

U.S. PPI Program Enhancement: Adding Services & Construction to PPI's Primary Aggregation Structures (FD-ID)

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Introduction

- With the January 2011 data release, PPI introduced a new experimental index aggregation system, now called Final Demand-Intermediate Demand (FD-ID)
- PPI plans to shift the focus of its press release to this new FD-ID system with the release of data for January 2014

Introduction – Services and Construction Background

- Prior to the mid 1980s, PPI produced only goods based price indexes
- Due to the rapid growth of the services sector, the PPI undertook an effort to expand its coverage to include services and construction price indexes

Introduction – Long-Term PPI Goal

- The Stage of Processing (SOP) system indexes are currently the focus of the PPI press release
- The SOP indexes are aggregate indexes composed only of goods prices
- Since the expansion initiative began, PPI planned to add services and construction price indexes to the aggregate indexes featured in the press release
- Transition to FD-ID system is the first change in PPI's headline number since March 1978

Introduction – Coverage

- Coverage of the service and construction sectors is high enough to produce meaningful new aggregate inflation numbers that include goods, services, and construction

- 72 percent of services covered (measured by Census revenue)

- 34 percent of construction covered (measured by Census revenue)

Current SOP system

- Finished goods
 - ▶ Goods sold as personal consumption and capital investment
- Intermediate goods
 - ▶ Processed goods purchased by businesses as inputs to production
- Crude goods
 - ▶ Unprocessed goods purchased by businesses as inputs to production

Criteria for new PPI Aggregation System

- Include all commodities for which PPI currently has indexes
- Cover both intermediate and final demand
- Additional indexes should be able to be added to the system
- Eliminate or minimize multiple counting problems
- Conceptually understandable
- Analytically useful:
 - Price transmission analysis
 - Source of inflation pressures

Final Demand-Intermediate Demand System

- Expands coverage beyond SOP system by adding services, construction, exports, and government purchases
 - ▶ more than doubles PPI coverage of the United States economy as compared to SOP system
 - ▶ coverage is over 75 percent of in-scope domestic production

Final Demand-Intermediate Demand System

- System contains two main portions
 - ▶ Final demand- personal consumption, capital investment, government, export
 - ▶ Intermediate demand- purchases by business of inputs to production

Final Demand

- Indexes track prices for commodities sold to all categories of final demand.
- Indexes organized by type of commodity:
 - ▶ Goods
 - ▶ Transportation and warehousing services
 - ▶ Trade Services
 - ▶ Services excluding trade, transportation, and warehousing
 - ▶ Construction
 - ▶ Overall

Final Demand Structure

Index	Relative importance (December 2012)
Final demand	100.000
Final demand goods	34.518
Final demand foods	5.582
Final demand energy	6.790
Final demand goods less foods and energy	22.146
Final demand services	63.443
Final demand trade services	20.390
Final demand transportation and warehousing services	4.849
Final demand services less trade, transportation, and warehousing	38.203
Final demand construction	2.039

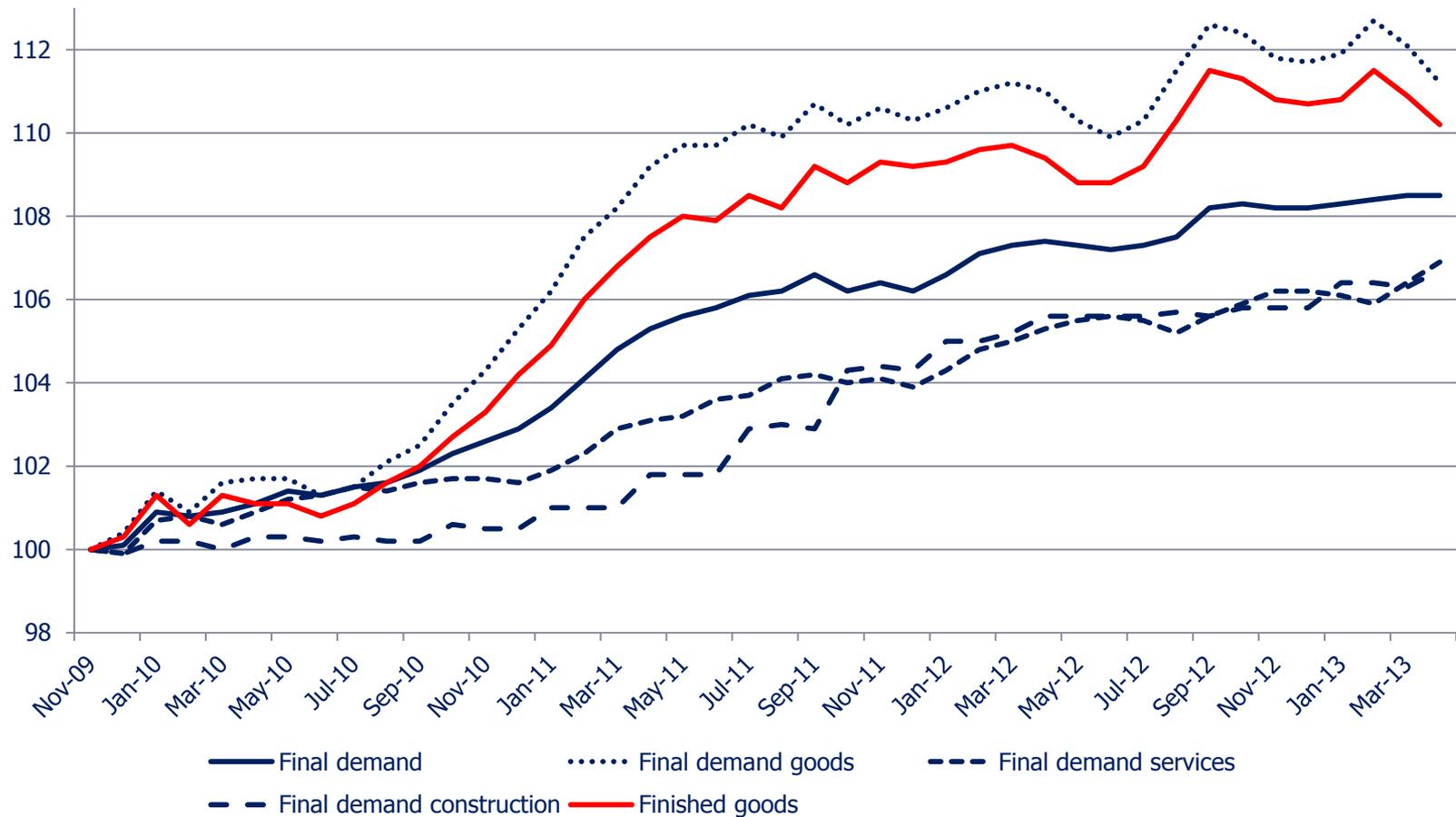
Final Demand Structure (Continued)

Index	Relative importance (December 2012)
Final demand services	63.443
<i>Final demand trade services</i>	<i>20.390</i>
<i>Trade of finished goods</i>	<i>18.105</i>
<i>Trade of personal consumption goods</i>	<i>15.699</i>
<i>Trade of private capital equipment</i>	<i>2.406</i>
<i>Trade of government purchased goods</i>	<i>0.727</i>
<i>Trade of government purchased goods, excluding capital equipment</i>	<i>0.516</i>
<i>Trade of government purchased capital equipment</i>	<i>0.212</i>
<i>Trade of exports</i>	<i>1.558</i>
Final demand transportation and warehousing services	4.849
Final demand services less trade, transportation, and warehousing	38.203

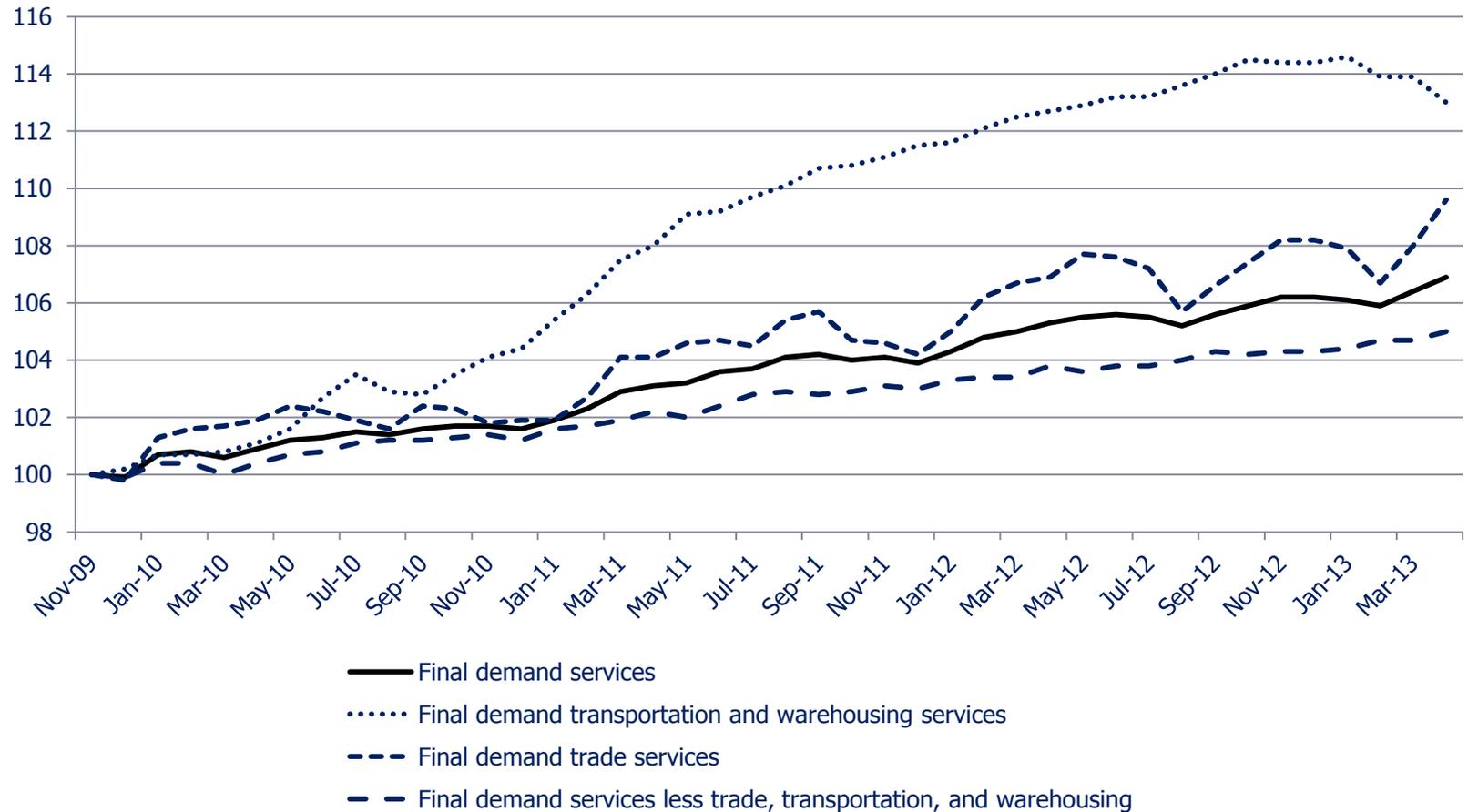
Final Demand versus Finished Goods

- Finished goods: goods sold to personal consumption and capital investment
- Final demand:
 - ▶ Goods sold as personal consumption, capital investment, government, and export
 - ▶ Services and construction sold as personal consumption, capital investment, government, and export
- Finished goods comprise only 24 percent of final demand

Final Demand and Components versus Finished Goods



Final Demand Services by Type



Value Added of New Final Demand Indexes

- Adds services and construction to current PPI coverage
- Detailed indexes by type of buyer and type of commodity
- Available monthly
- Trade and transportation services separated from value of good
- Producer perspective

Two Treatments of Intermediate Demand (ID)

- Two separate parallel treatments have been created for different data users
 - ▶ **Commodity Type**
 - Similar to current SOP
 - Adds intermediate services and intermediate construction
 - Does not prevent multiple counting
 - ▶ **Commodity Flow**
 - Stage based system
 - Adds intermediate services and intermediate construction
 - Eliminates multiple counting

Intermediate Demand by Commodity Type

- No overall Intermediate Demand index
- Indexes track price change for intermediate demand commodities grouped by type of commodity

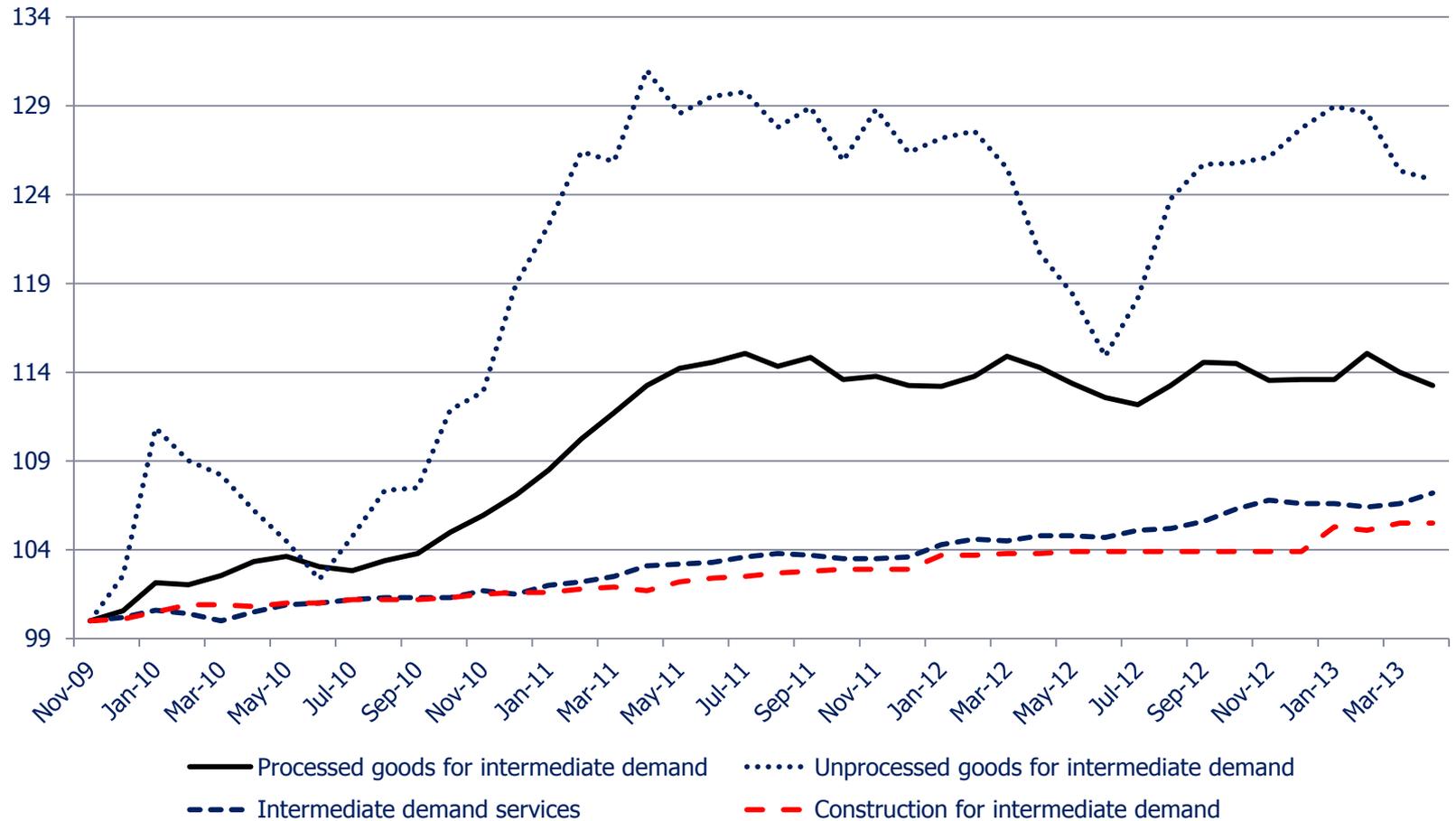
Intermediate demand: Commodity Type

- Indexes track prices for business inputs.
- Indexes organized by type of commodity:
 - ▶ Unprocessed goods
 - ▶ Processed goods
 - ▶ Transportation and warehousing services
 - ▶ Trade Services
 - ▶ Services other than trade, transportation, and warehousing
 - ▶ Construction

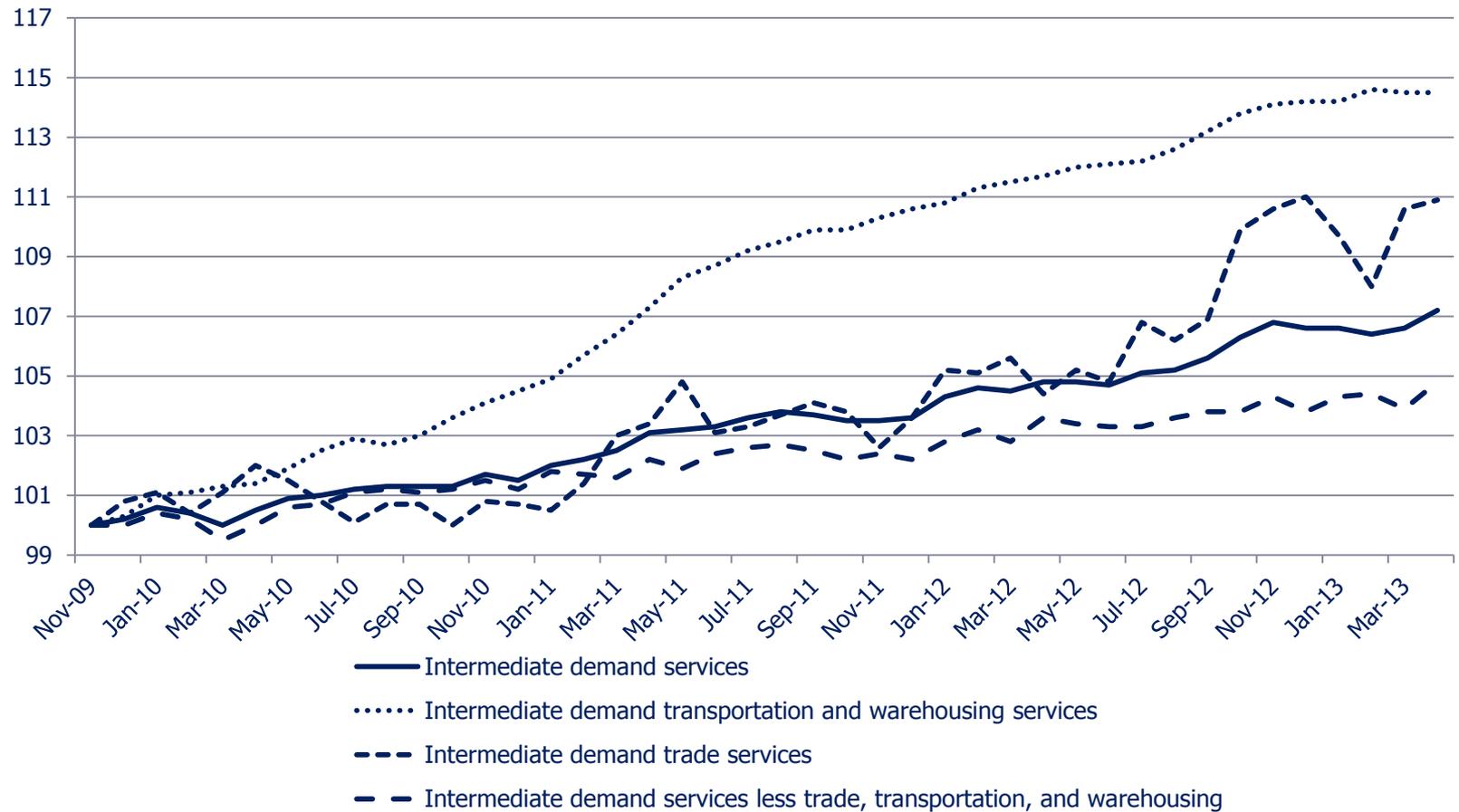
ID by Commodity Type Relative Importances

Index	Relative Importance (December 2012)
Total intermediate demand (not calculated)	100.000
Processed goods for Intermediate Demand	43.240
Materials and components for manufacturing	19.351
Materials and components for construction	4.108
Processed fuels and lubricants	8.747
Containers	1.103
Supplies	9.930
Unprocessed goods for intermediate demand	9.402
Services for intermediate demand	46.928
Intermediate demand trade services	9.309
Intermediate demand transportation and warehousing services	6.500
Intermediate demand services less trade, transportation, and warehousing	31.119
Construction for intermediate demand	0.430

Intermediate Demand Commodity Type



Services for Intermediate Demand



Intermediate Demand by Production Flow: Introduction

- Commodities assigned to aggregates based on production flow
- Four intermediate demand stages
- More useful for price transmission analysis

Intermediate Demand: Production Flow PPI System

- Stage 1→Stage 2→Stage 3→Stage 4→ Final Demand
- Example:
Mining support services(S1)→iron ore(S2)→steel(S3)→car parts(S4) →cars(FD)
- Net indexes – no multiple counting

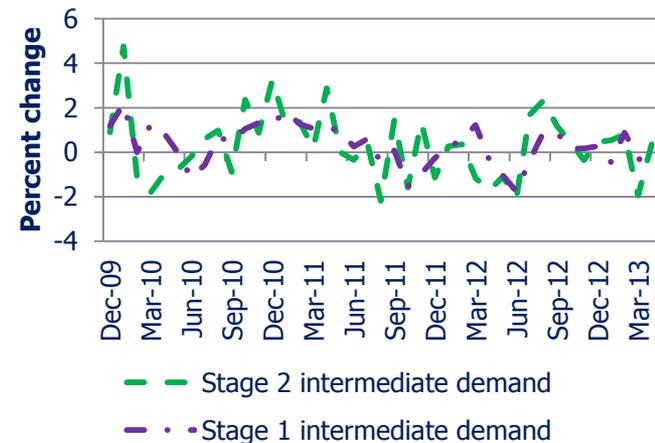
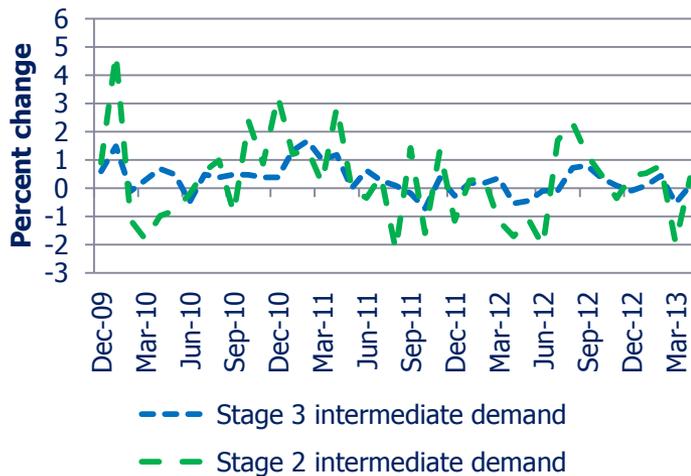
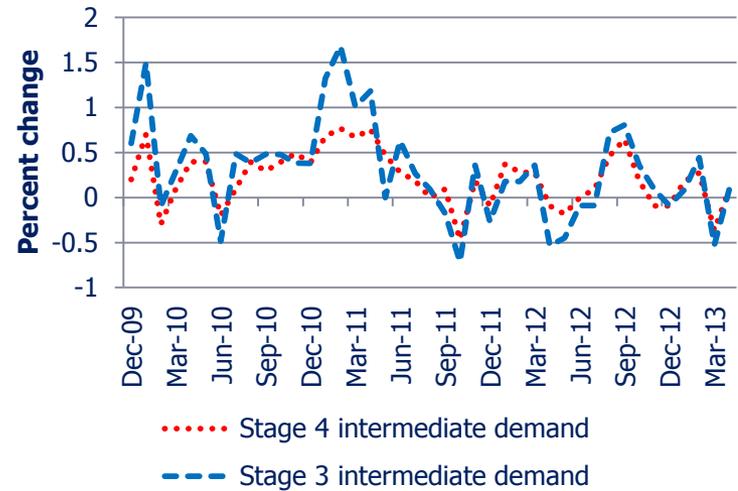
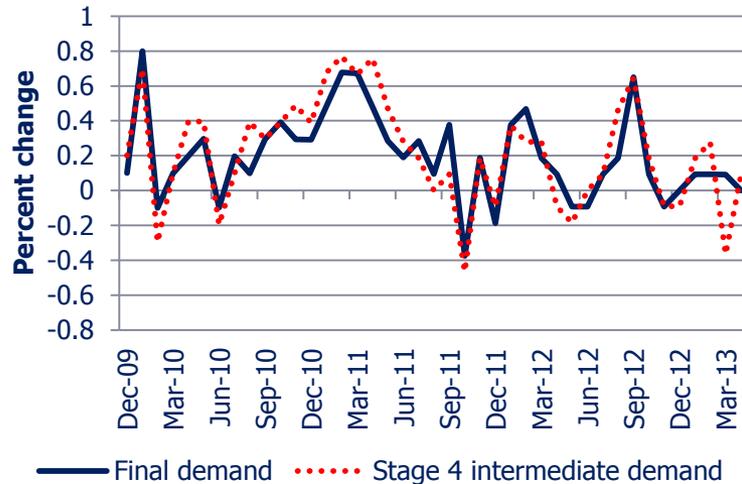
Production Flow PPI System

- Various numbers of stages were tried.
- Four stage system performed the best in terms flow minimizing backflow and maximizing forward flow.

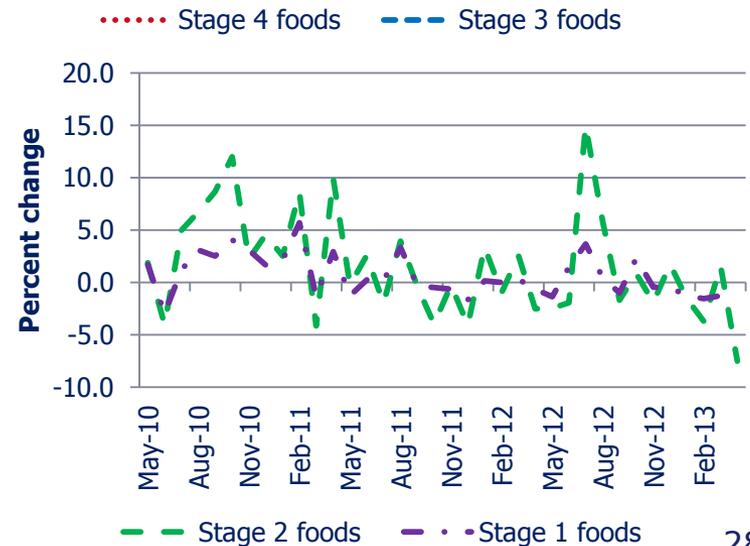
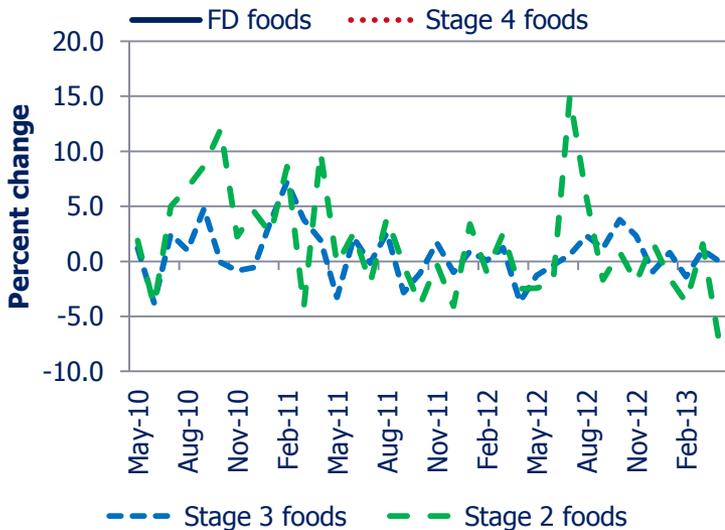
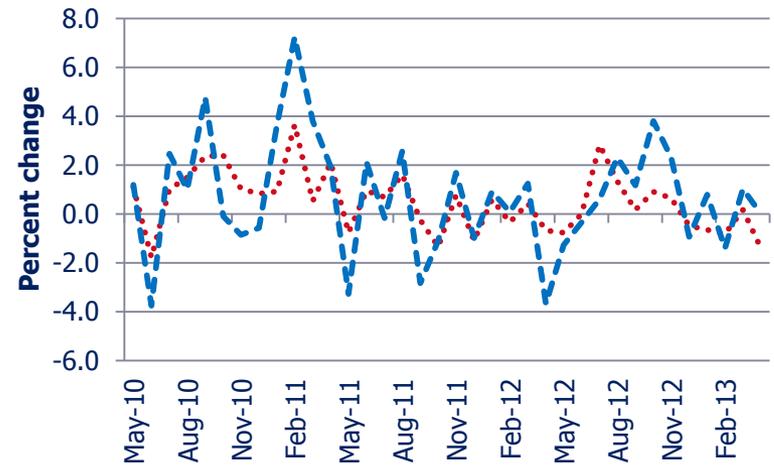
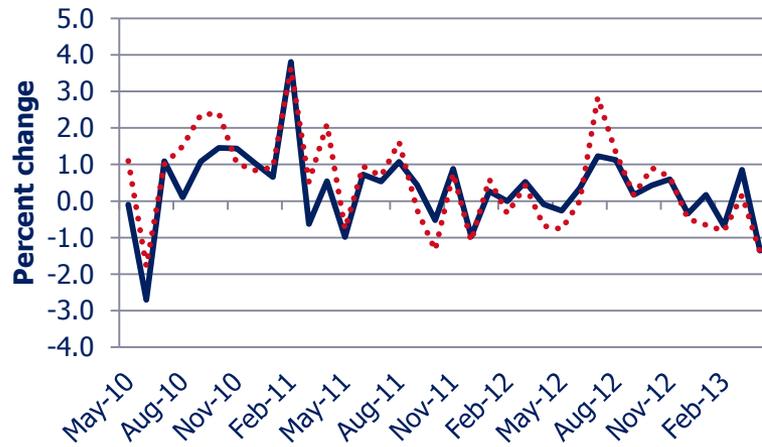
Intermediate Demand by Production Flow Relative Importances

Index	Relative Importance (December 2012)
Total	100.000
Stage 1 intermediate demand	11.817
Goods	6.856
Services	4.956
Construction	0.006
Stage 2 intermediate demand	18.193
Goods	10.410
Services	7.667
Construction	0.116
Stage 3 intermediate demand	23.177
Goods	12.625
Services	10.436
Construction	0.116
Stage 4 intermediate demand	46.813
Goods	23.785
Services	22.867
Construction	0.161

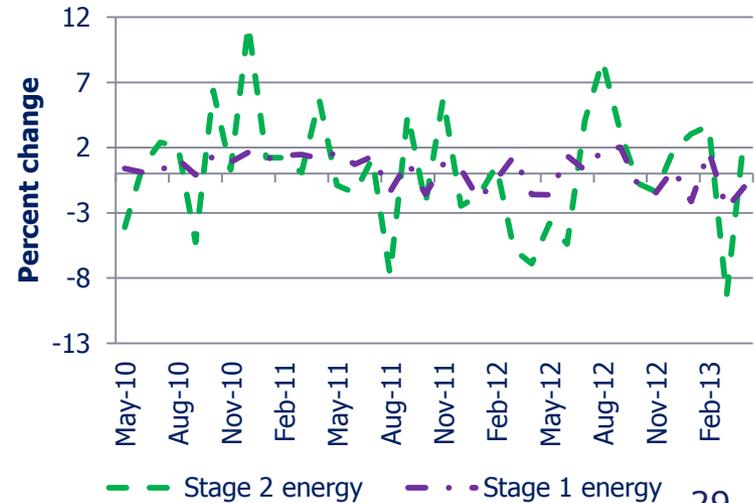
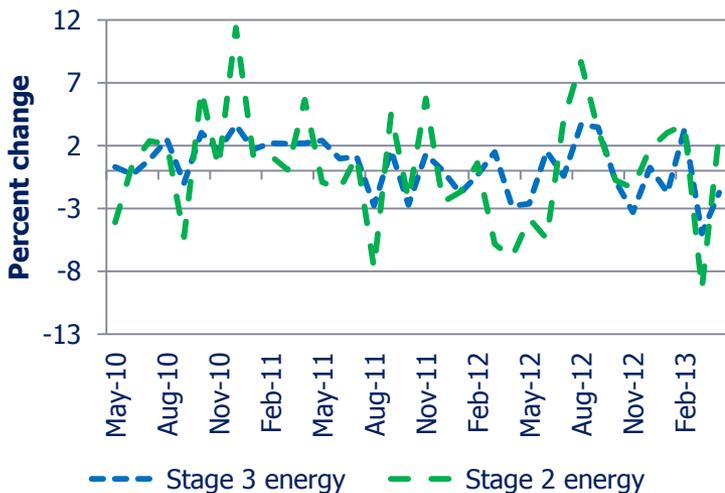
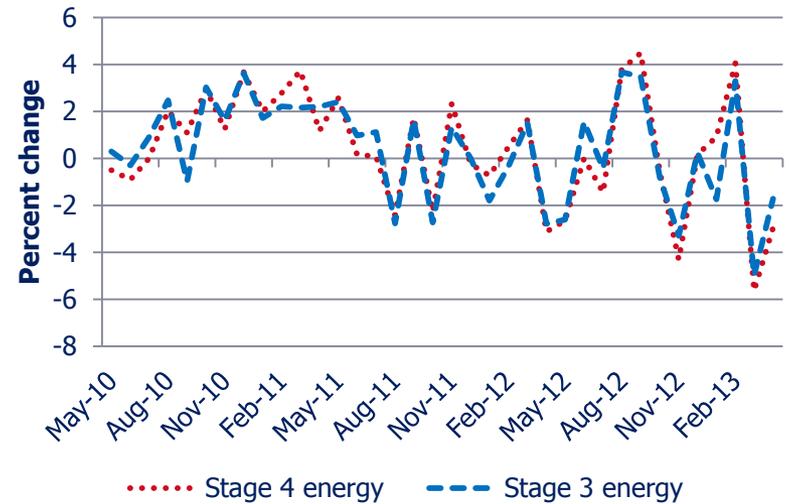
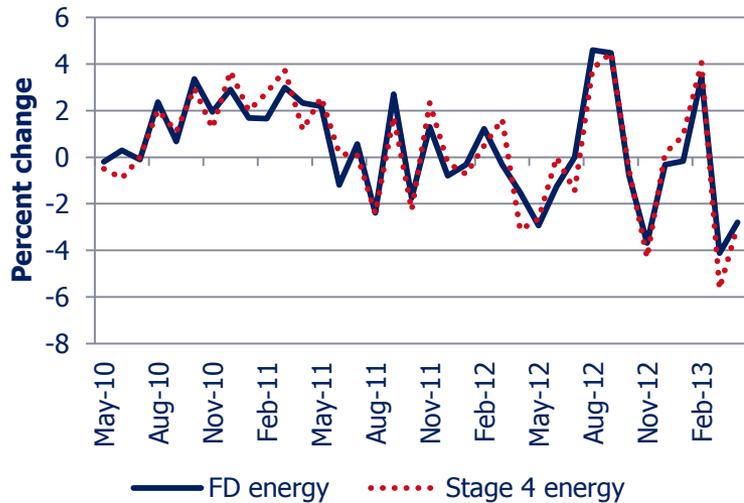
Intermediate Demand by Production Flow Index Change FD and all ID Stages



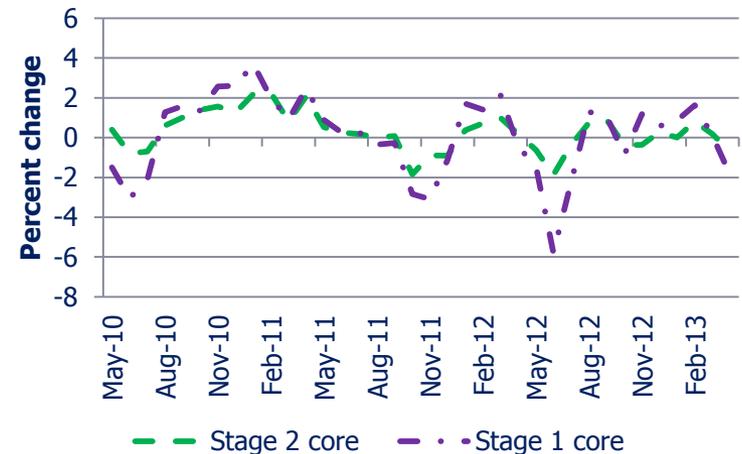
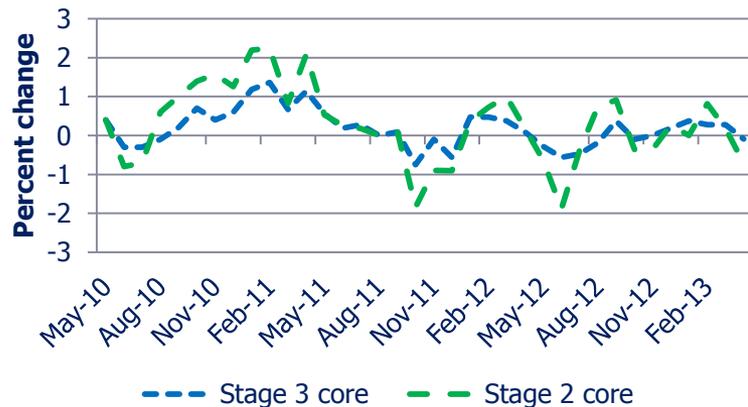
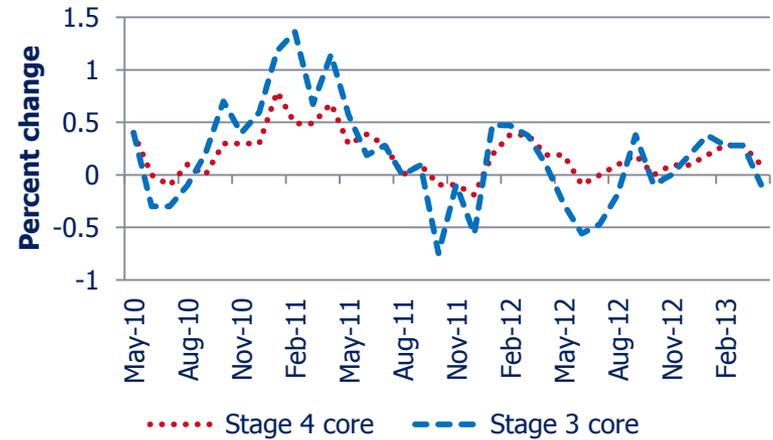
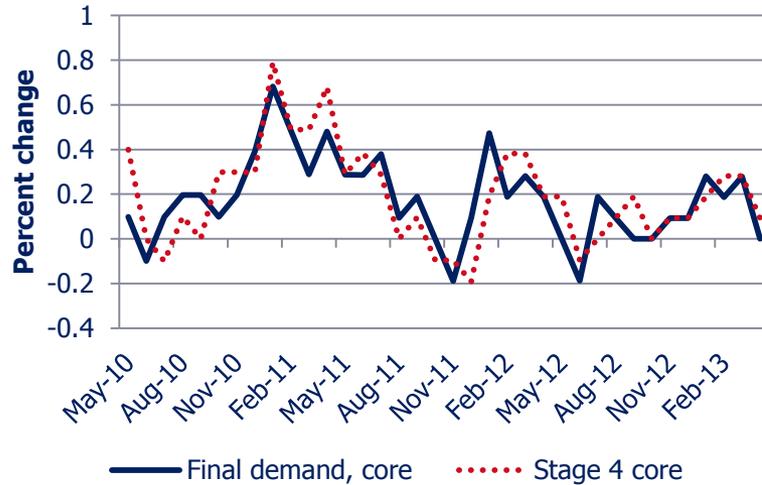
Intermediate Demand by Production Flow Index Change by Stage – Food



Intermediate Demand by Production Flow Index Change by Stage – Energy



Intermediate Demand by Production Flow Index Change by Stage – Goods less Foods and Energy



Intermediate Demand by Production Flow Value Added

- Flow based approach facilitates pass-through analysis
- Includes services and construction
- Eliminates multiple counting through stage creation and net weighting

Outreach to Data Users

- While improvements significant, still represents major change for data users, especially the media & general public
- PPI program has designed extensive outreach program including briefings, supporting materials, analysis, etc.
- “Parallel” releases for July 2013 through December 2013

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