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# Services in Russian Economy: Inter-Industry Analysis

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# Outline

- Services in Russian Economy: retrospective review
  1. GDP production
  2. Prices
  3. Investments and capital stock
  4. Employment and labor productivity
  5. Inter-industry analysis
  
- Services in Russia and USA in comparison
  
- Services in Russian Economy: forecast result for 2014-2030 (two scenarios)

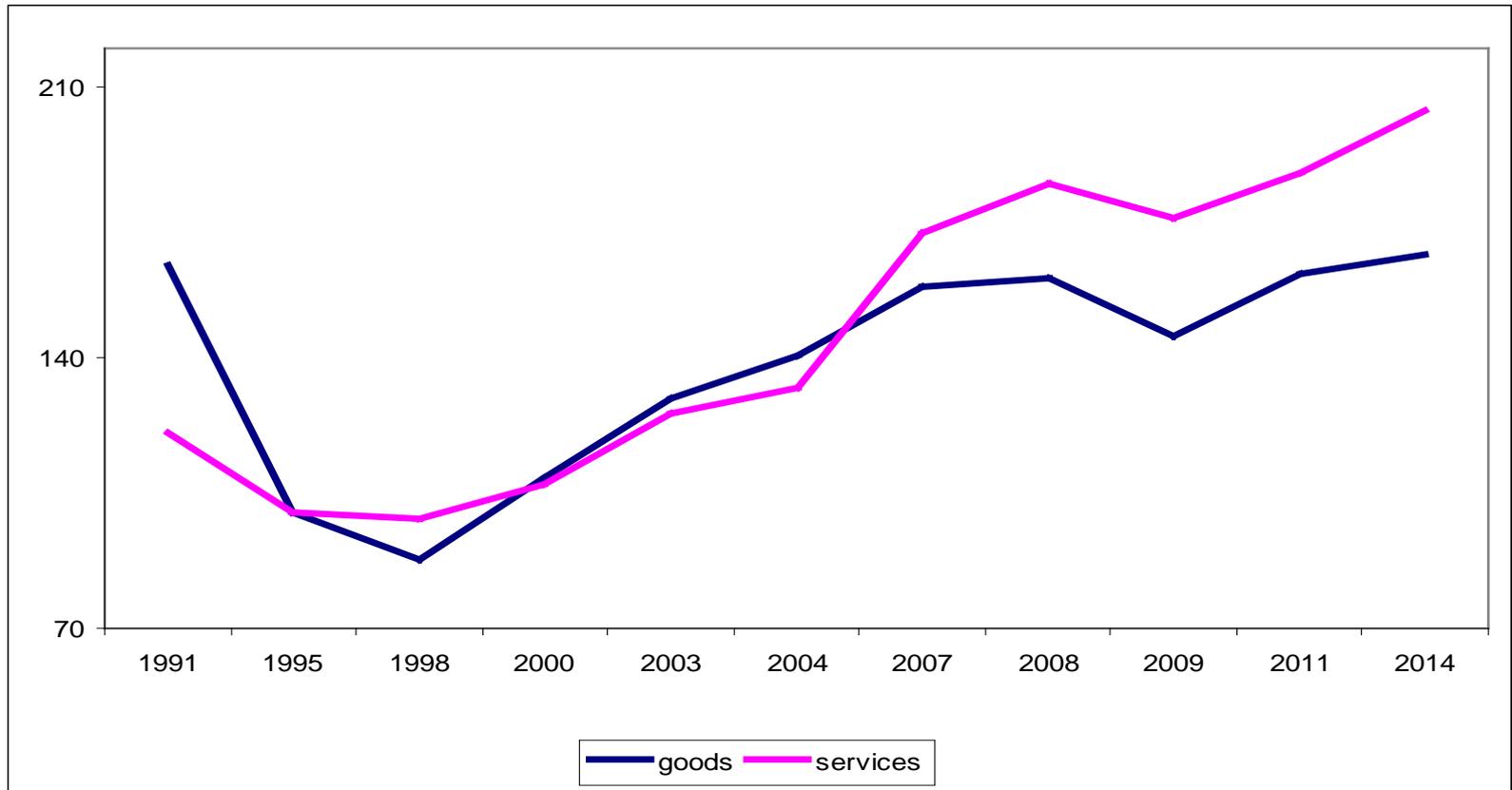
## Services in Russian Economy: retrospective review

Structure of GDP production in current prices, % to total

	1990	1995	2000	2005	2010	2014
Agriculture, Hunting, Forestry and Fishing	16.6	7.0	6.5	5.0	3.9	4.2
Manufacturing and construction	48.9	38.8	38.6	37.9	34.7	35.8
Services, including:	35.0	55.4	54.9	57.0	61.4	60.0
trade	6.1	19.9	23.7	20.4	18.9	18.3
transport	10.0	11.9	9.0	10.2	9.1	8.7
finance and insurance	0.8	1.6	1.4	3.8	4.4	5.3
business services	5.1	7.0	9.6	9.9	12.2	12.2
personal services	10.1	9.7	6.6	7.5	8.5	8.9

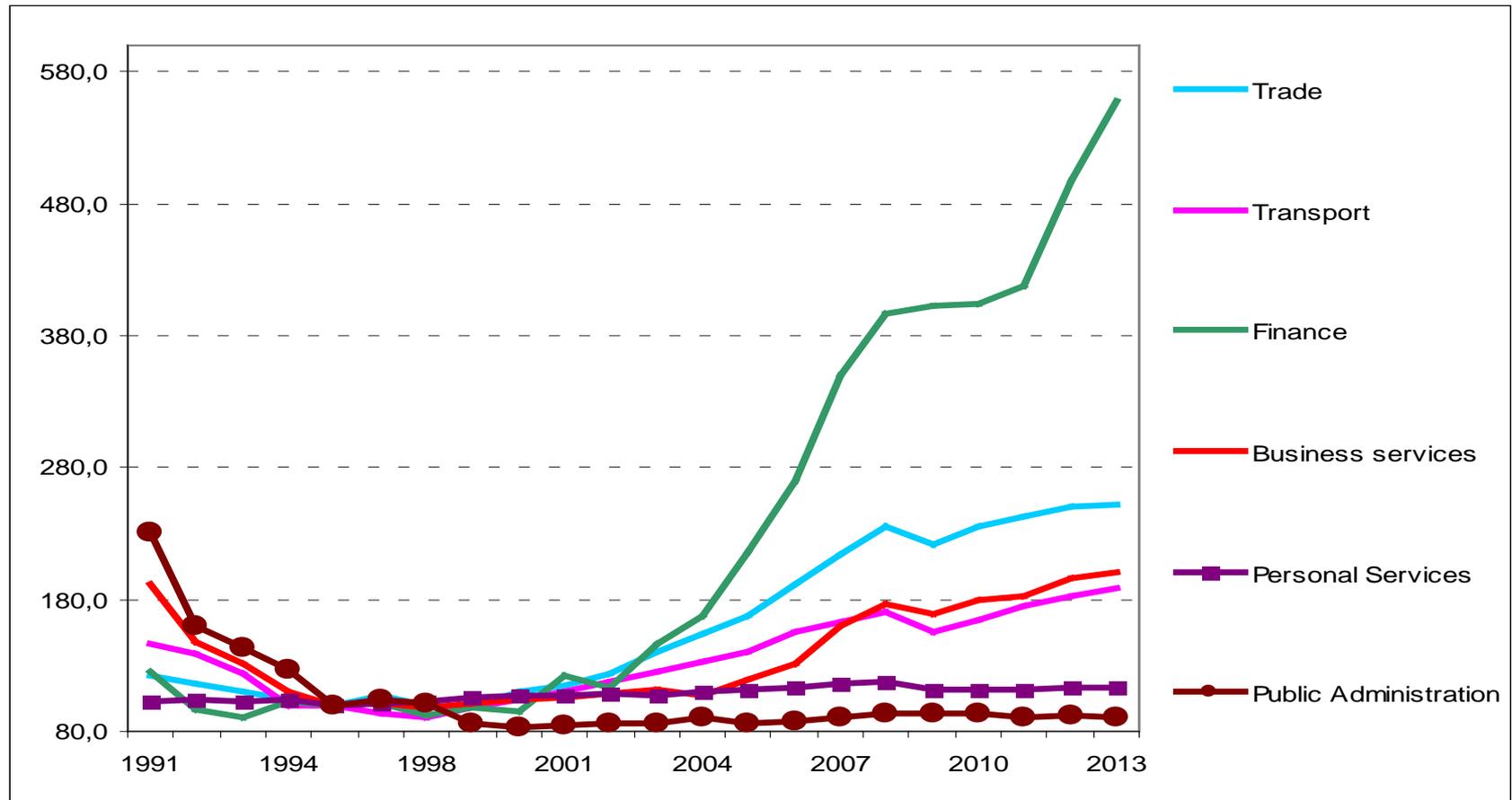
## Services in Russian Economy: retrospective review

Real growth of value-added, % to level of 1995



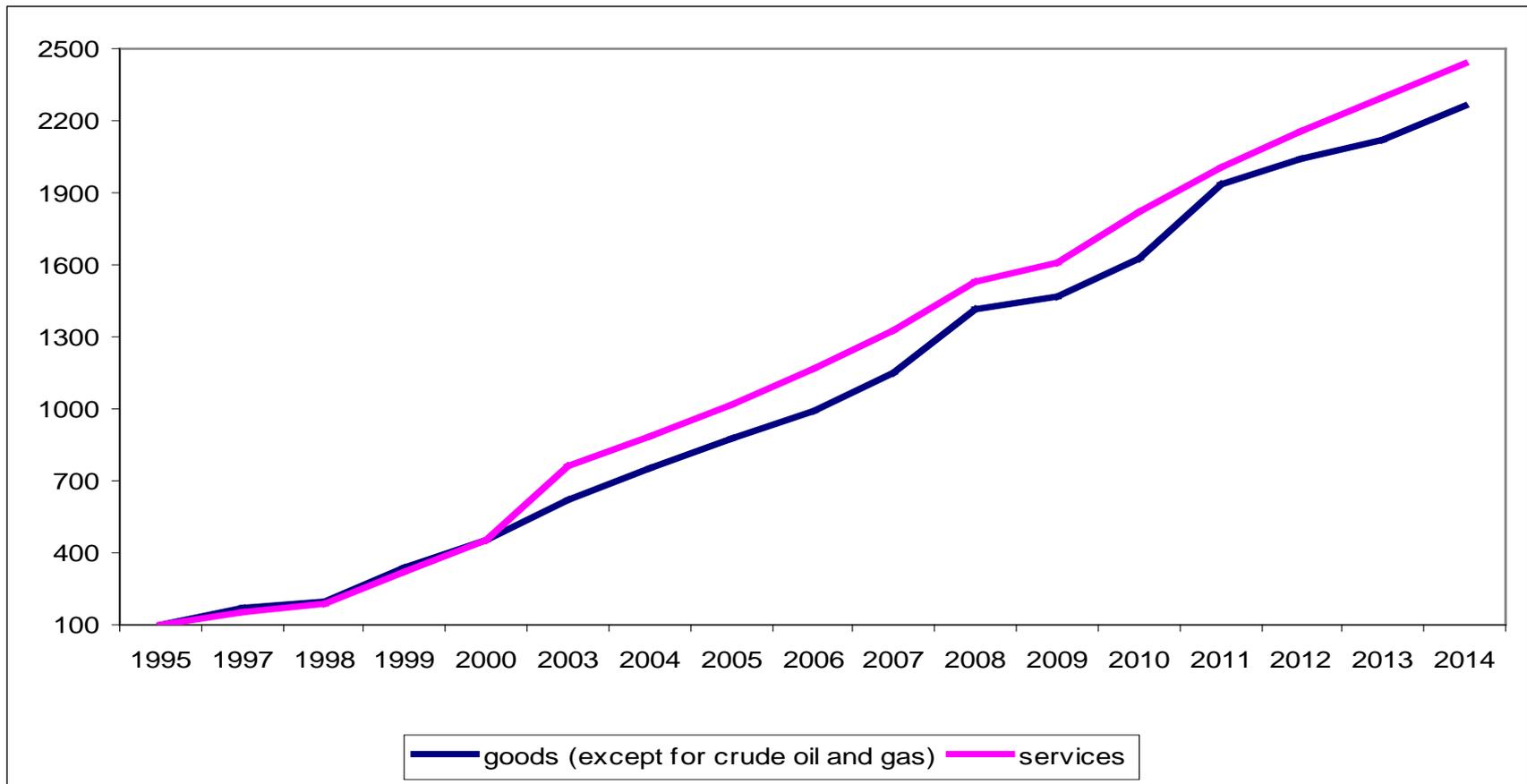
# Services in Russian Economy: retrospective review

Real growth of value-added, % to level of 1995



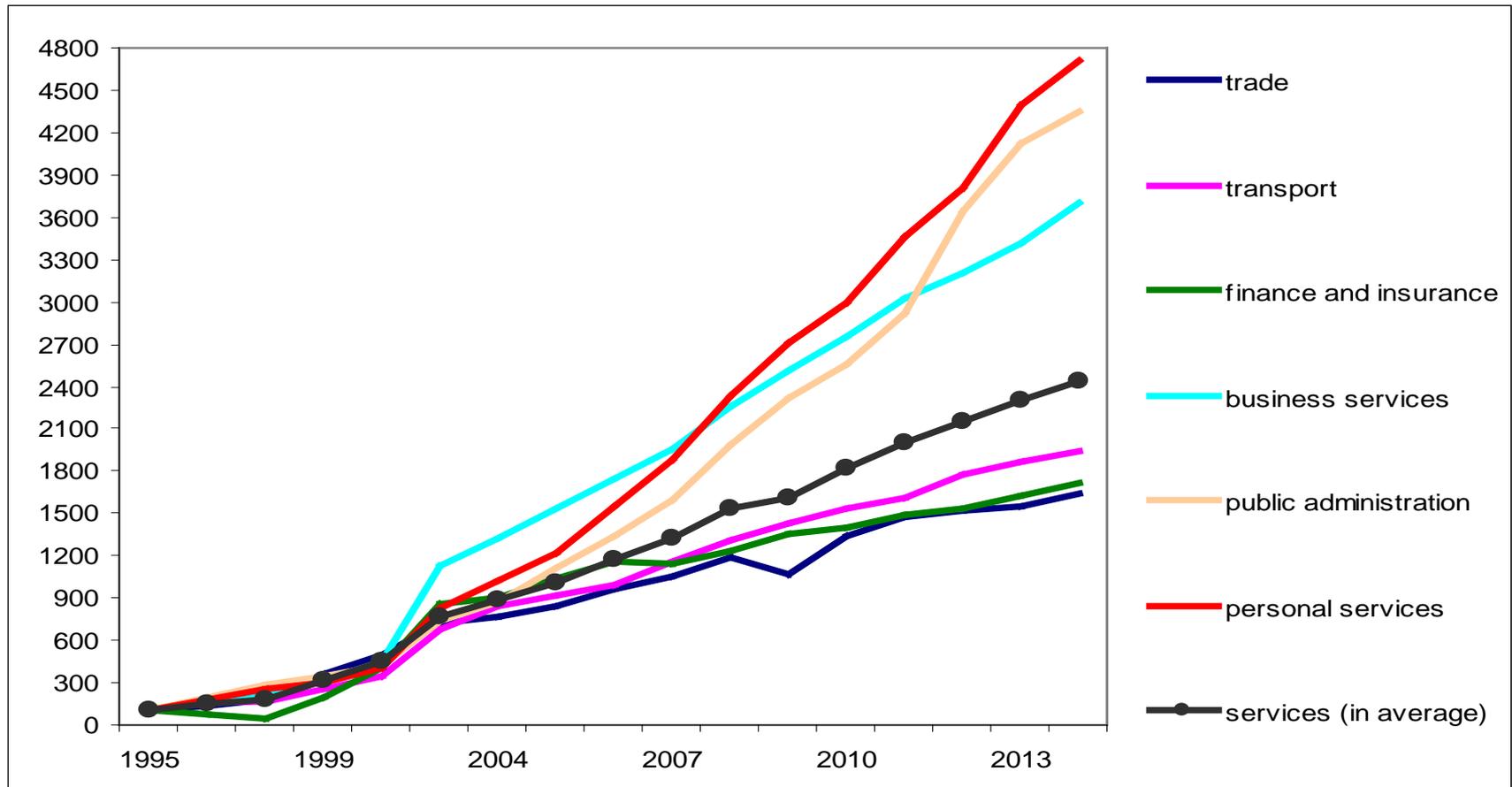
# Services in Russian Economy: retrospective review

## Deflator growth, % to level of 1995



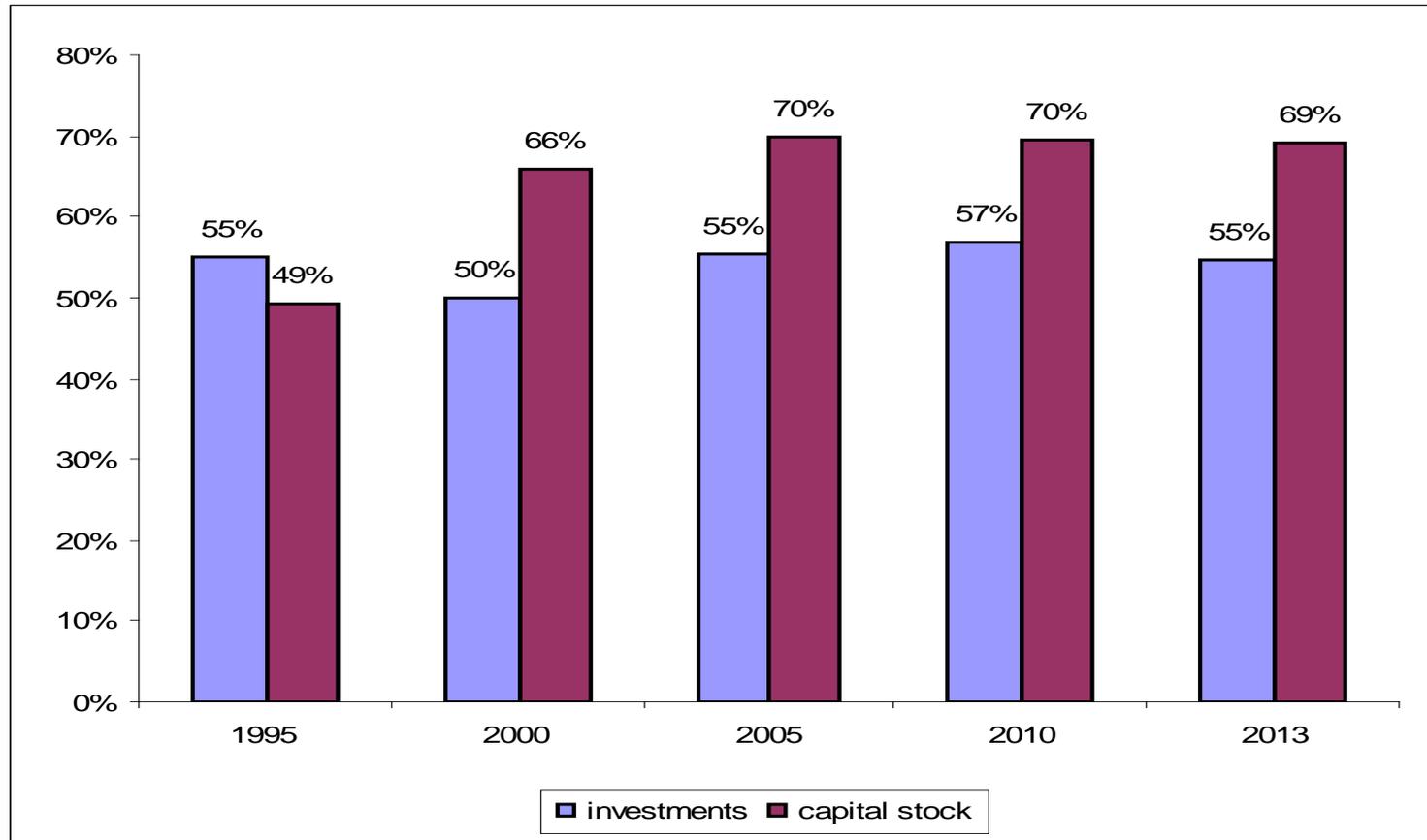
# Services in Russian Economy: retrospective review

## Deflator growth, % to level of 1995



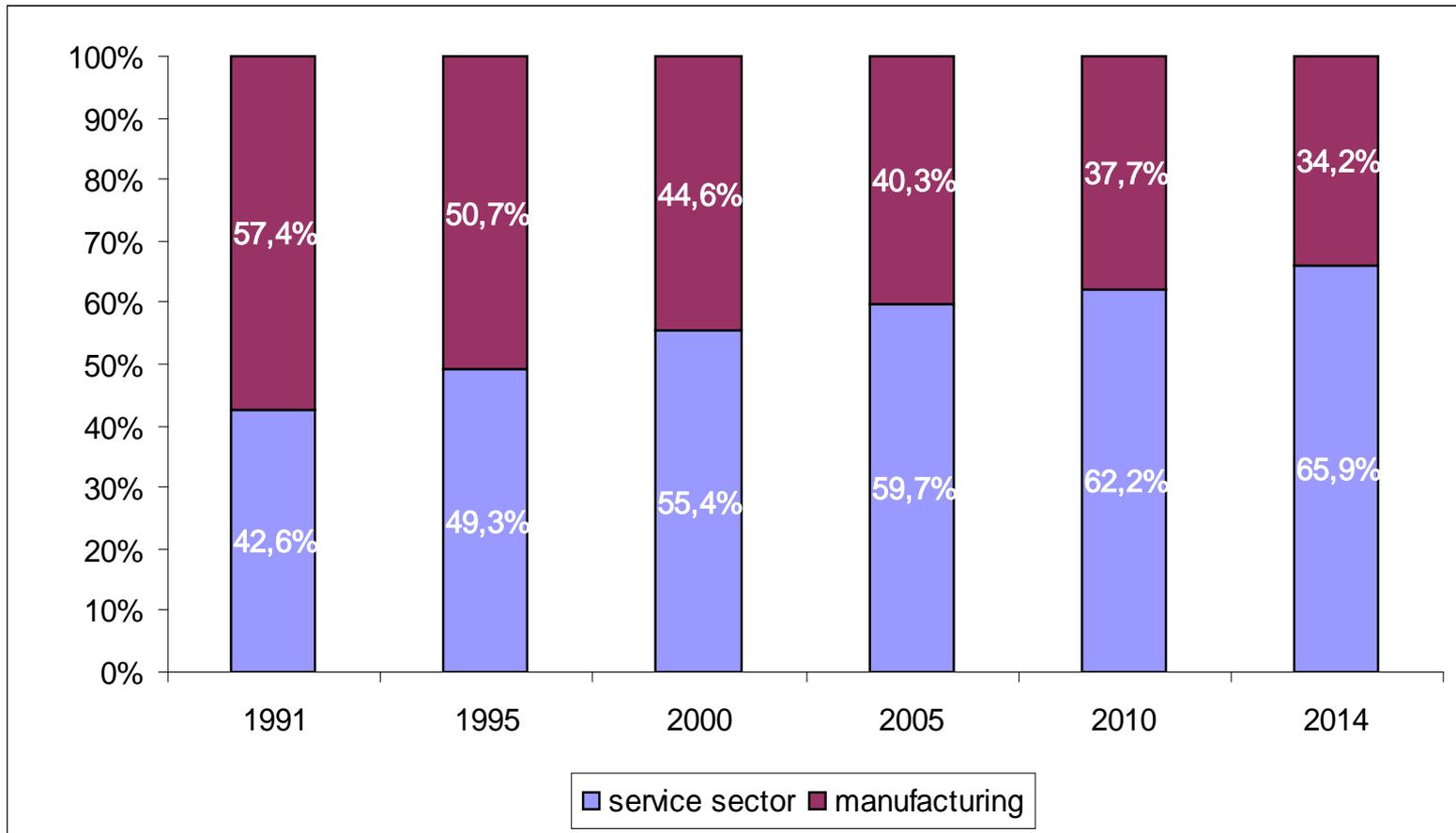
# Services in Russian Economy: retrospective review

## Share of service industries, % to total



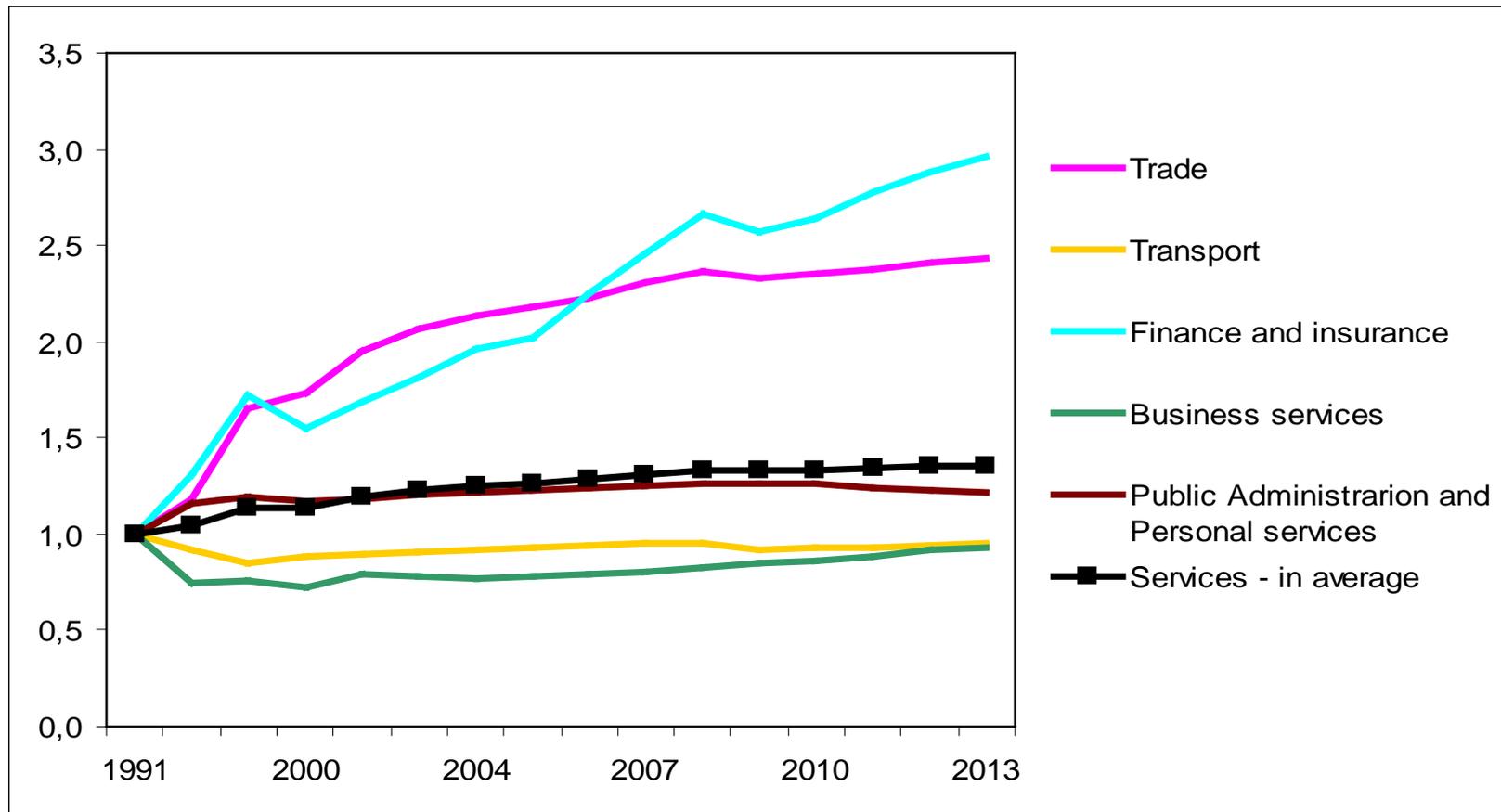
# Services in Russian Economy: retrospective review

## Structure of employment, % to total



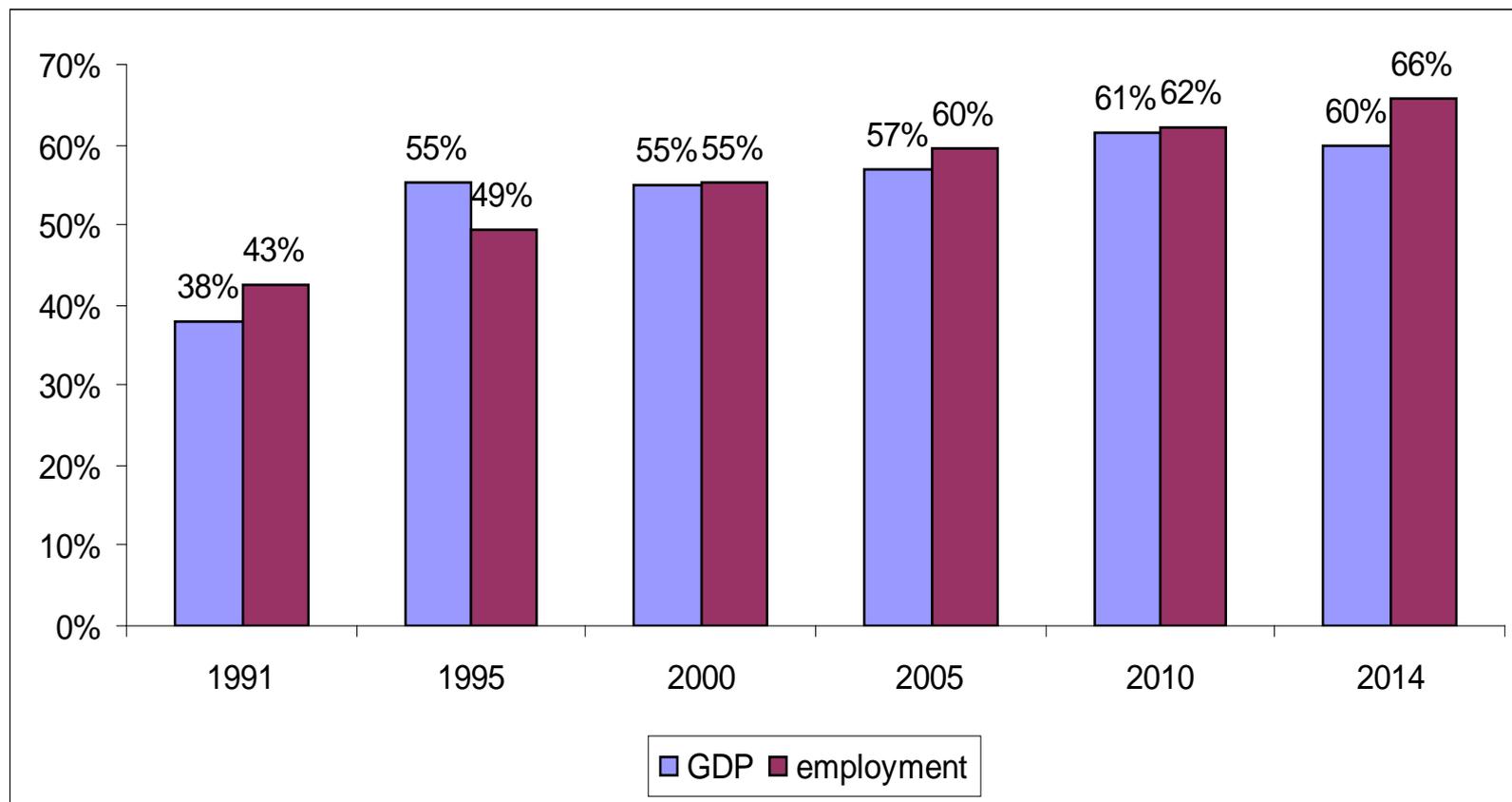
# Services in Russian Economy: retrospective review

## Employment growth, to level of 1991



## Services in Russian Economy: retrospective review

Share of service industries, % to total



## Services in Russian Economy: inter-industry analysis

### Labor productivity, % to average level in economy

	1991	1995	2000	2003	2008	2010	2013
<b>Manufacturing</b>	123,8	110,3	122,9	123,6	132,4	137,1	135,3
<b>Service sector</b>	68,0	89,5	81,6	83,2	79,8	77,7	79,3
including:							
Trade; hotels and restaurants	105,1	138,2	116,9	92,2	85,6	81,0	78,9
Transport and communication	69,1	119,4	97,8	121,0	112,7	112,4	110,0
Finance and insurance	228,7	162,5	119,5	201,8	186,2	165,5	182,4
Business services	52,3	72,8	94,0	111,3	113,5	107,6	106,1
Public Administration and Defense; compulsory Social Security	160,4	181,6	111,7	119,4	100,0	98,4	113,0
Education	37,2	32,5	19,7	21,3	22,4	23,0	23,7
Health and Social Work	39,1	46,8	35,7	39,9	40,6	42,4	45,0
Other Community, Social and Personal Services	41,5	64,3	69,1	50,2	40,9	38,9	38,2

## Services in Russian Economy: inter-industry analysis

Structure of intermediate consumption in **Manufacturing**, % to total

	1980	1990	2000	2010	2013
<b>Agriculture, Manufacturing and Construction</b>	<b>66,6</b>	<b>69,4</b>	<b>63,3</b>	<b>65,0</b>	<b>63,2</b>
<b>Service sector</b>	<b>31,3</b>	<b>28,3</b>	<b>33,1</b>	<b>32,0</b>	<b>33,5</b>
including:					
Trade; hotels and restaurants	11,3	11,9	21,3	15,3	15,5
Transport and communication	13,1	11,0	7,5	7,5	7,0
Finance and insurance	3,7	2,7	1,0	3,2	4,2
Business services	0,7	1,1	2,4	4,2	4,6
Public Administration and Defense; compulsory Social Security	1,5	0,9	0,6	1,6	2,1
Personal services	1,0	0,7	0,2	0,1	0,1

## Services in Russian Economy: inter-industry analysis

Structure of intermediate consumption in **Agriculture**, % to total

	1980	1990	2000	2010	2013
<b>Agriculture, Manufacturing and Construction</b>	<b>77,8</b>	<b>83,0</b>	<b>69,6</b>	<b>65,9</b>	<b>63,3</b>
<b>Service sector</b>	<b>20,4</b>	<b>15,2</b>	<b>29,3</b>	<b>32,5</b>	<b>35,1</b>
including:					
Trade; hotels and restaurants	10,4	8,5	19,9	16,1	17,1
Transport and communication	7,4	5,1	6,2	6,6	6,1
Finance and insurance	2,0	1,2	1,4	5,8	7,6
Business services	0,1	0,2	1,5	3,2	3,3
Public Administration and Defense; compulsory Social Security	0,3	0,1	0,2	0,8	1,0
Personal services	0,2	0,1	0,1	0,1	0,1

## Services in Russian Economy: inter-industry analysis

Structure of intermediate consumption in **Construction**, % to total

	1980	1990	2000	2010	2013
<b>Agriculture, Manufacturing and Construction</b>	<b>76,7</b>	<b>67,9</b>	<b>59,3</b>	<b>62,3</b>	<b>61,5</b>
<b>Service sector</b>	<b>21,1</b>	<b>30,4</b>	<b>37,3</b>	<b>35,9</b>	<b>36,6</b>
including:					
Trade; hotels and restaurants	13,1	9,1	20,5	14,7	14,5
Transport and communication	2,3	17,6	13,3	12,2	11,2
Finance and insurance	3,6	2,3	1,2	3,9	5,2
Business services	0,5	0,6	1,8	4,3	4,7
Public Administration and Defense; compulsory Social Security	0,7	0,3	0,3	0,7	0,9
Personal services	0,9	0,5	0,2	0,1	0,1

## Services in Russian Economy: inter-industry analysis

Structure of intermediate consumption in **Service sector**, % to total

	1980	1990	2000	2010	2013
<b>Agriculture, Manufacturing and Construction</b>	<b>49,9</b>	<b>52,4</b>	<b>38,5</b>	<b>36,3</b>	<b>34,5</b>
<b>Service sector</b>	<b>47,4</b>	<b>44,7</b>	<b>57,5</b>	<b>59,5</b>	<b>61,0</b>
including:					
Trade; hotels and restaurants	15,8	16,1	24,2	17,1	16,9
Transport and communication	23,8	21,1	21,5	19,1	17,8
Finance and insurance	2,6	2,4	1,7	4,9	6,1
Business services	2,0	2,6	8,2	15,0	16,1
Public Administration and Defense; compulsory Social Security	0,9	0,6	1,2	3,1	3,8
Personal services	2,3	1,8	0,6	0,4	0,4

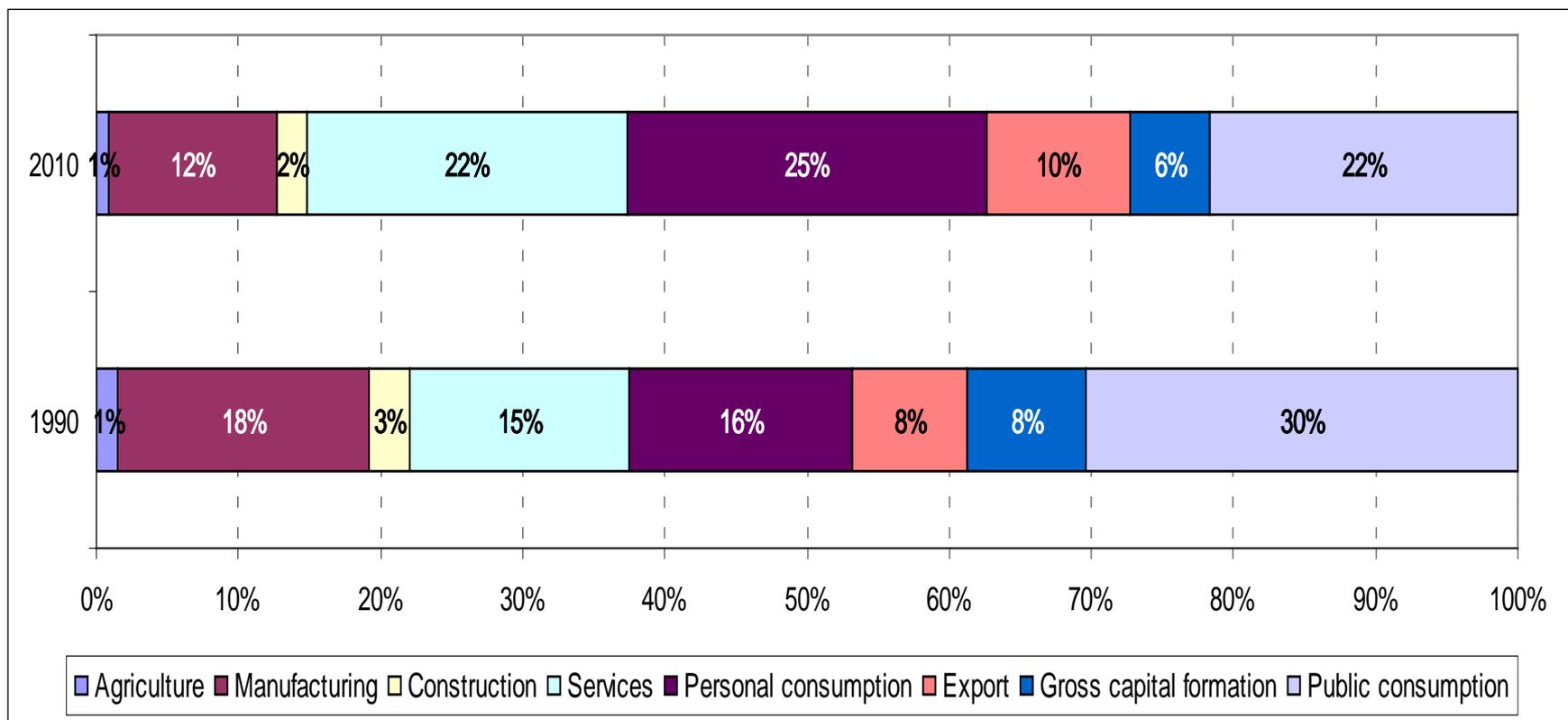
## Services in Russian Economy: inter-industry analysis

### Structure of personal consumption, % to total

	1980	1990	2000	2010	2013
<b>Agriculture, Manufacturing and Construction</b>	<b>62,6</b>	<b>61,4</b>	<b>33,6</b>	<b>28,6</b>	<b>27,8</b>
<b>Service sector</b>	<b>30,1</b>	<b>30,7</b>	<b>49,4</b>	<b>53,6</b>	<b>54,4</b>
including:					
Trade; hotels and restaurants	21,4	21,2	34,7	36,2	36,6
Transport and communication	5,0	5,3	5,0	5,4	6,2
Finance and insurance	0,1	0,1	0,6	0,5	0,1
Business services	1,4	1,5	5,0	6,3	6,3
Public Administration and Defense; compulsory Social Security	0,4	0,3	0,8	1,6	1,8
Personal services	1,8	2,3	3,2	3,6	3,4

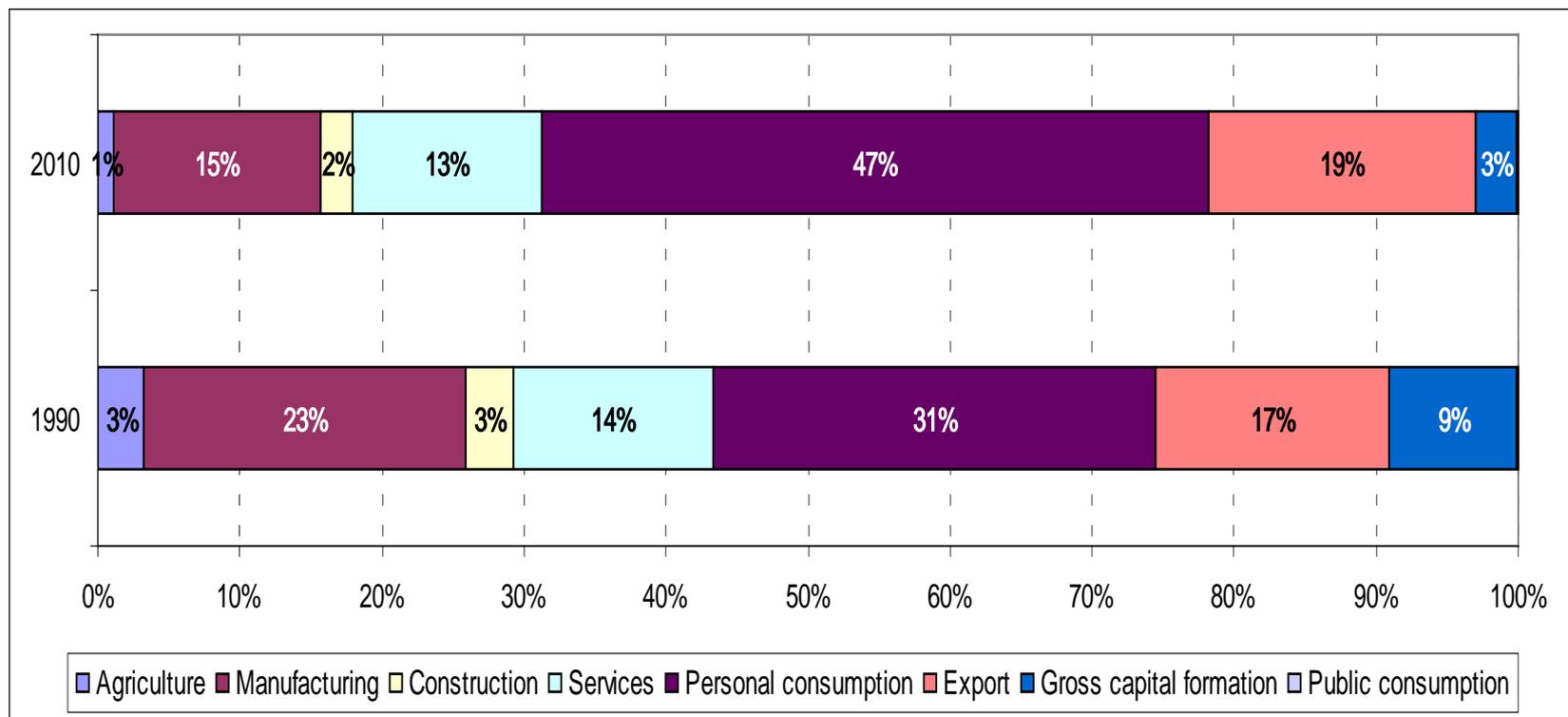
# Services in Russian Economy: inter-industry analysis

Structure of using of **Services** output by destinations, % to total



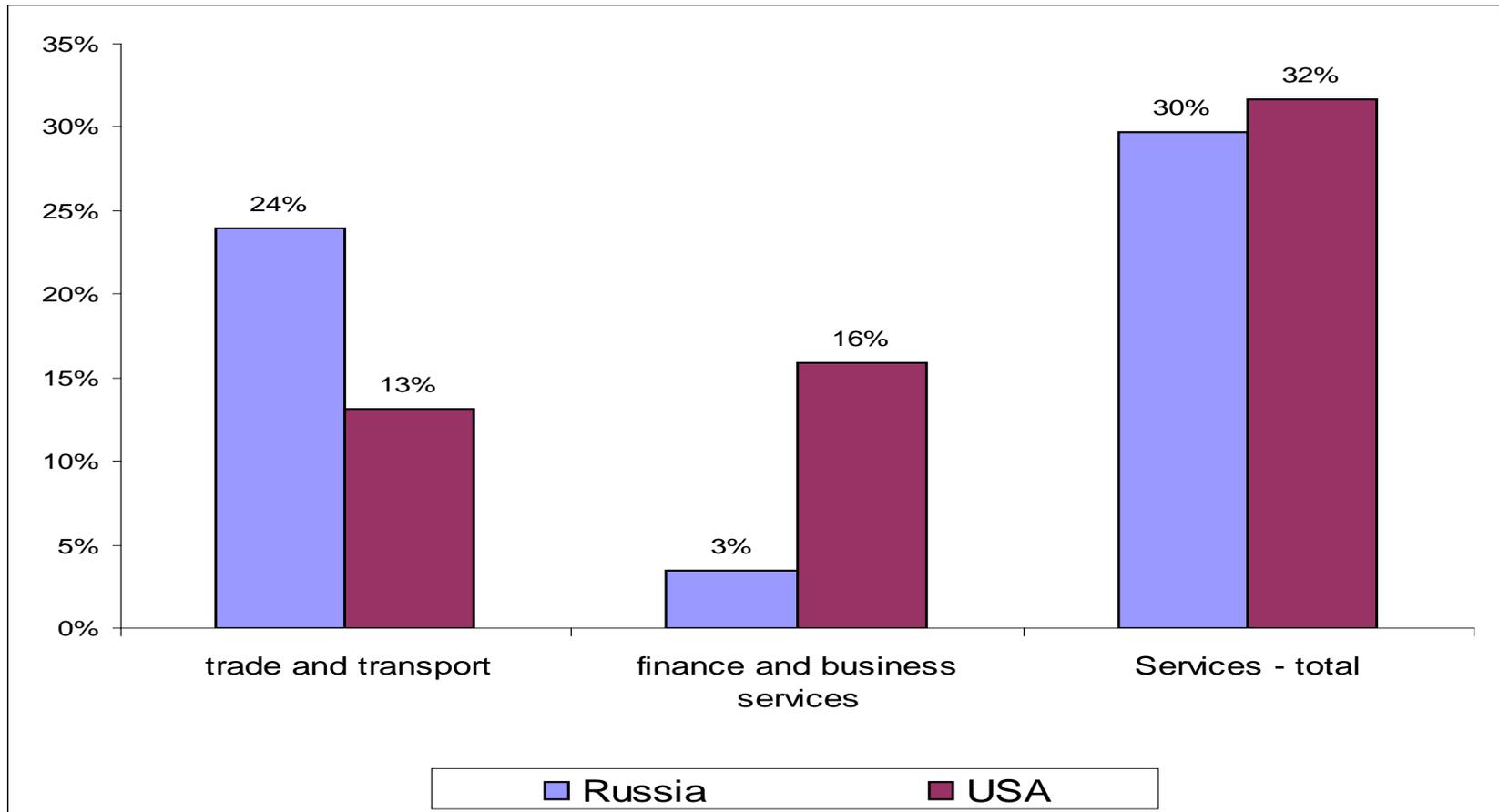
## Services in Russian Economy: inter-industry analysis

Structure of using of **Trade** output by destinations, % to total



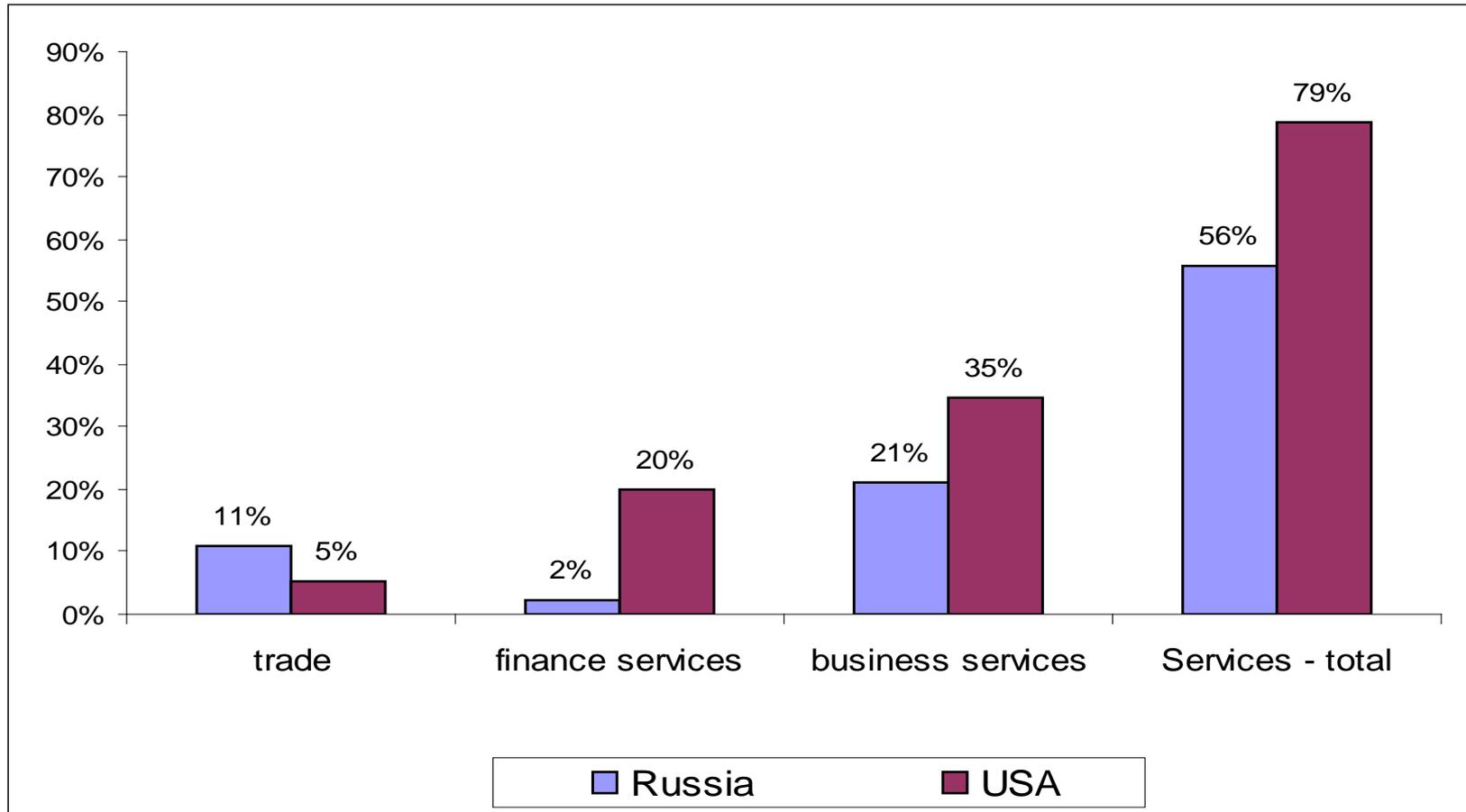
## Services in Russian Economy: comparison with the USA

Services share in structure of intermediate consumption of Manufacturing industries, % to total



## Services in Russian Economy: comparison with the USA

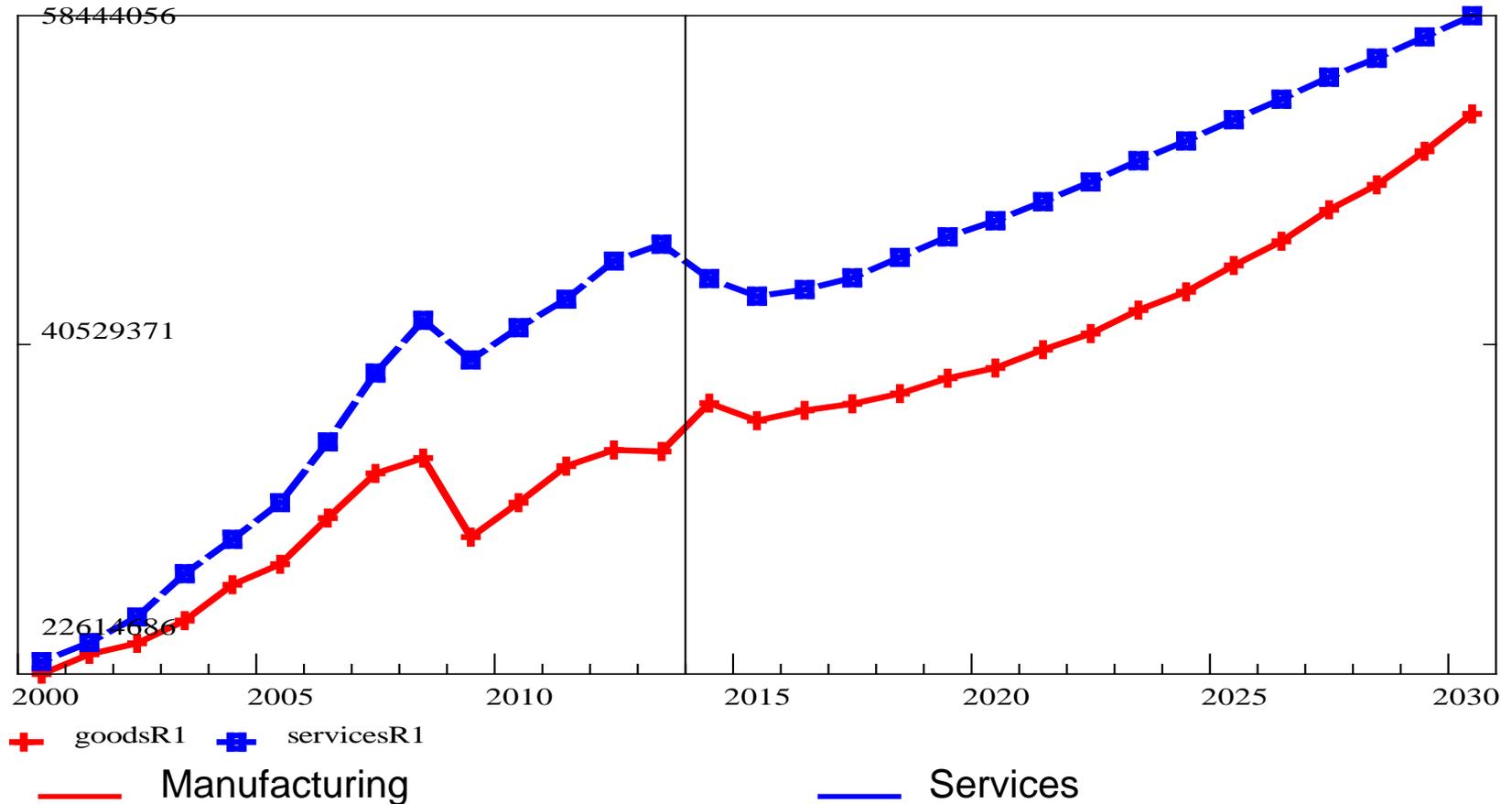
Services share in structure of intermediate consumption of Service sectors, % to total



# Services in Russian Economy: Forecast (business-as-usual scenario)

Gross output growth rate ~2,3% per year (in average) in 2015-2030

Gross output

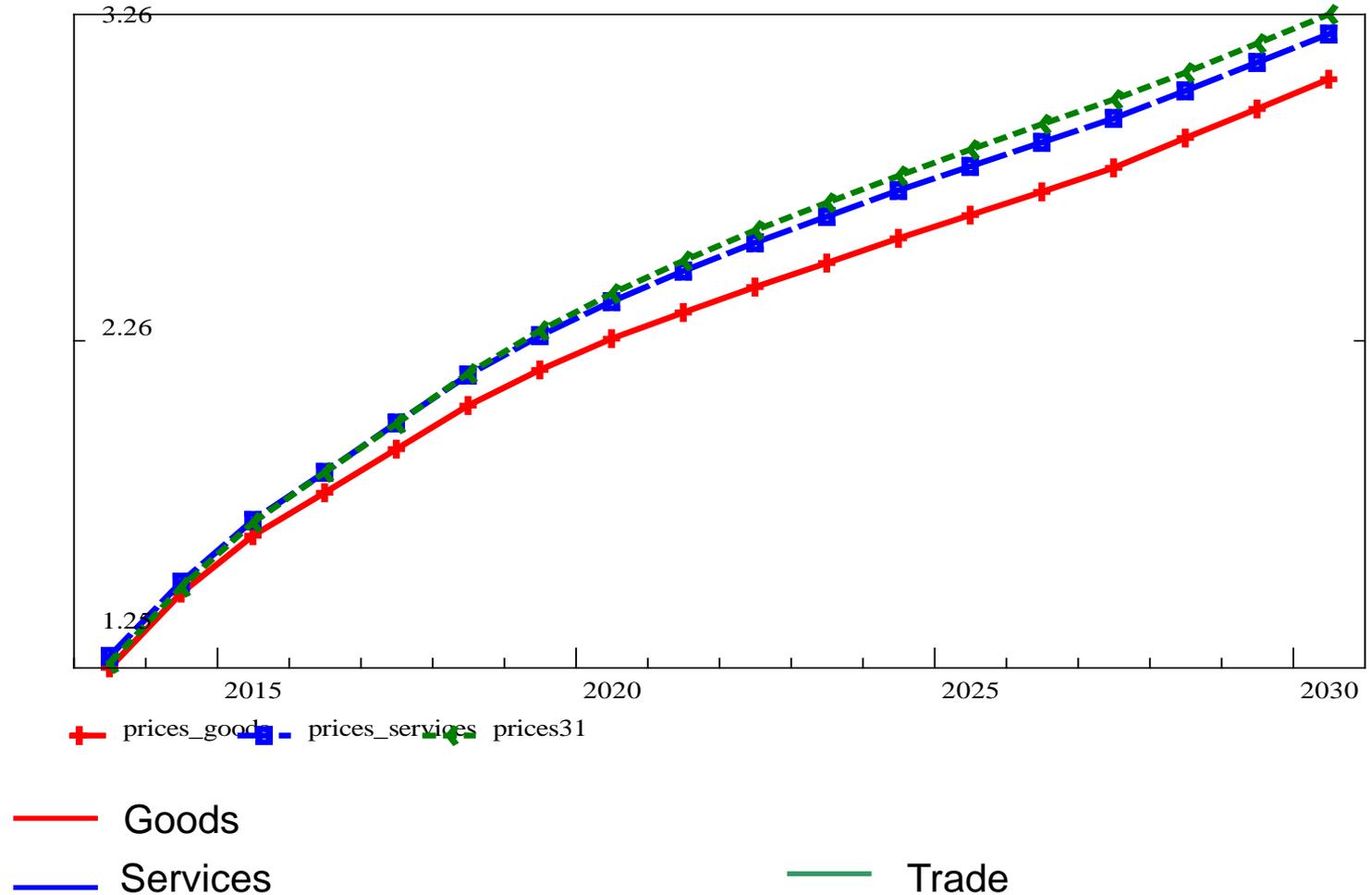


## Services in Russian Economy: Forecast (business-as-usual scenario)

% to the total (or average) value for economy as a whole	Output		Employment		Labor productivity	
	2013	2030	2013	2030	2013	2030
<b>Agriculture, Manufacturing and Construction</b>	<b>49.2</b>	<b>52.5</b>	<b>36.9</b>	<b>41.1</b>	<b>132.0</b>	<b>133.6</b>
<b>Service sector</b>	<b>50.8</b>	<b>47.5</b>	<b>63.1</b>	<b>58.9</b>	<b>81.2</b>	<b>79.3</b>
including:						
Trade; hotels and restaurants (including trade margins)	16.6	17.5	20.1	27.1	85.2	62.6
Transport and communication (including transport margins)	8.5	8.6	8.1	8.3	112.3	108.6
Finance and insurance	3.4	3.7	1.9	0.5	182.0	511.0
Business services	9.4	7.8	8.7	5.3	112.5	165.6
Public Administration and Defense; compulsory Social Security	6.2	4.8	5.4	3.7	99.0	110.8
Personal services	6.7	5.1	18.9	14.0	32.6	28.7

# Services in Russian Economy: Forecast (business-as-usual scenario)

Deflators for goods, services and trade



## Services in Russian Economy: Forecast (prices restriction scenario)

- Leontief price model (business-as-usual scenario):

$$p_i = \sum a_{ij} * p_j + (va_i / out_i), i=1, \dots, 44$$

va = wages + gross profit + taxes

wages = f (labor productivity,  $p_i$ ,  $out_i$ )

gross profit = f (profitability ratio,  $out_i$ )

- Prices restriction scenario:

$$p_i = f (\text{Gross output deflator}), i=31, 36, 37$$

$$\text{gross profit} = outR_i * p_i - wages_j - tax_j - (\sum a_{ij} * p_j) * outR_i$$

i = 31    Wholesale and retail trade

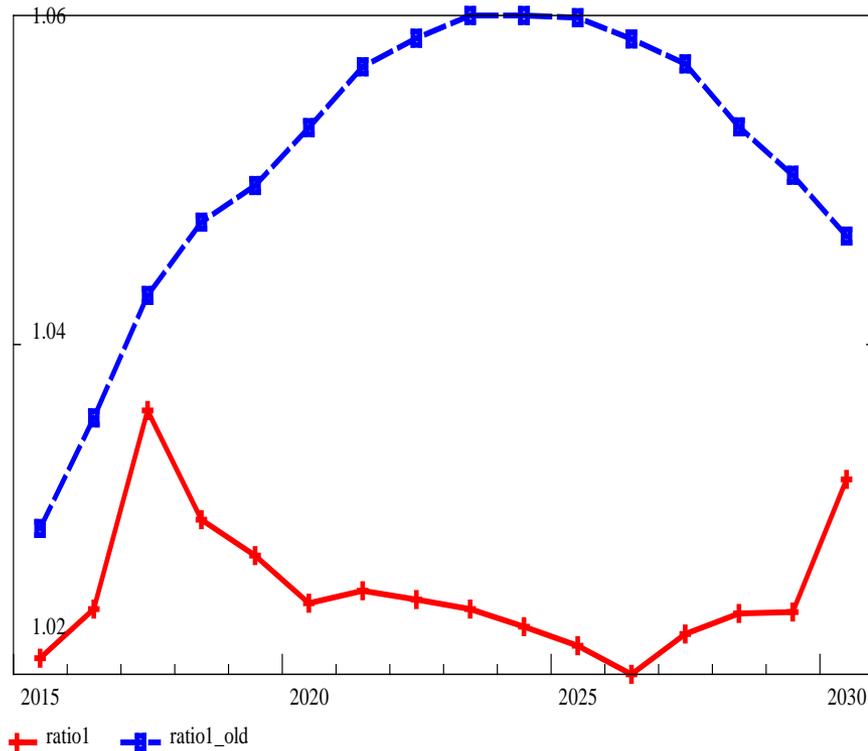
i = 36    Real estate

i = 37    Equipment rental

# Services in Russian Economy: Forecast (business-as-usual & prices restriction scenario)

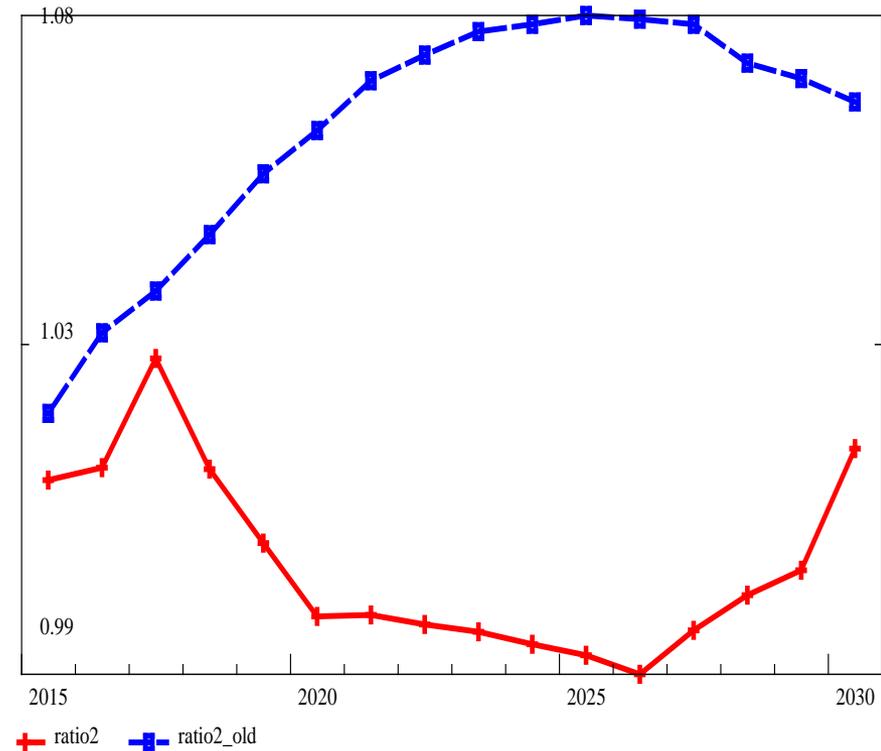
Differences in annual prices growth between services and goods

Deflators for googs and services



Prices restriction scenario

Deflators for goods and trade



Business-as-usual scenario

## Services in Russian Economy: Forecast (business-as-usual & prices restriction scenario)

differences in prices restriction scenario's results (relative to the business-as-usual scenario)	Gross Output, annual growth rate, p.p.		Industry Output, % to Gross output	
	2015-2025	2026-2030	2015-2025	2026-2030
<b>Agriculture, Manufacturing and Construction, including:</b>				
High-technology industries	+0.6	+0.6	+0.1	+0.1
Medium-high-technology industries	+0.6	+0.3	+0.1	+0.2
Medium-low-technology industries	+0.2	-	+0.4	+0.5
Low-technology industries	+0.2	-0.1	-	-
<b>Service sector, including:</b>				
Trade; hotels and restaurants (including trade margins)	+0.1	-	-1.3	-1.4
Business services	+0.3	-0.1	-0.3	-0.2

## Conclusions

- The importance of services for the Russian economy grew a lot especially in 1990-1995. The Service sectors used the most part of total capital stock and employment
- At the same time, the growth of the service prices was more rapid than the one of the manufactured goods that led to the finances transition from the Manufacturing to Service branches
- Besides, the rapid price growth in the Service sector caused increase of its share in intermediate consumption of other industries that reduced value-added in the Manufacturing industries
- Comparison with the US I-O tables shows significant differences in the intermediate consumption structure associated with higher share of trade services and less share of finance and business services both in Manufacturing and Service sectors' costs
- The results of business-as-usual scenario can't be considered as acceptable due to the very moderate growth rates of the gross output. The prices restriction scenario simulations show a good opportunity for the economy growth acceleration by means of increase of output in high- and medium-technology industries

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Thank you!

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## Services in Russian Economy: inter-industry analysis

- Structure of intermediate consumption of industry j (structure in column j):  

$$A_{ij} / A_j$$
- Structure of using of industry i output (structure in row i):  

$$A_{ij} / X_i \text{ or } Y_i / X_i$$

	Industry j	Final demand	Output
Industry i	Intermediate consumption of commodity i by industry j – $A_{ij}$	Final demand for commodity i - $Y_i$	Output of industry i - $X_i$
	Total intermediate consumption by industry j – $A_j = \sum A_{ij}$		
	Value-added of industry j - $VA_j$		