Contribution of intangible assets to the growth of the Russian manufacturing and service sectors in a comparative perspective
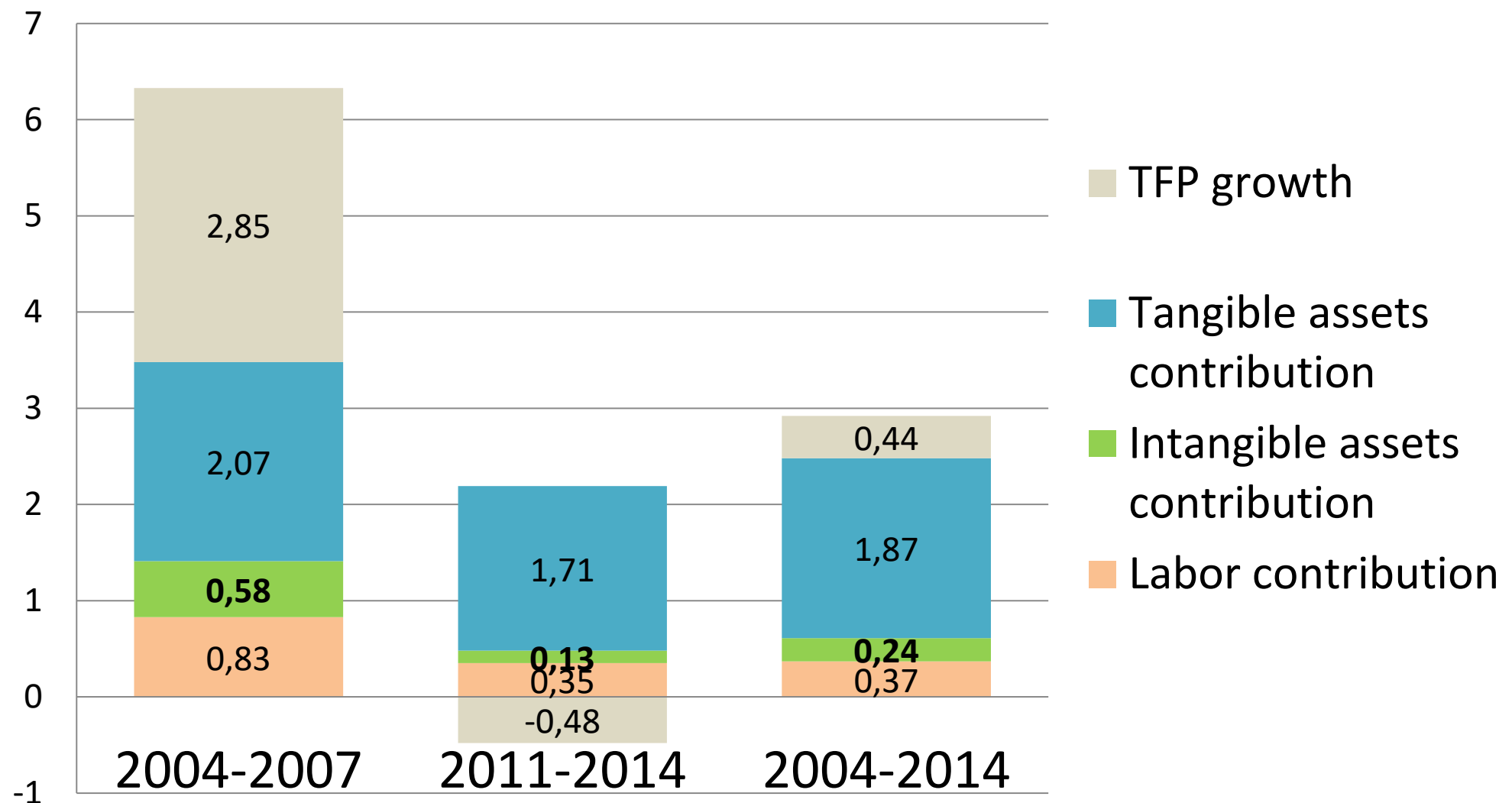
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XXII April International Academic Conference
on Economic and Social Development
April, 2021

PLAN:

1. WHAT IS INTANGIBLE ASSETS

2. METHODOLOGY OF CALCULATION INTANGIBLE ASSETS CONTRIBUTION TO GROWTH

3. ARGUMENTS FOR CHOOSING: MANUFACTURING AND SERVICE SECTORS

4. KEY QUESTIONS

5. WHAT WE ALREADY KNOW AND WHAT DONE NEW

6. COMPARATIVE RESULTS

7. TAKEAWAYS

8. CONCLUSION

1. WHAT IS INTANGIBLE ASSETS

ASSETS, THAT DOES NOT
HAVE ANY PHYSICAL
EXISTENCE. LIKE TANGIBLE
ASSETS, YOU CANNOT
TOUCH OR FEEL THEM BUT
THEY HAVE A CURRENT AND
FUTURE VALUE.

THE ROLE OF INTANGIBLE ASSETS IN RUSSIA

Source: author`s calculation based on Russia KLEMS

2. METODOLOGY(1)

WHAT ASSETS CONSIDER AS INTANGIBLE

Asset type	Included in System of National Account
1. Basic intangible assets (Investments in computerized information, including software and computerized databases; Mineral Resource Exploration and Assessment Results; Entertainment and artistic originals)	Yes
2. R&D	Since 2008, missing from published data
3. New product development	No
4. New architectural and engineering designs, advertising, marketing research and purchased organizational capital	No

2. METODOLOGY(2)

- Growth accounting methodology (Jorgenson, Ho and Stiroh 2005)

$$Y_j = f_j\left(X_j, K_j, L_j, T\right)$$

$$\Delta \ln A_j^Y \equiv \Delta \ln Y_j - \bar{v}_{X,j}^Y \Delta \ln X_j - \bar{v}_{K,j}^Y \Delta \ln K_j - \bar{v}_{L,j}^Y \Delta \ln L_j$$

$$v_{X,j}^Y = \frac{p_j^X X_j}{p_j^Y Y_j}$$

$$\Delta \ln K_j = \sum_k \bar{v}_{k,j}^K \Delta \ln K_{k,j}$$

$$v_{L,j}^Y = \frac{p_j^L L_j}{p_j^Y Y_j}$$

$$v_{k,j}^K = \frac{p_{k,j}^K K_{k,j}}{p_j^K K_j}$$

$$v_{K,j}^Y = \frac{p_j^K K_j}{p_j^Y Y_j}$$

2. METODOLOGY(3)

- Measurement of capital input based on the perpetual inventory method (PIM) with geometric depreciation profiles for each individual asset

$$S_{k,T} = \sum_{t=0}^{\infty} \partial_{k,t} I_{k,T-t}$$

$$S_{k,T} = \sum_{t=0}^{\infty} (1 - \delta_k)^{t-1} I_{k,T-t} = S_{k,T-1}(1 - \delta_k) + I_{k,T}$$

$$p_{k,t}^{K} = p_{k,t-1}^{I} i_t + \delta_k p_{k,t}^{I} - \left(p_{k,t}^{I} - p_{k,t-1}^{I} \right)$$

2. METODOLOGY(4)

INDUSTRY GROUPS

Using in work	OKVED code OK 029-2007 (NACE Rev. 1.1)	Industry name
Manufacturing	D	Food, Beverage and Tobacco
		Textiles and textile
		Leather and footwear
		Wood and Production of Wood and Cork
		Pulp, Paper, Printing and Publishing
		Coke, Refined petroleum and Nuclear Fuel
		Chemicals and chemical products
		Rubber and Plastics Products
		Other Non-Metallic Mineral products
		Machinery, nec
		Electrical and Optical Equipment
		Transport Equipment
		Manufacturing nec; Recycling
Market services	G	Wholesale and retail trade; repair of motor vehicles and motorcycles
	H	Transporting and storage
	I	Accommodation and food service activities
	J	Information and communication

3. WHY MANUFACTURING AND SERVICE SECTORS

- Intangible Investments during 2010-2016 are the highest in manufacturing and market services in real terms *(column 2)* and as a percentage of GDP *(column 3)*

- Value added share of manufacturing and market services are significant too *(column 4)*

- Form an essential part of the contribution to the growth: *market services – 0,19 p.p./0,21; manufacturing – 0,03 p.p./0,21*

- Improved quality of cross-country comparisons

INTANGIBLE INVESTMENT AND VALUE ADDED SHARES BY INDUSTRIES OF RUSSIA IN 2010-2016, %

	Intangible Investment by industry (average %)	Intangible Investment by industry (GDP average %)	Value added share (average %)
1	2	3	4
Agriculture, Hunting, Forestry and Fishing	0,6	0,03	3,4
Mining	4,3	0,21	7,8
Utilities	2,2	0,11	2,8
Manufacturing	17,1	0,82	12,0
Construction	3,0	0,14	5,7
Market services	63,4	3,04	47,3
Nonmarket services	9,5	0,45	20,9
Total economy	100	4,8	100

Source: author`s calculations

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INTANGIBLE ASSETS CONTRIBUTION
BY INDUSTRIES OF RUSSIA IN 2010-2016, P.P.
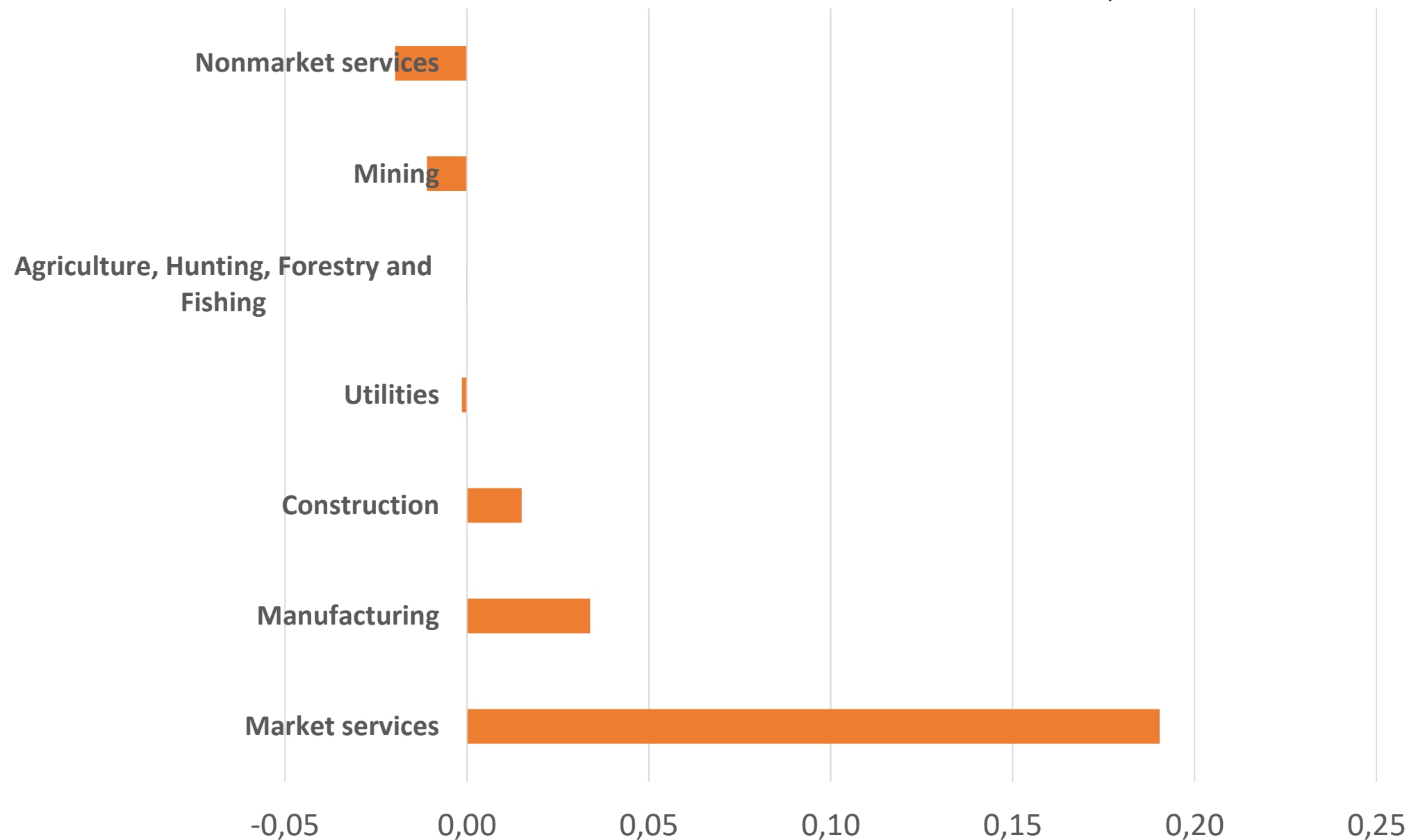
Source: author`s calculations

4. KEY QUESTIONS:

- **Contribution of intangible assets to the growth of manufacturing and market services in Russia**

- **Structure of the contribution of intangible assets in manufacturing and market services**

- **Comparison with the contribution of intangible assets to the growth of industry and market services in OECD countries**

5. LITERATURE REVIEW

1990s Technological revolution

Early views - evaluation of information and communication technology (ICT) capital and the omission of other intangibles

- Hall (2000), (2001)
- Brynjolfsson, E. et al (2000, 2002 etc)
- Basu, S. et al (2004 etc)
- Voskoboynikov, I. et al (2021)

Corrado, C., C. Hulten and D. Sichel (CHS) approach (2005): measured an expanded list of intangible assets at the aggregate level in the US economy

5. OUR CONTRIBUTION

- the number of evaluated intangible assets in Russia has been increased

- explored the possibilities of official statistics for measuring hard-to-measure assets

- used different approaches to determining the initial stocks, capital nominal rate of return

- creation cross-country comparisons with Russia economy

CONTRIBUTION OF INTANGIBLE ASSETS BY TYPE

Market Services	Share	Growth rate
R&D	0,04	-6,82
DesighnAdvMarRes	**0,16**	**8,47**
New FinProduct	0,08	7,02
Basic intangibles	0,01	12,15
Manufacturing		
R&D	**0,01**	**18,76**
DesighnAdvMarRes	0,11	1,80
New FinProduct	0,01	3,63
Basic intangibles	0,00	5,25

Source: author`s calculations

7. TAKEAWAYS:
INTANGIBLES IN RUSSIAN AND OECDs

Common	Differences
• R&D are important in manufacturing, and intangible assets not related to R&D are more important in the service sector	• In Russia the contribution of intangibles to average value added growth to be higher in market services than in manufacturing
	• In OECD countries intangible assets participate more evenly in services and manufacturing
	• The role of R&D in Russia is lower than in OECD economies

CONCLUSION

- There are some differences between Russia and the OECD countries In terms of contribution of intangibles to growth by industry.

- The contribution of intangibles to average value added growth to be higher in market services than in manufacturing in Russia.

- The common between Russia and the OECD is that R&D are important in manufacturing, and intangible assets not related to R&D are more important in the service sector.

- The main direction of future research is improving the statistical base.

METODOLOGY(EXTRA)

INDUSTRY GROUPS

N.	Using in work	OKVED code OK 029-2007 (NACE Rev. 1.1)
1.	Agriculture, Hunting, forestry and Fishing	A B
2.	Mining	C
3.	Utilities	E
4.	Manufacturing	D
5.	Construction	F
6.	Market services	G H I J
7.	Nonmarket services	L M N O

THANK YOU FOR ATTENTION

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