



Gas only? Accounting for Russia's economic growth

Sources of economic growth for the Russian economy in 1995-2009

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Sources of economic growth - conceptualization



“The Mourning of the First Five-Year Plan”, J. Romas,
 1930.

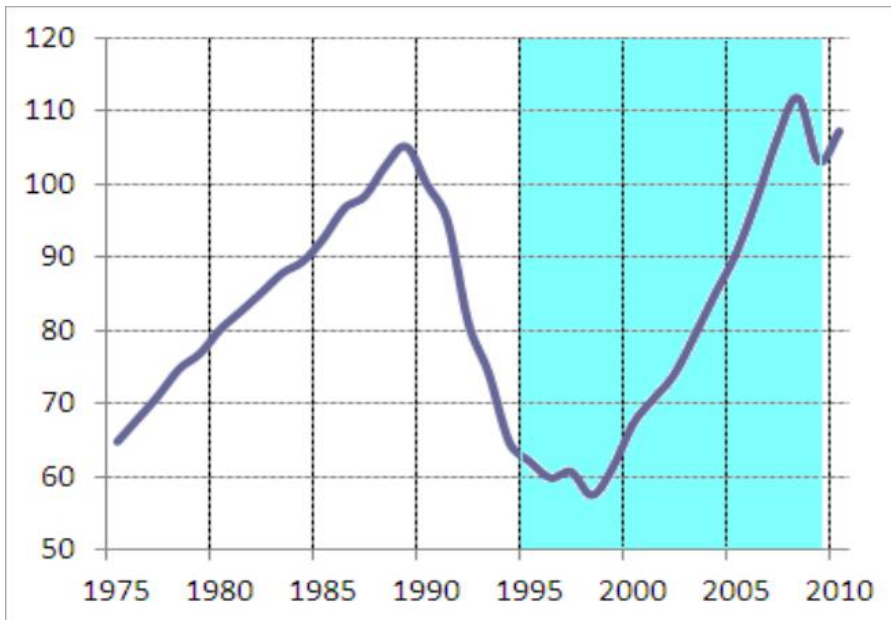


- Growth of inputs
 - *Extensive*
- Real costs of production per unit of output fall = Multifactor productivity growth
 - *Intensive*
- Decomposition of Growth into the Sum of Factor's Contribution and MFP
 - *Growth Accounting*



Debate: if Russian Growth is Extensive or Intensive?

GDP in 1975-2010; 1990 = 100



Sources: Ponomarenko 2002; Rosstat

Extensive (e.g. WB 2005)

- Depends on the level of Oil & Gas prices
- Fuelled by investments, which are financed by windfall profits
 - Substantial capital contribution is expected in Growth Accounting

Intensive (e.g. WB 2008)

- Multifactor Productivity is most important source of growth

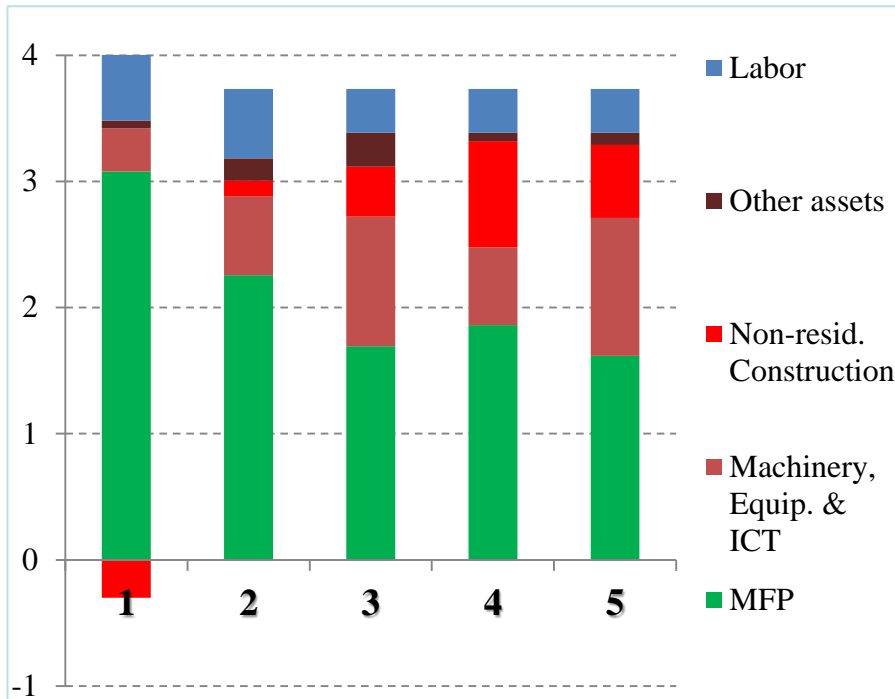
Motivation - to Solve the Debate with Better Data and Methods

- Industrial Growth Accounting – new for Russia



Aggregate Growth Accounting and Data Improvement

Contributions to VA growth rates in 1995-2009 (pp.)



Why does the growth accounting literature overlook capital contribution?

We document the influence of consequent data improvements on growth accounting.

1. Replication of the growth accounting literature:

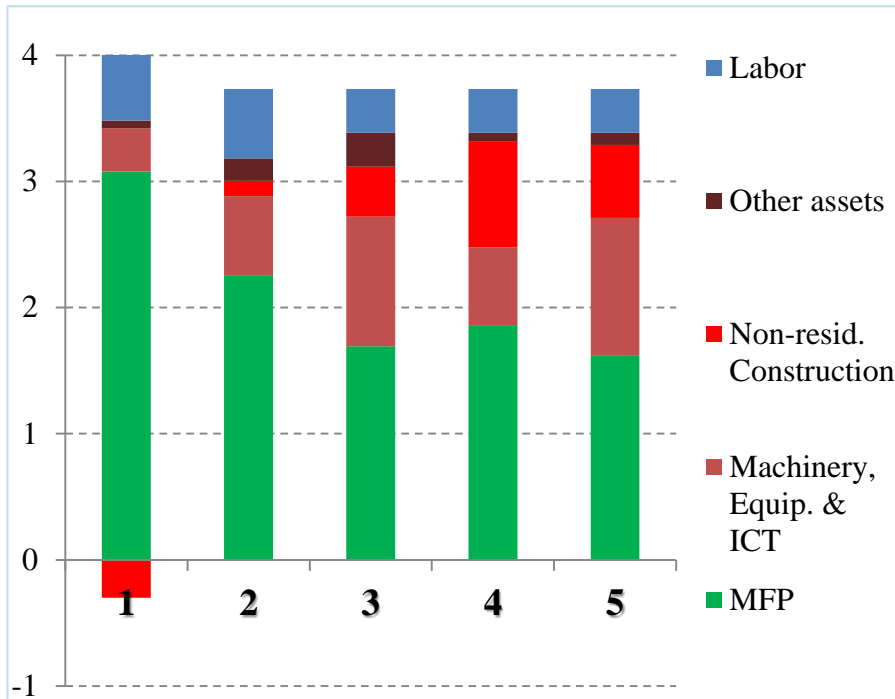
- fixed depreciation 5%;
- official investment price indices;
- fixed shares of factors
 - 0.3 – capital, 0.7 – labour

=> MFP contributes more than 3 of 3.7p.p.



Aggregate Growth Accounting and Data Improvement

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Why does the growth accounting literature overlook capital contribution?

2. Improvements of investment deflators:

- official investment deflators overestimate inflation (Bessonov, Voskoboynikov 2008)
- the alternative is the official PPI in Construction
 - differs by types of assets
 - does not suffer from the investment deflator biases;

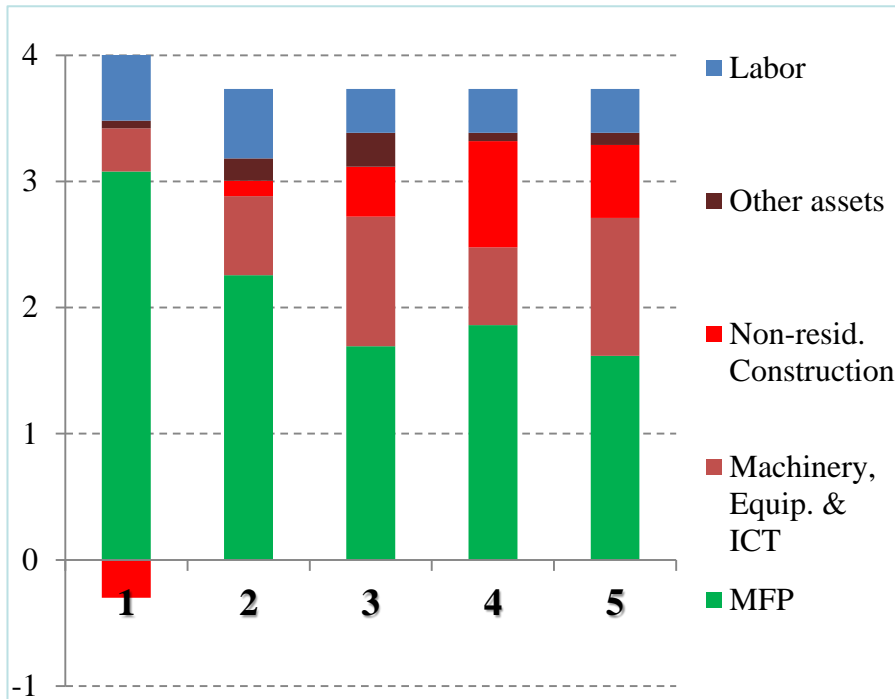
⇒ **MFP contribution falls to 2.3 p.p.**

⇒ **Capital contrib. increases to 0.9 p.p.**



Aggregate Growth Accounting and Data Improvement

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Why does the growth accounting literature overlook capital contribution?

3. More accurate shares of factors:

- Instead of fixed shares we use more accurate measures of shares of factors, which vary
 - across industries and in time
 - On the average the contribution of labour falls from 0.7 to 0.54

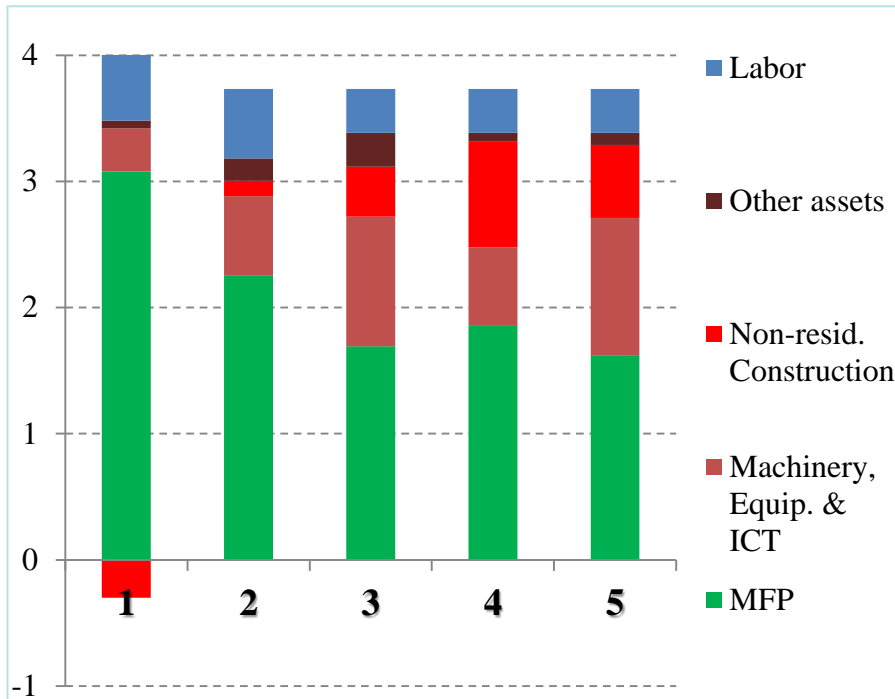
⇒ **MFP contribution falls to 1.7 p.p.**

⇒ **Capital contrib. increases to 1.7 p.p.**



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Why does the growth accounting literature overlook capital contribution?

4. More accurate depreciations:

- Instead of fixed depreciations we use data from (Fraumeni 1997)
 - varies across industries and in time
 - for buildings dep. falls from 0.5 to 0.3
 - for mach. Equipm. Dep. goes up from 0.5 to 0.12.

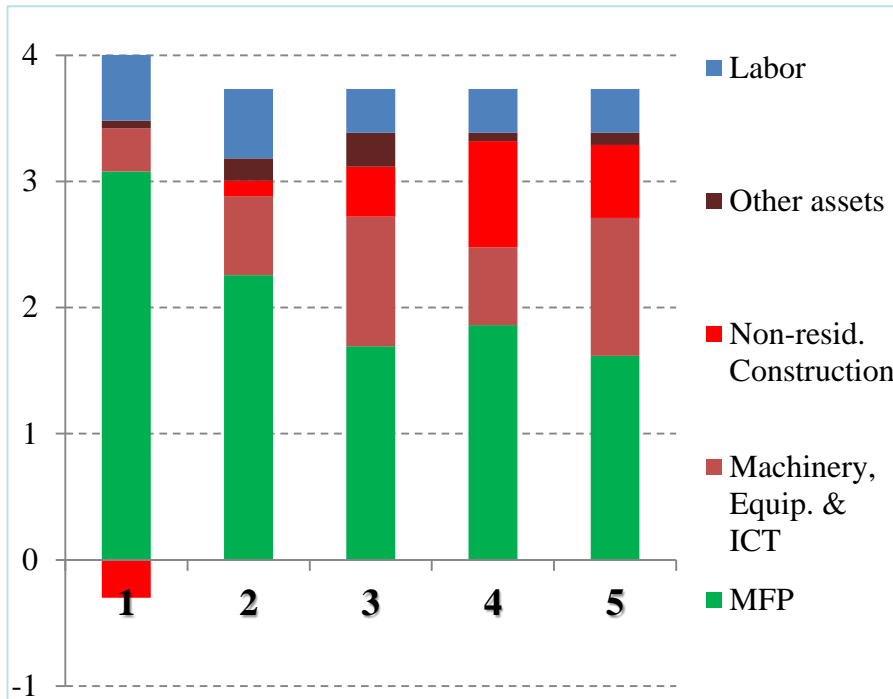
⇒ **MFP contribution increases to 1.9 p.p.**

⇒ **Capital contrib. falls to 1.5 p.p.**



Aggregate Growth Accounting and Data Improvement

Contributions to VA growth rates in 1995-2009 (pp.)



Why does the growth accounting literature overlook capital contribution?

5. Capital services instead of stocks:

- Weights of capital growth rates by types of assets depend on depreciation, interest rates and investment deflators
 - The role of short-living assets (Machinery and Eq. and ICT) has increased.

⇒ **MFP contribution falls to 1.6 p.p.**

⇒ **Capital contrib. increases to 1.8 p.p.**

Being better measured, capital as much important for growth as MFP.





Sectoral Structure and Sources of Growth

Sectors and industries (NACE 1.0)

- Skills are important for adaptation of new technologies/MFP growth rates
 - Taxonomy of (O'Machoney and van Ark 2003)
- Gas includes *Fuel, Mining and Wholesale Trade* because of non-market reallocation of value added among them (World Bank 2005)
 - Transfer pricing
 - Vertical integration
- Non-market economy is skipped
 - Hard to measure productivity

MARKET ECONOMY

Goods

High Skills-Intensive

Chemicals
Other Machin.
Electr. Equip.

Low Skills-Intensive

Agriculture
Food & Bev.
Textiles
Metal
Transp. Equip.

...

Services

High Skills-Intensive

Fin. Intermed.
Air trnsp.
Rent&Bus. Serv.

Low Skills-Intensive

Utilities
Construction
Retail Trade
Inland transport
Post & Telecom

...

Gas

Fuel
Mining
Wholesale trade





Sectoral Structure and Sources of Growth/Capital

1. LS-Int. Serv. & Gas contribute most to aggregate capital growth

Contribution to total capital gr. rates in 1995-2009 (pp)

	1995-2009
M. Economy	1.77
HS-Int. Gds	0.00
LS-Int. Gds	0.14
HS-Int. Srv.	0.14
LS Int. Srv.	0.82
Gas	0.67

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Sectoral Structure and Sources of Growth/MFP

2. HS-Int. Services contribute most to aggregate MFP growth

Contribution to total capital gr. rates in 1995-2009 (pp)

	1995-2009
M. Economy	1.62
HS-Int. Gds	0.12
LS-Int. Gds	0.38
HS-Int. Srv.	0.86
LS Int. Srv.	0.22
Gas	0.05

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Sectoral Structure and Sources of Growth/MFP

3. Gas is least productive and...

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	1995-2009
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HS-Int. Gds	0.12
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Sectoral Structure and Sources of Growth/MFP

3...expanding which slowdowns aggregate MFP growth.

Value added shares in 1995-2009 (%)

	1995	2009
M. Economy	100.0	100.0
HS-Int. Gds	4.2	3.5
LS-Int. Gds	25.6	17.0
HS-Int. Srv.	6.4	15.4
LS Int. Srv.	40.5	37.4
Gas	23.4	26.8

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Conclusion: what is Russian growth about?



Economic growth in Russia in 1995-2009 is driven by

- Capital in Gas & Low Skills-intensive Services
- MFP in High Skills Intensive Services
- Gas slowdowns aggregate MFP growth



Thank you for your attention

Data issues covered in this presentation are presented in detail in :

Voskoboynikov, Ilya B. 2012. "New Measures of Output, Labor and Capital in Industries of the Russian Economy." GGDC Research Memorandum GD-123 (by August 10, 2012 is available by request).

