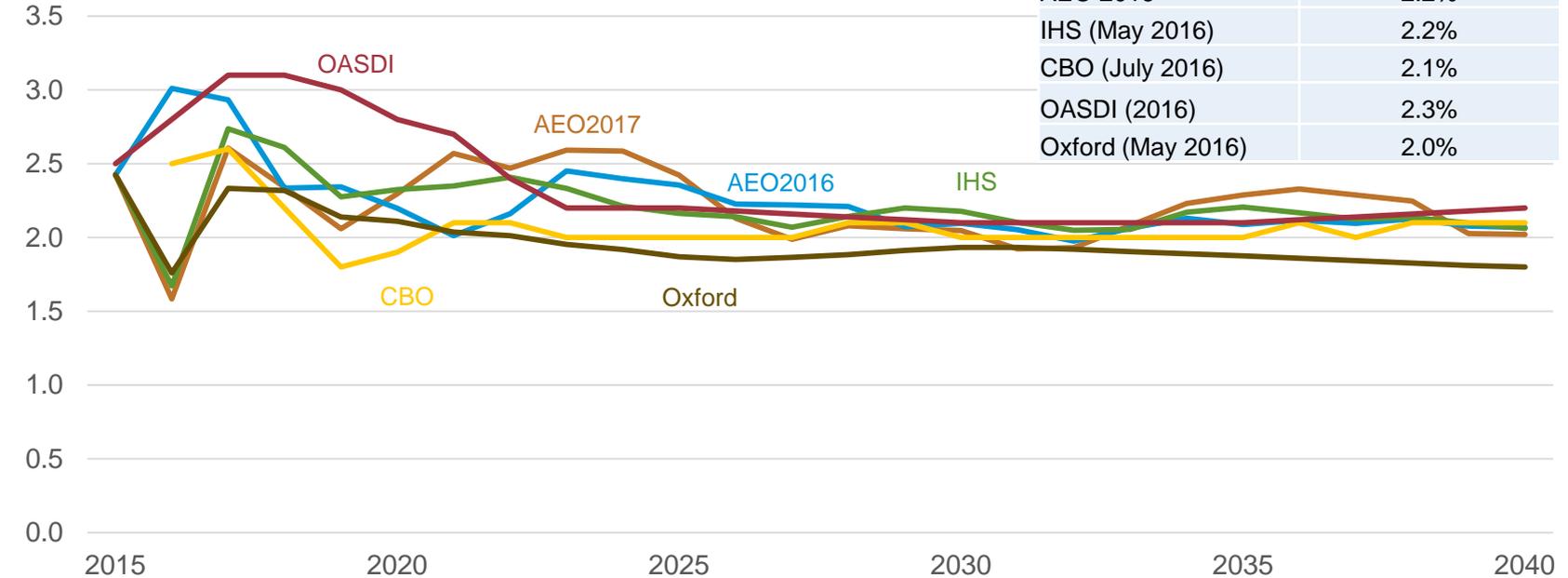
Industrial Output

Non energy-intensive manufacturing grows the fastest of all industries over the projection period

billion 2009 dollar
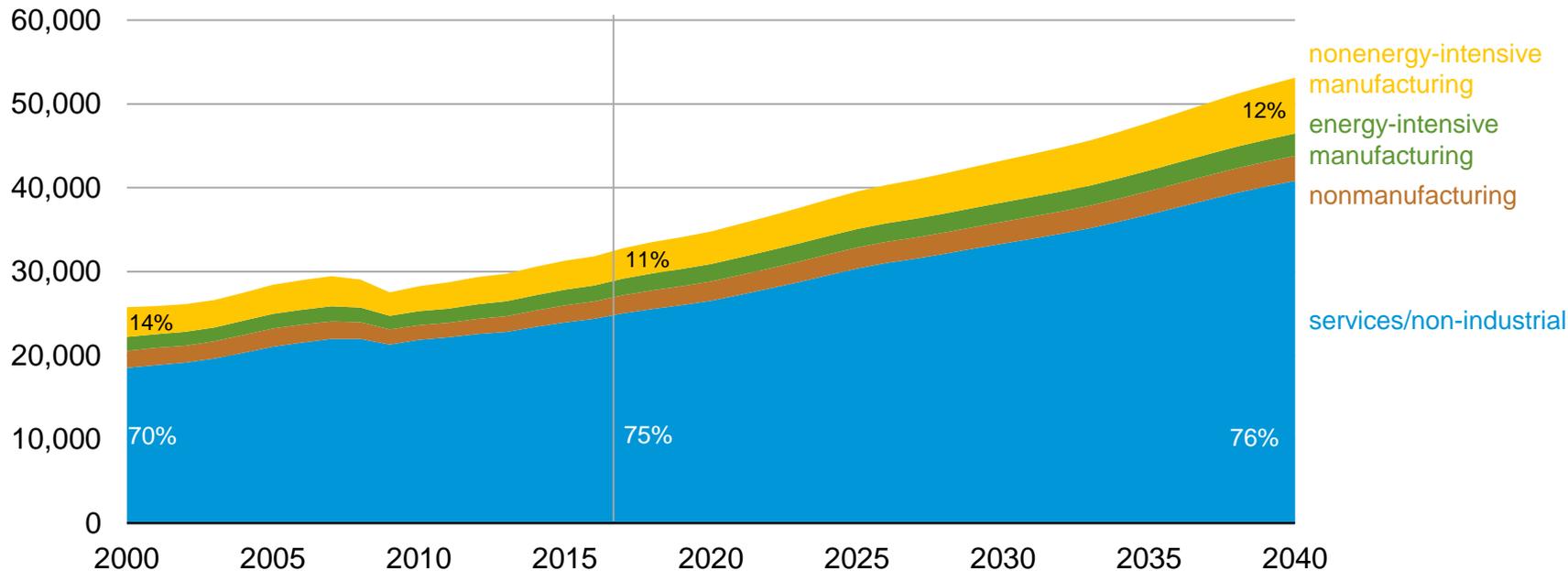
Source: U:\output\testruns\testmac\d062016a

Industrial sector composition changes most because of MBD growth
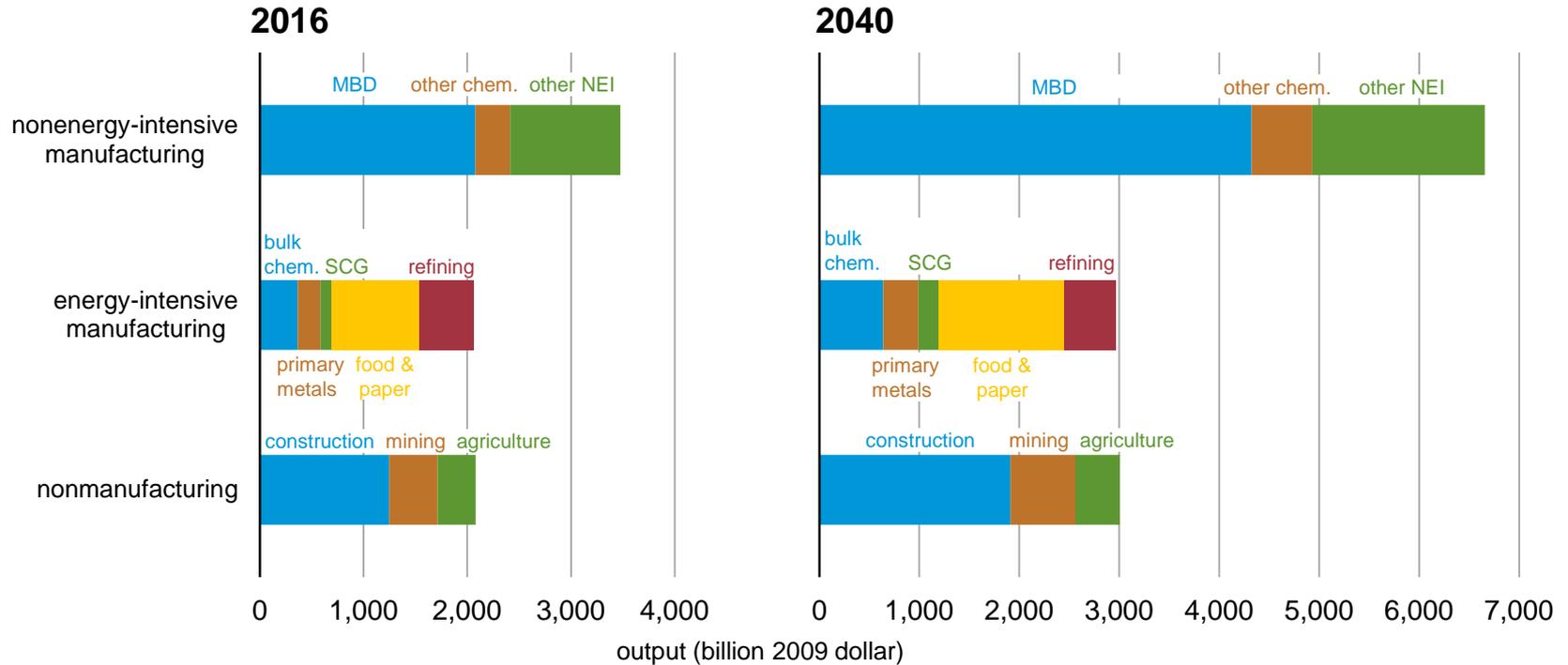

Source: U:\output\testruns\testmac\d062016a

Total shipments heavily dominated by service/non-industrial sector, tend to move with GDP although on a downward trend

billion 2009 dollar

15
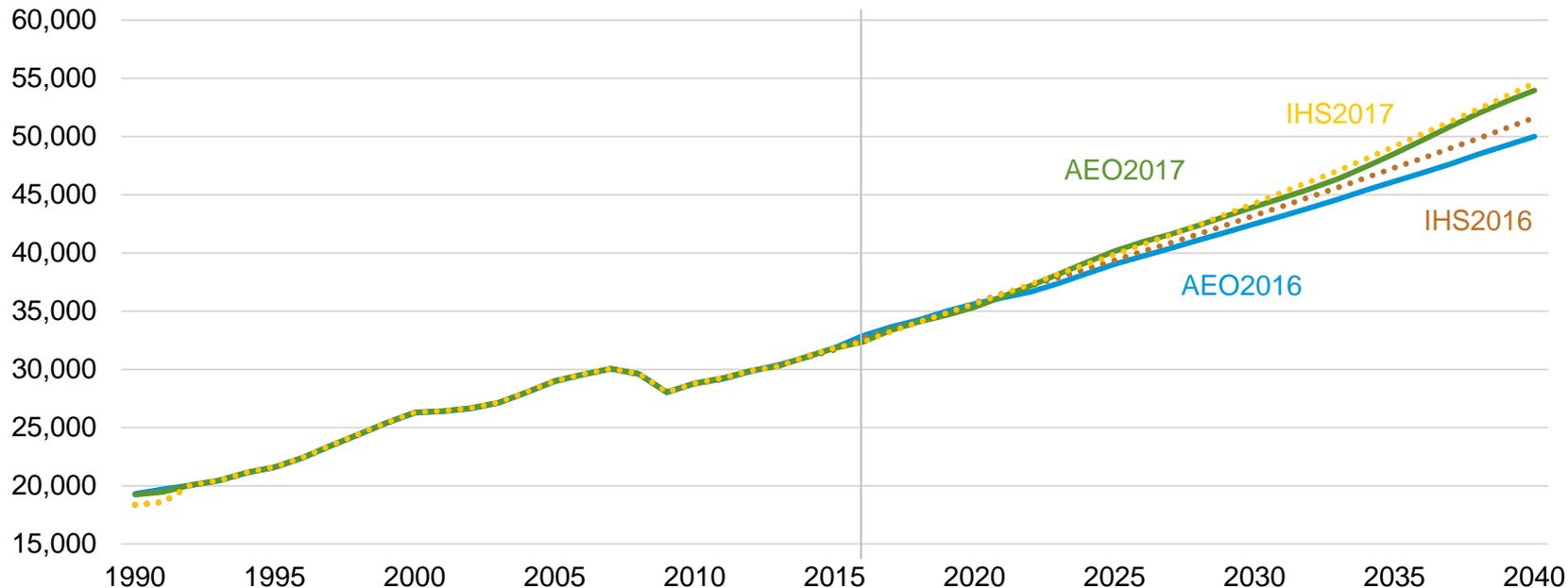
Oil price not updated for AEO yet, short-term updates have long-term effects for IHS (revised down), but current EIA path higher

WPI crude petroleum
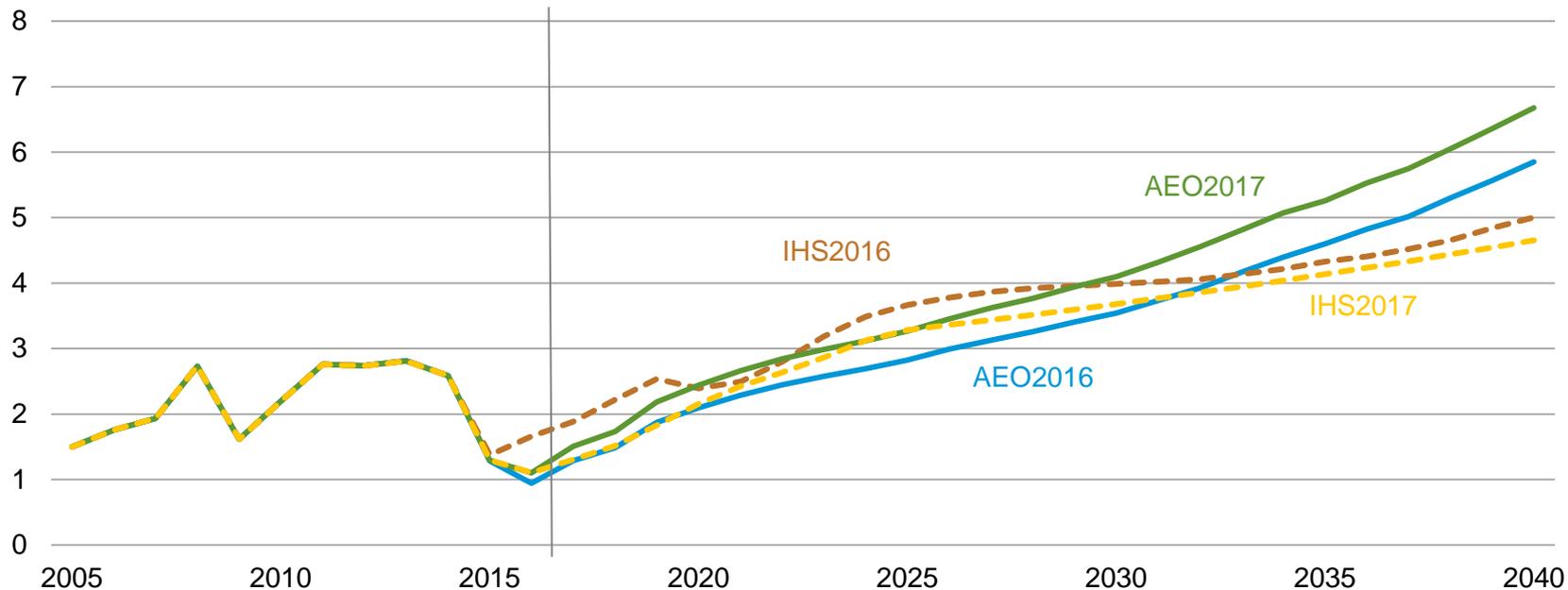
Natural gas price not updated for AEO yet, again short-term lower, otherwise very little revision from IHS

WPI natural gas
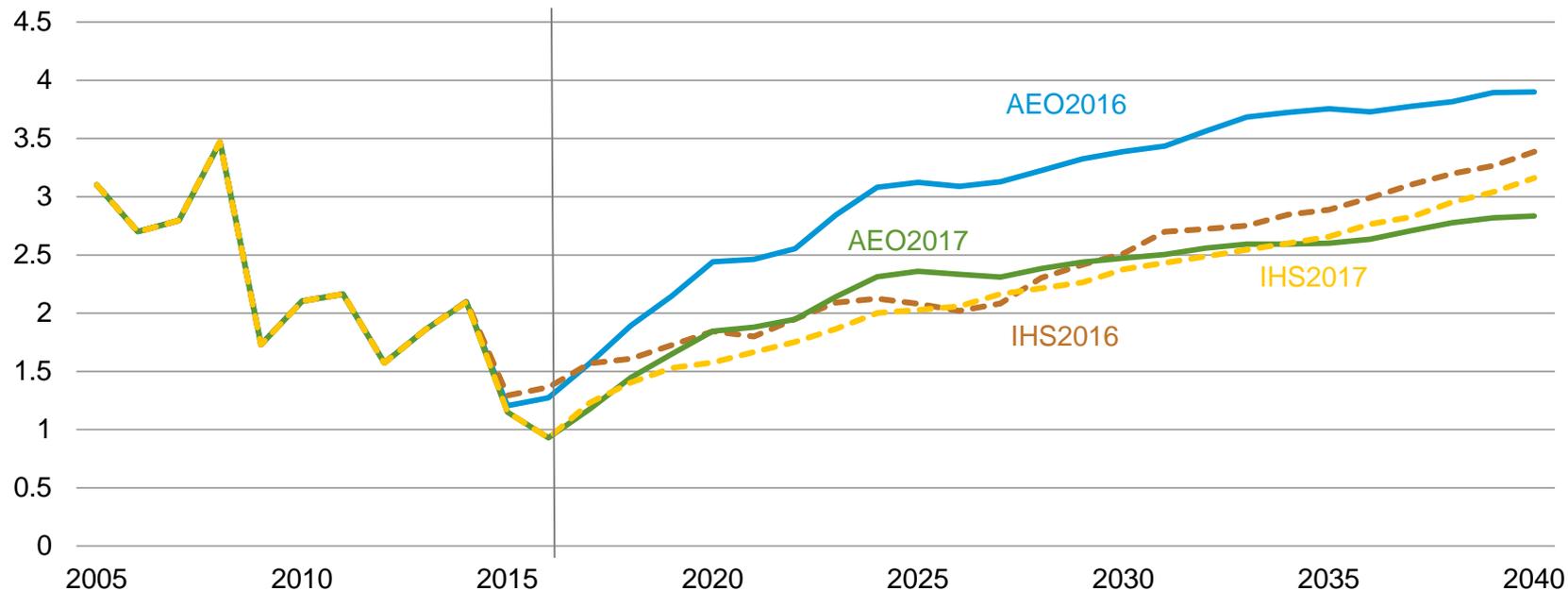
Strong net exports in industrial supplies early, consumer goods peak mid-term, capital goods in last decade

annual average growth rate within the period
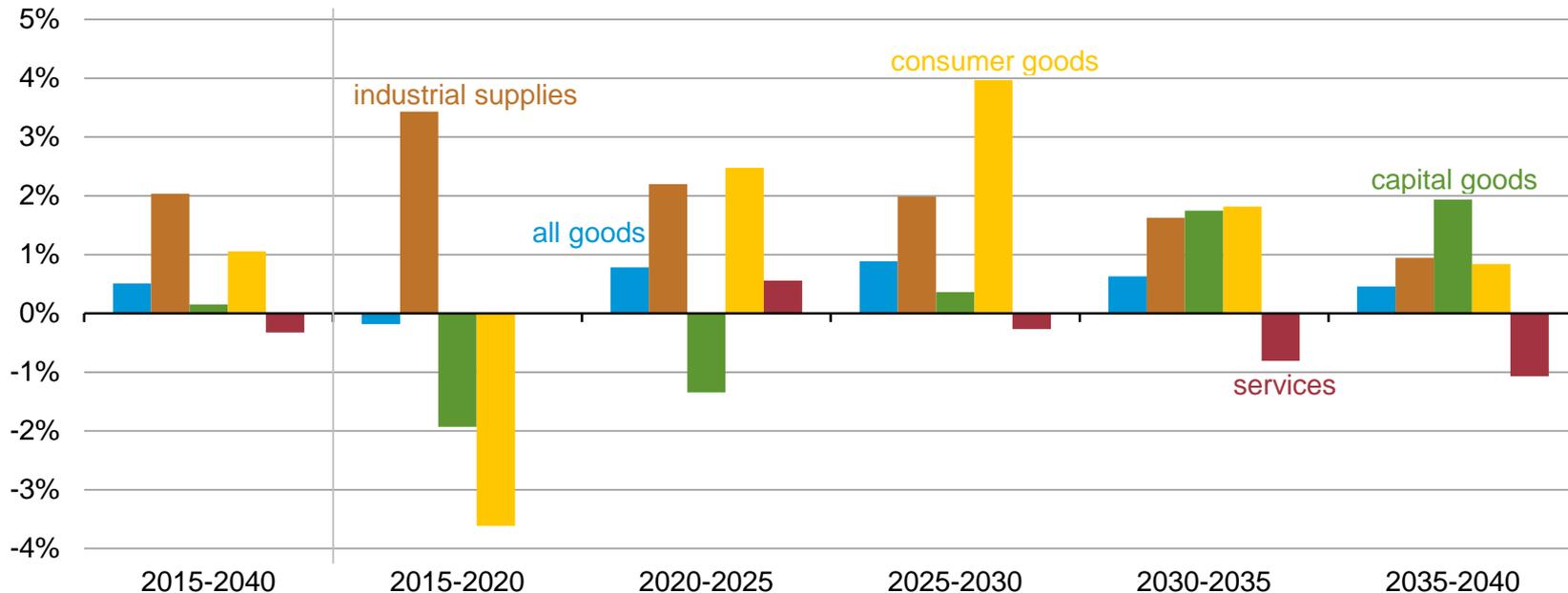
MBD growth higher because of robust markets domestically and revised expectations abroad, starts lower because of historical revisions

billion 2009 dollar

2016-2040 CAGRs
AEO16 2.3%
AEO17 3.1%
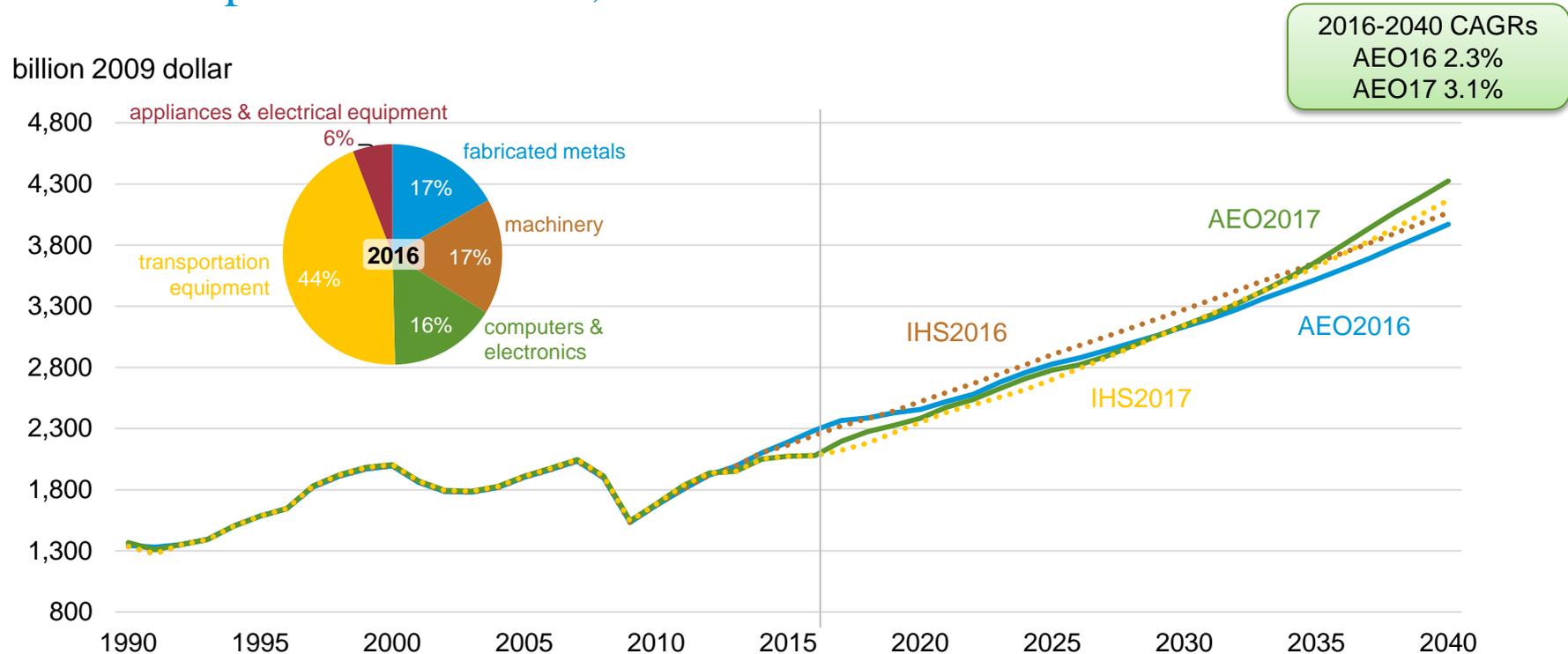
*Source: IHS, K:\output\aeo2016\ref2016\d032416a, U:\output\testruns\testmac\d062016a*

Primary metals levels lower because of historical revisions, growth higher because of revised expectations/lower exchange rates

billion 2009 dollar

2016-2040 CAGRs
AEO16 1.7%
AEO17 2.0%

IHS2016

AEO2016

IHS2017

AEO2017
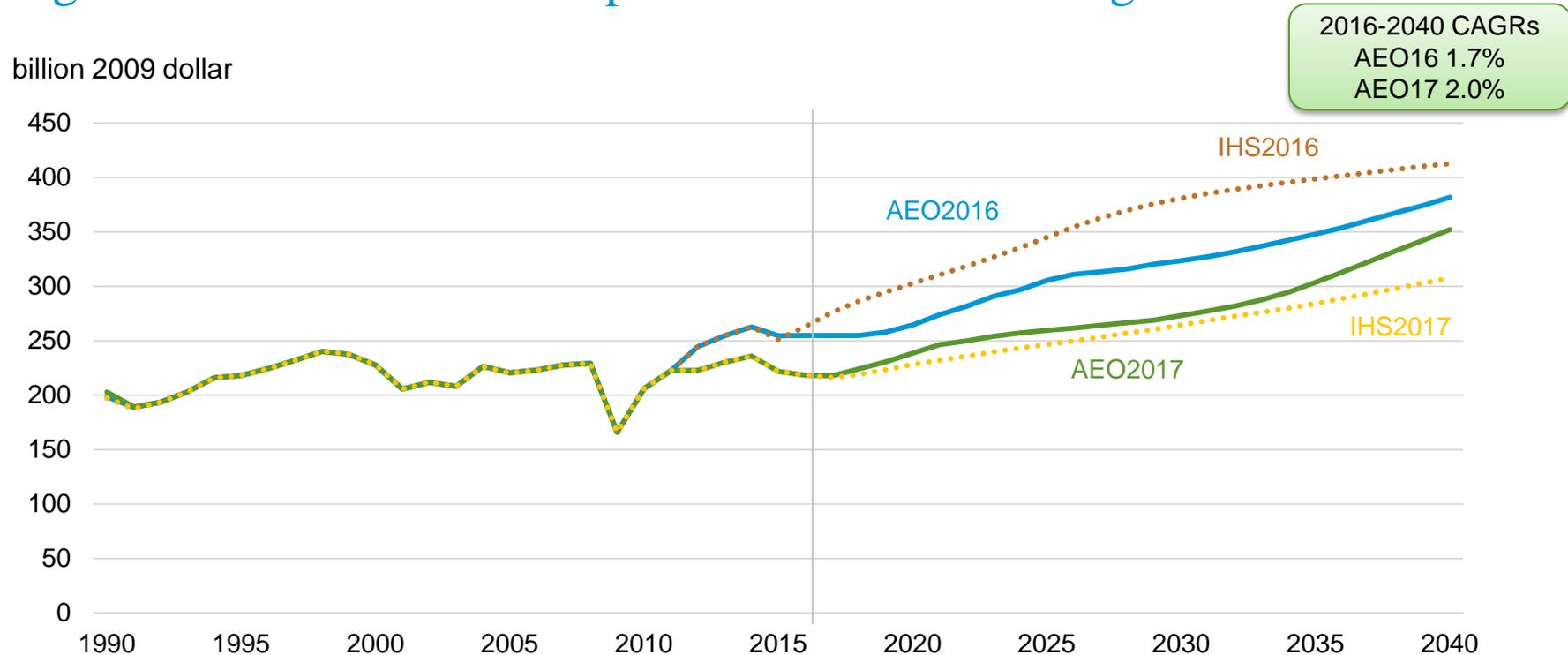
Source: IHS, K:\output\aeo2016\ref2016\d032416a, U:\output\testruns\testmac\d062016a

Food growth higher because of domestic demand and lower EM exchange rates, history and baseline raise levels

billion 2009 dollar

2016-2040 CAGRs
AEO16 1.6%
AEO17 2.0%
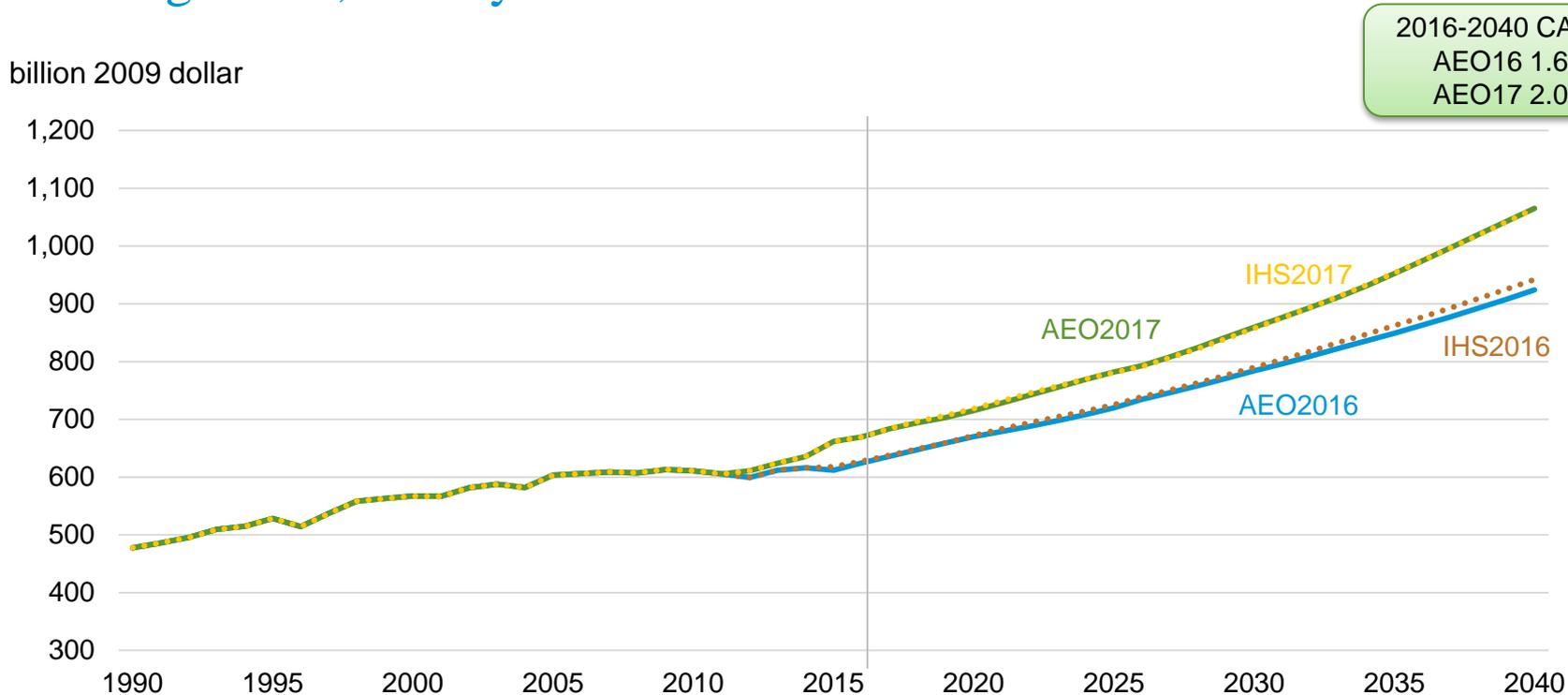
Source: IHS, K:\output\aeo2016\ref2016\d032416a, U:\output\testruns\testmac\d062016a

Non-metallic minerals* growth higher mostly because of domestic demand

billion 2009 dollar

2016-2040 CAGRs
AEO16 2.2%
AEO17 2.4%

IHS2017

AEO2017

IHS2016

AEO2016
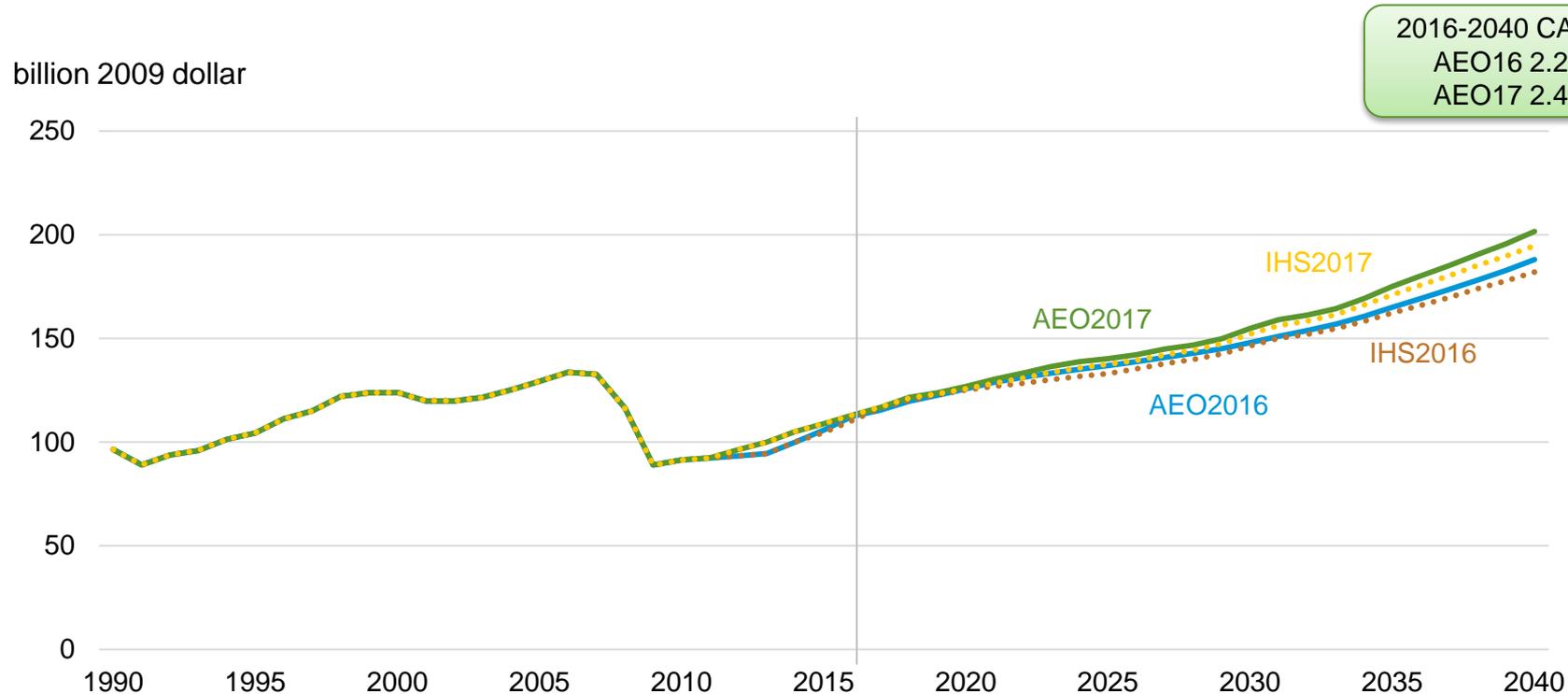
*Source: IHS, K:\output\aeo2016\ref2016\d032416a, U:\output\testruns\testmac\d062016a; *aka Stone, Clay, & Glass (SCG)*

Feedstock price ratio decreases help keep bulk chemical growth up, EIA lower than IHS

index, ethane:naphtha price
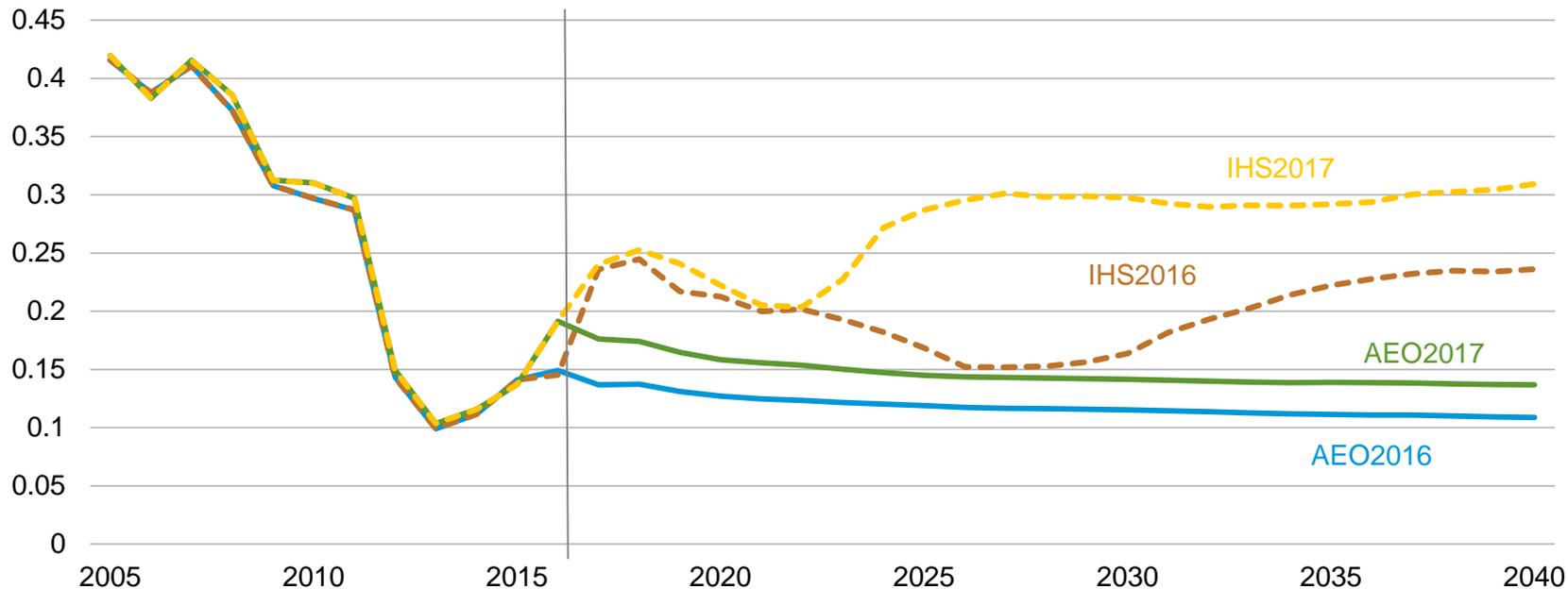
Bulk chemicals levels higher because of historical revisions, growth lower after 2020 because of lower trade expectations


billion 2009 dollar

2016-2040 CAGRs
AEO16 2.7%
AEO17 2.4%

IHS2017
AEO2017
IHS2016
AEO2016
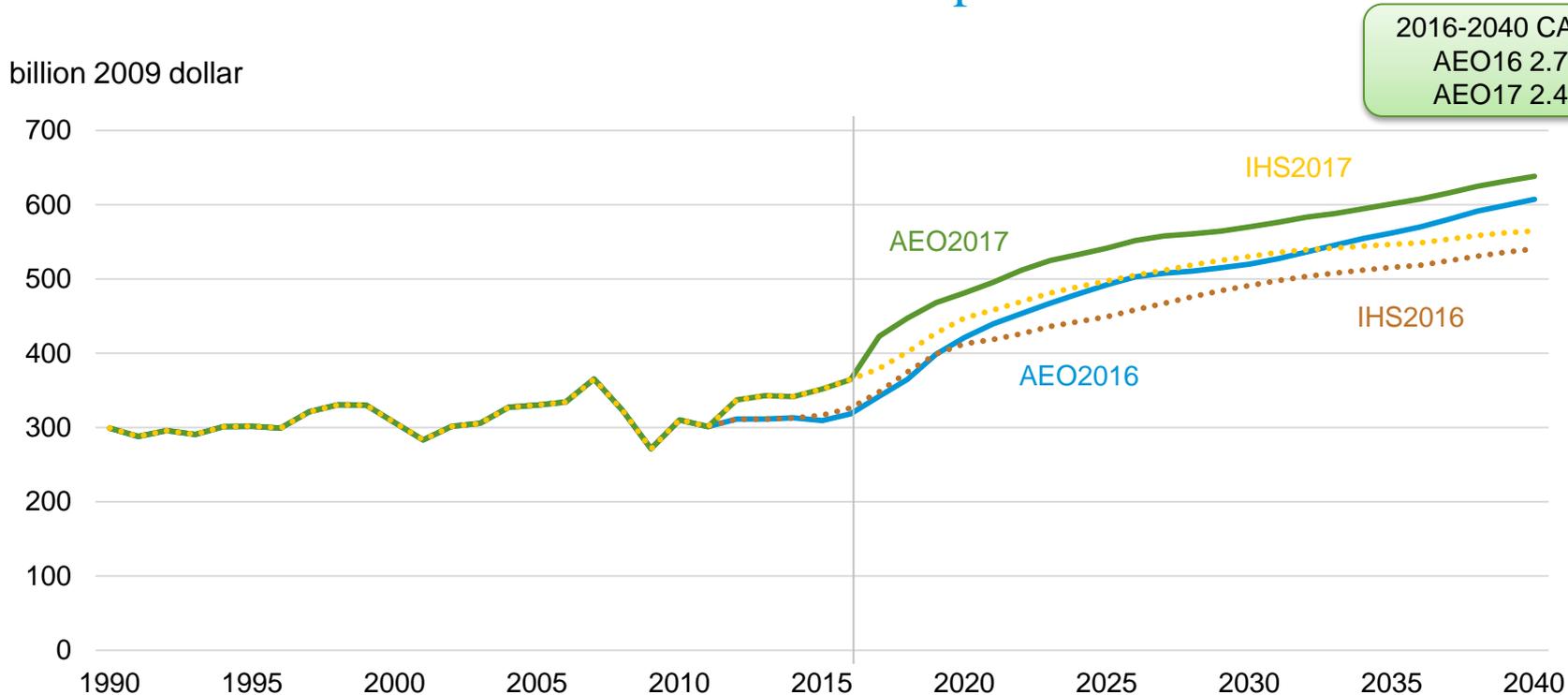
*Source: IHS, K:\output\aeo2016\ref2016\d032416a, U:\output\testruns\testmac\d062016a; *IHS baselines revised down*

Paper growth similar, flat because of competitiveness in some sub-industries but not others, levels higher because of revisions

billion 2009 dollar

2016-2040 CAGRs
AEO16 0.4%
AEO17 0.6%

IHS2017

AEO2017

IHS2016
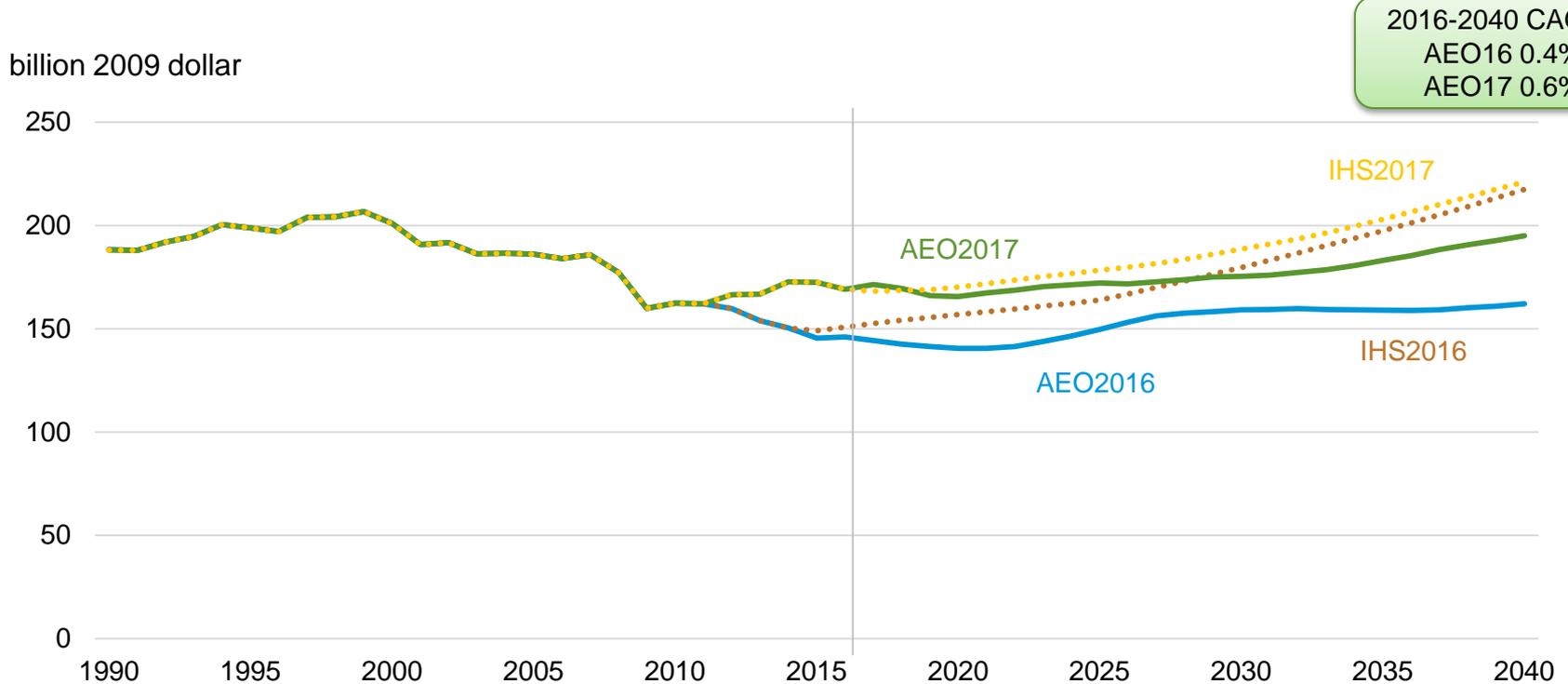
AEO2016

Source: IHS, K:\output\aeo2016\ref2016\d032416a, U:\output\testruns\testmac\d062016a

Summary

- Real GDP growth will average 2.2% per year in 2015-40, similar to AEO2016, and in-line with other projections/forecasts.

- Consumption's importance in the demand mix fades over the projection as non-residential investment becomes more important.

- Total industrial sector growth is similar to AEO2016, although the composition is slightly different.

- Nonmetallic minerals and bulk chemicals lead early industrial sector growth, giving way to rapid growth in metal-based durable goods and their suppliers in primary metals.

The AEO2017 modeling plan calls for extension to 2050 and other data updates and testing

- Extension of macro, industrial output, employment, regional and commercial floor space models to 2050.

- Update of regional output, regional industrial output, and regional employment data.

- Update of energy-specific equations in the macro model.

- Test the incorporation of price movements from the industrial output model into the macro model.

- Test integration between the IHS macro model used in the AEO and the Oxford macro model used in the IEO.