

# Discovering the signs of Dutch disease in Russia

Mironov, Petronevich  
2013

National Research University – Higher School of Economics  
Institute Development Center  
Paris School of Economics, Paris 1 Panthéon-Sorbonne

# Briefly

This paper is aimed to detect signs of Dutch Disease in Russia, i.e. to find out whether excessive oil revenues undermine the incentive to develop the manufacturing sector of the economy.

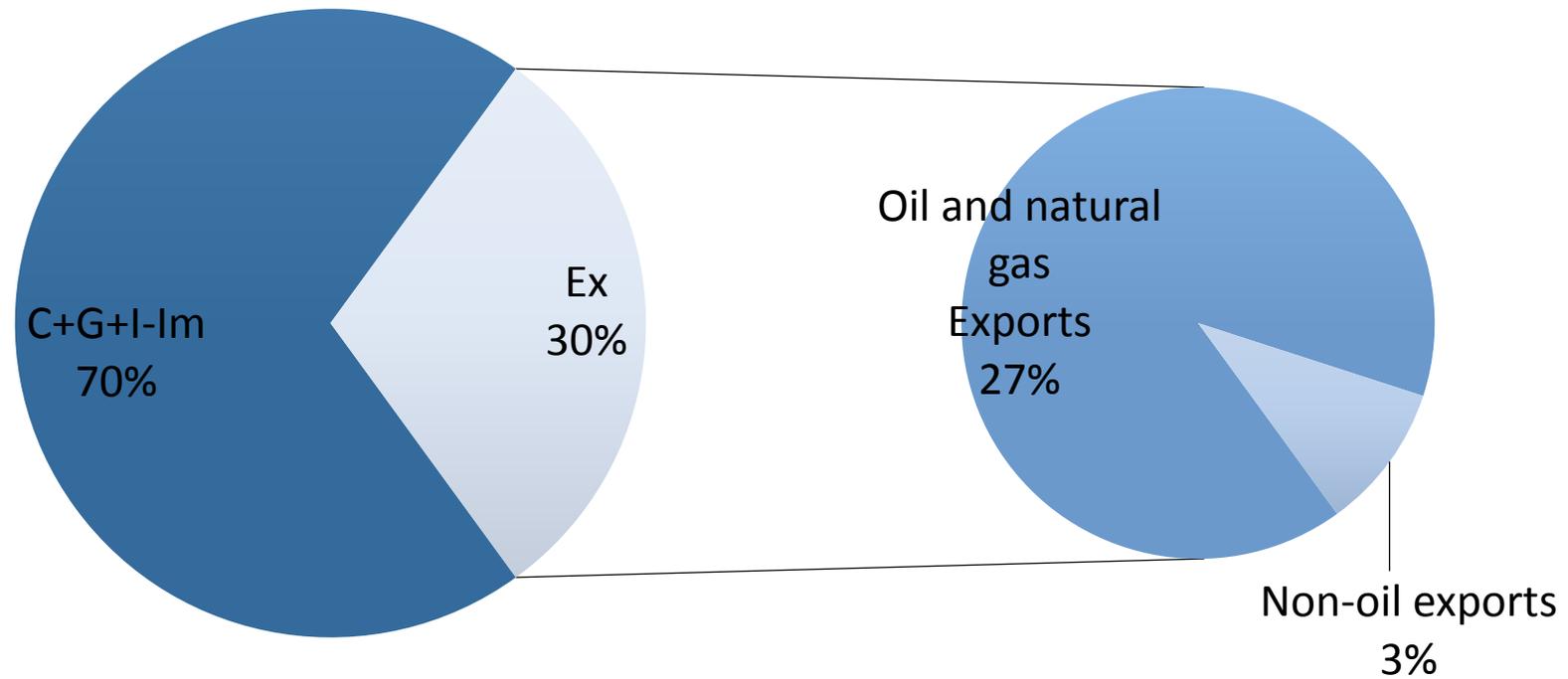
We examine the economy from the point of view of the possible symptoms of Dutch Disease and confirm that it is present, and has become more visible recently.

Having determined the true reason for the underdevelopment in manufacturing, we formulate the recommendations for the policy

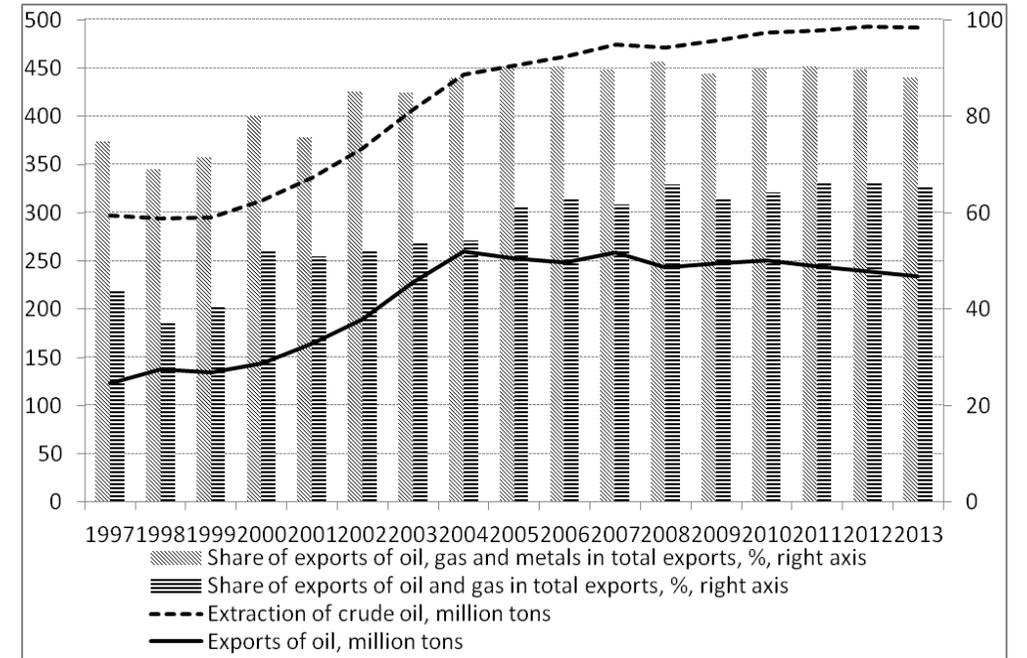
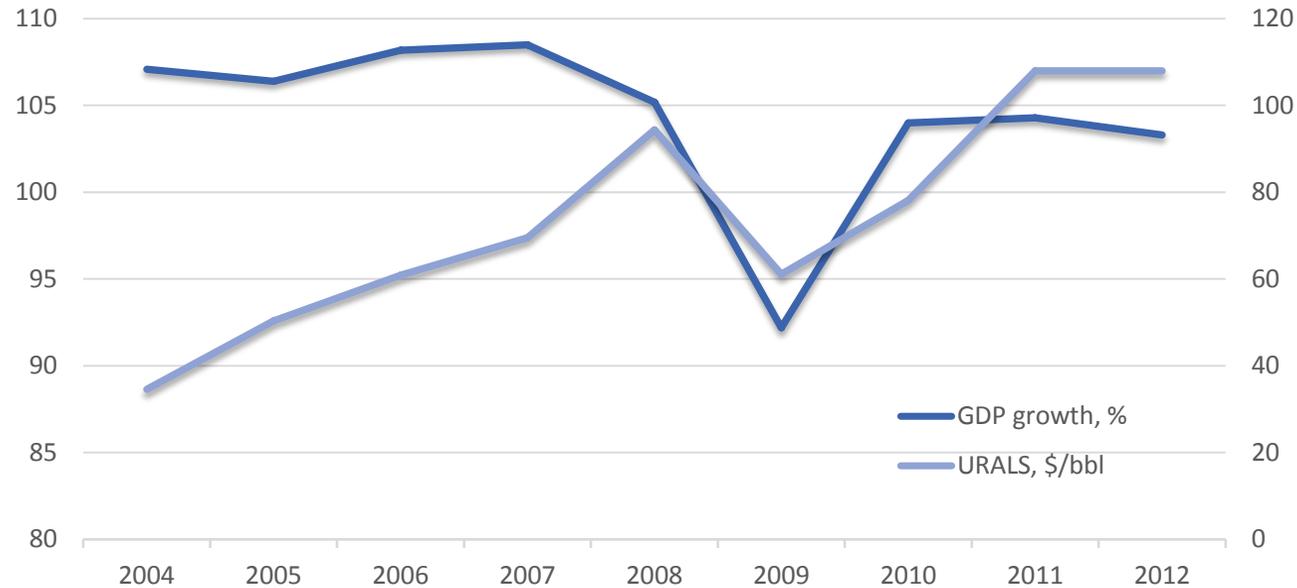
# Outline

- 1) Motivation
- 2) The core model of the study
- 3) Comparison of the theoretical results to the data
- 4) Conclusions

# Motivation: GDP structure



# Motivation: some other figures



And: budget became oil-dependent – 50% in 2012 vs 30% in 2004

# Motivation

Is this the reason why the manufacturing sector is underdeveloped in Russia?

**Resource curse:** on average, resource-rich economies exhibit lower rates of growth than those of nations that are poorly endowed or without resources. Reasons:

- appreciation of the national currency exchange rate (Dutch disease);
- corruption;
- excessive debts;
- fluctuations of incomes;
- Etc

# Dutch Disease

## **Exchange rate:**

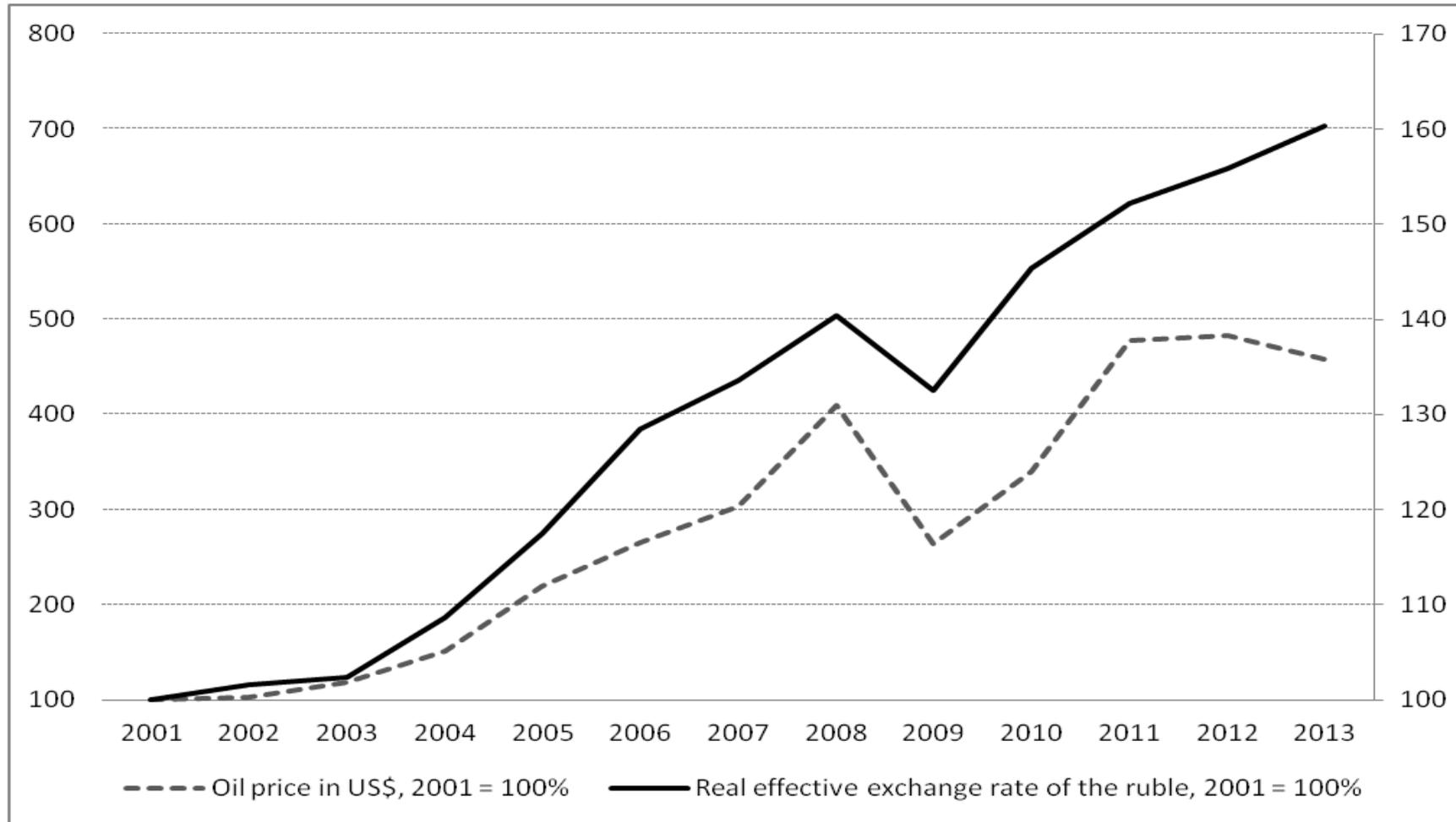
- High export prices/ volumes lead to a substantial appreciation of the real effective exchange rate of national currency.
- This real appreciation of national currency, in turn, renders national non-primary goods uncompetitive and leads to an outflow of resources from manufacturing.

## **Expenditure:**

- An increase in revenues causes higher expenditures of both tradables and non-tradables.
- Non-tradable goods can not be imported, so they consume more resources
- Tradable goods are imported, so manufacturing decays

Export revenues, inflow of loans, foreign aid and fiscal expansion financing the populism of the government or a rapid increase in military expenditures

# Real effective exchange rate of ruble



# What problems does Dutch Disease bring?

A decline in the share of manufacturing decelerates economic growth in the long run, because the manufacturing sector is the home of economic innovation and a buttress against internal and external economic shock.

In order to develop the right treatment, it is necessary to determine the actual cause of the problem.

Ho: Russia is sick with Dutch Disease

H1: Russia is sick with something else

- a decline in the price/quality competitiveness of national producers,
- or the weakness of institutions.

There is no consensus in the literature

# Model: [Corden, Neary, 1982]

2 sectors of tradable goods: manufacture, energy (raw material)

1 sector of non-tradable good: services

Only two factors: labor and capital

Prices depend on supply and demand on the local market

No monetary vars

No government

Flexible labor market (no unemployment)

Raw material price boom

Real foreign exchange rate is the ratio of prices for non-tradable to tradable goods

## **Variants of the model:**

- Different degree of mobility of factors
- Different degree of relative labor/capital intensiveness

# Our specification

- Complete mobility of labor
- Partly limited inter-sector mobility of capital
- Capital intensity: highest in energy, less in services, the least in manufacturing

Booming sector – oil extraction

Lagging sector – manufacturing

Non-lagging sector - services

# 2 effects of the oil price boom

## 1. Resource movement effect

- L moves to the energy sector
- manufacturing is crowded out by services- de-industrialization
- Decline in price of services – depreciation of the REER
- Rise in wages

## 2. Expenditure effect

- Rise in demand for everything,
- prices for services rise -> REER appreciates, manufacturing is crowded-out again, decline in wages

Which effect prevails? Probably the second: labor is mobile, but it rarely actually moves

# The consequences of Dutch disease (in general)

- 1) real appreciation of the ruble
- 2) de-industrialization of the economy
- 3) transformation of labor market, as real wages remain neutral or (more likely) tend to decline. The rising share of employment in the prosperous mining sector is matched by an outflow of personnel from the manufacturing and service sectors;
- 4) heterogeneous returns on capital in different sectors. Returns on capital can rise only in or in all sectors with manufacturing in the lead (should the impact of the “resource movement effect” be limited).

Does the empirics fit the results of the model?

# 1) Appreciation of the REER

Cointegration model

$$\text{REER} = \log(\text{URL}) + \log(\text{URL} * \text{Q}) + \text{Log}(\text{EXPG}) + \text{Log}(\text{ZVR}) + \text{dummy 1998} + \text{dummy 2009}$$

REER – Real effective Exchange rate

URL - price for Urals oil

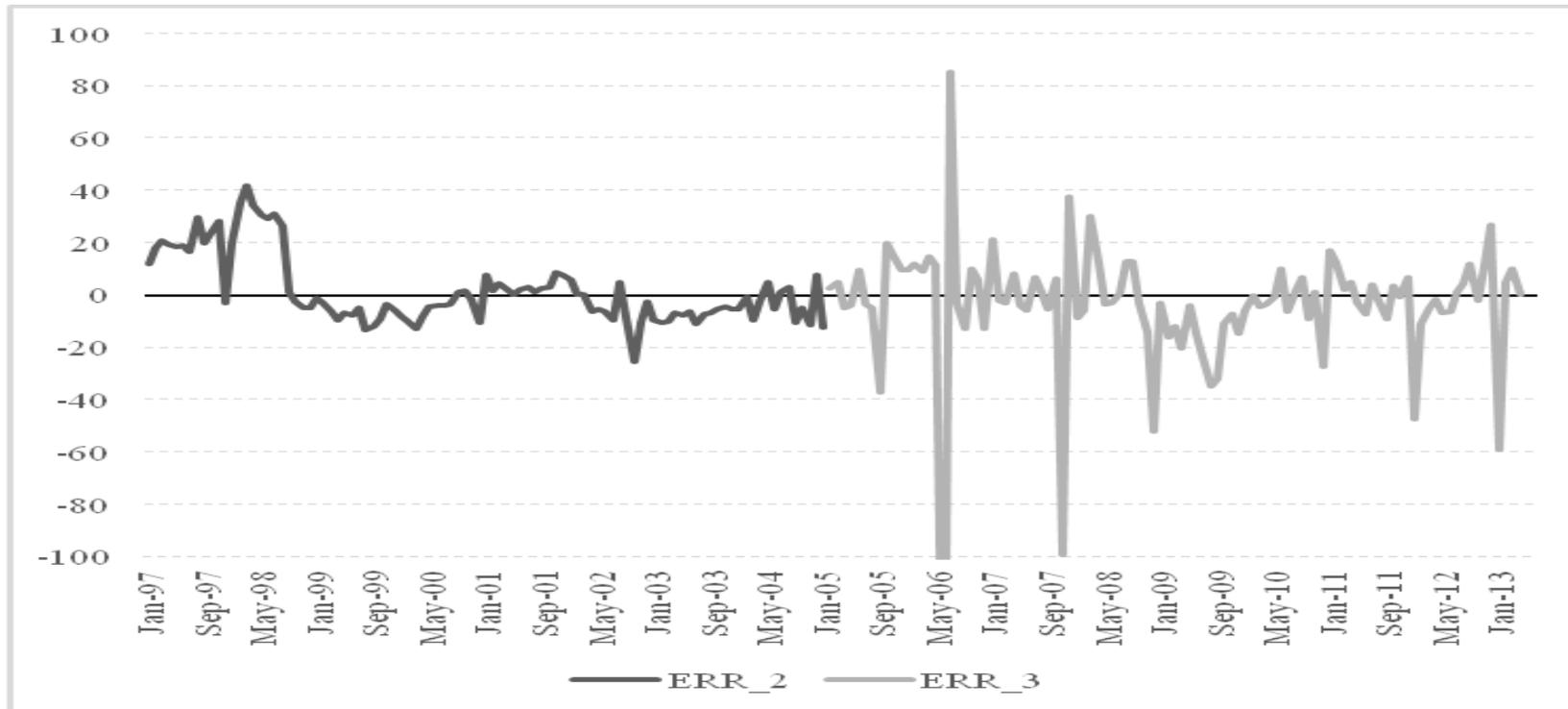
Q – quantity of oil exported

EXPG – government expenditures

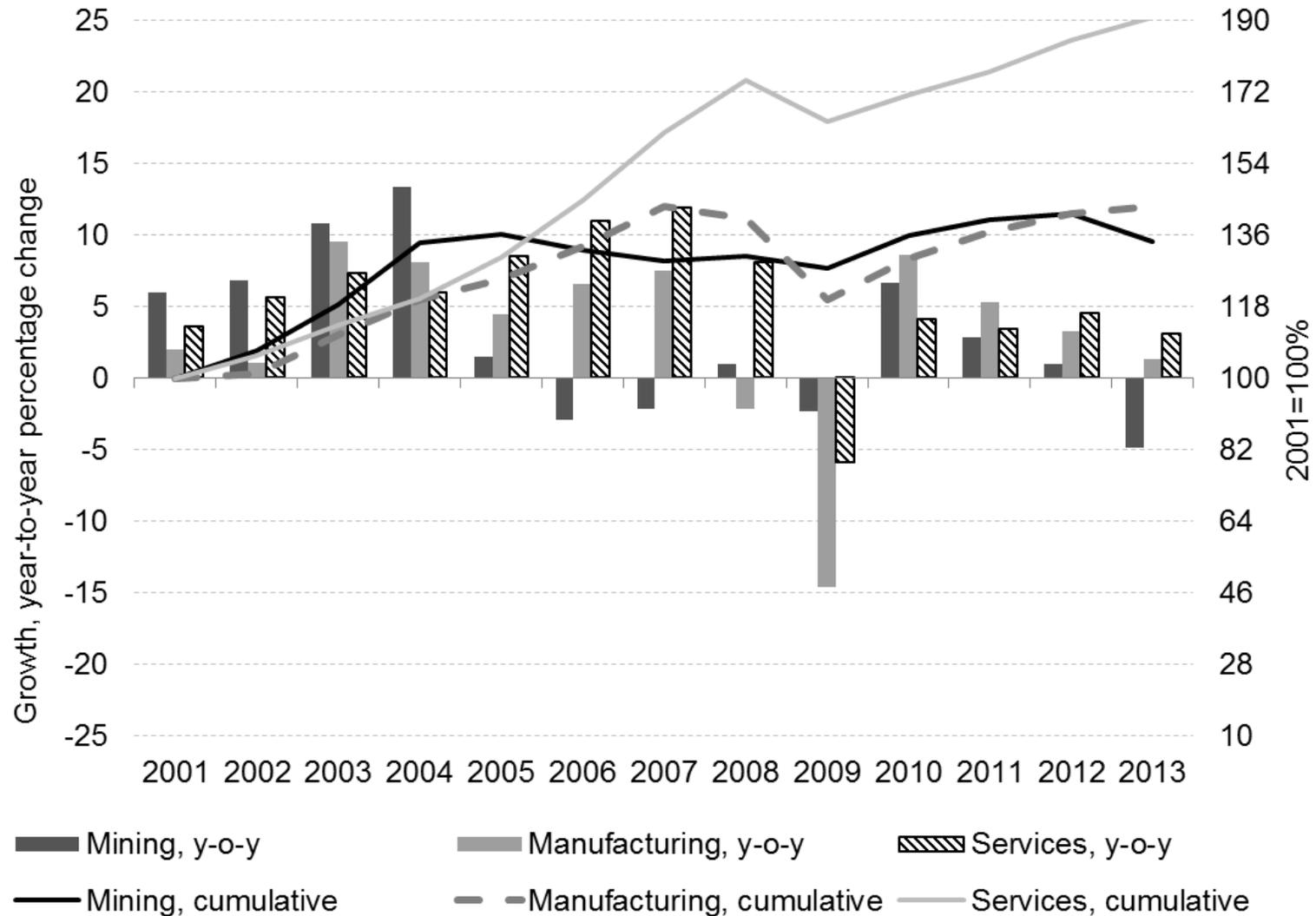
ZVR – Central Bank reserves

	Model (1)	Model (2)	Model (3)
First observation	January 1997	May 1997	February 2005
Second observation	April 2013	January 2005	April 2013
Number of observations	192	93	99
Log(URL)	0.2139		0.2424
t-statistics	2.0806		1.8227
Log(URL*Q)		0.1724	
t-statistics		3.1947	
Log(EXPG)	1.1254	0.6896	1.4664
t-statistics	20.2964	3.5597	9.4792
Log(ZVR)	0.0048	-0.0249	-0.2646
t-statistics	0.0996	0.8227	-2.0461
D1(-1)	-0.1720	-0.2358	
t-statistics	2.0656	2.8518	
D2(-1)	-0.2504		-0.1382
t-statistics	4.0228		-2.1104
Loglikelihood	1603.748	414.3264	4313.704
Akaike information criterion	-15.7207	-7.7059	-85.3274
Schwartz information criterion	-13.5516	-6.1809	-82.9682

- for all models, the elasticity of REER by the oil price is non-zero, positive and statistically significant; thus one cannot reject the null on the presence of Dutch disease in Russia.
- What's interesting is the deviation from the “equilibrium”: no signs of over-appreciation



## 2) de-industrialization of the economy



# The shift towards the service sector is obvious, but why mining doesn't expand?

- 1) In fact, part of mining is accounted as services (transport, finance)

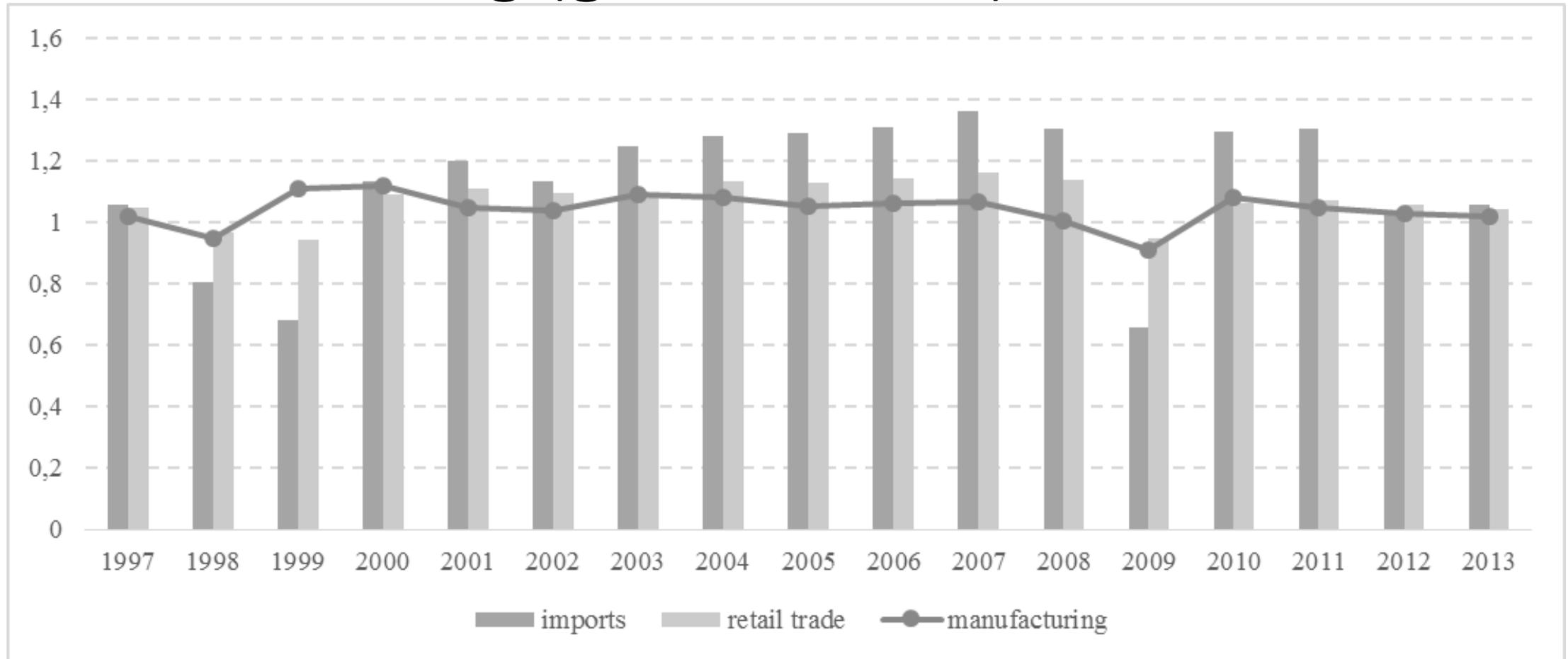
In 2003-2004, mining and drilling increased in physical terms by 30.1%, while wholesale and retail trade grew by 112%, transportation and communication - by 54%

- 2) Foreign Russian economy

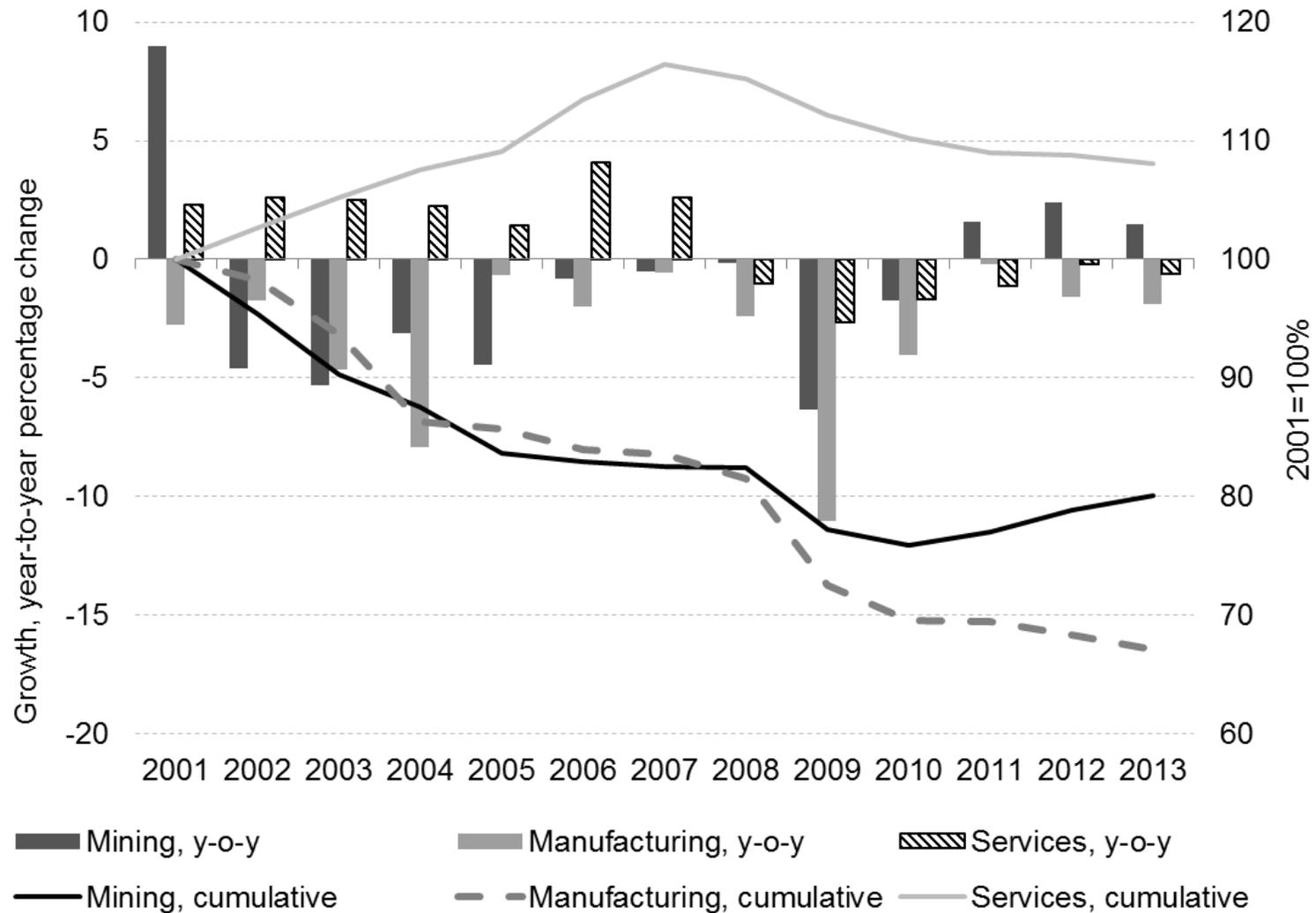
in 2012 the outflow of investment – 2.5% GDP

- 3) Natural limits
- 4) Transformation from the “Soviet disease”

# De-industrialization: imports substitute manufacturing (growth rates)

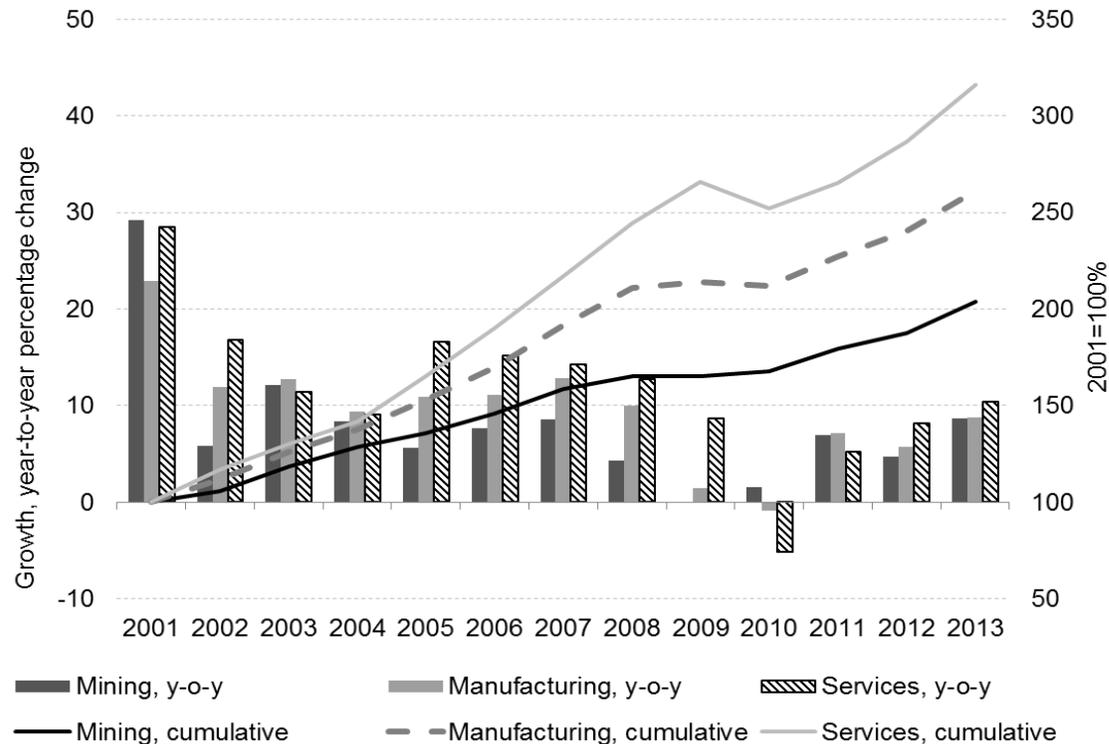


# 3) Transformation of the labor market



# Transformation of the labor market: wages

The dynamics of real wages do not follow the predictions of the model [Corden, Neary, 1982]. Instead of moderate or zero growth, in the period from 2001 to 2013, real wages in the sectors under our consideration increased twice or threefold, and led to a sharp rise in unit labor costs. Furthermore, the highest rates of increase of both wage and unit labor costs were observed not in mining (as the model expected), but in the service sector.



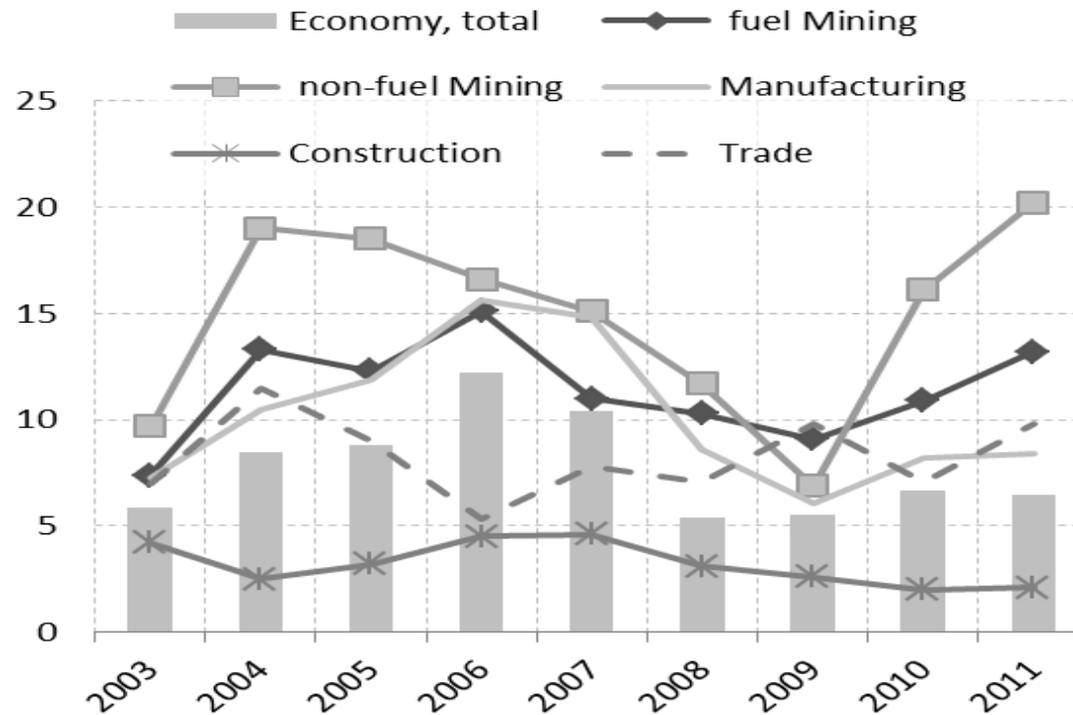
- 1) wages include oil revenues
- 2) Soviet disease
- 3) grey schemes

Russia is the leader in terms of ULC growth

The productivity is hard to augment due to the demographic and structural problems

## 4) Returns on capital

the mining of non-fuel minerals, occupies an advantageous position in the Russian economy



# Conclusions

Although the form may not be precisely that predicted by the theoretical model, the trends of observed indicators may follow theory, after consideration of the peculiarities of Russian statistical compilation, political life, fiscal conditions and investment climate.

The evidence of Dutch disease are much more evident after the crisis 2008: the Soviet disease transforms into Dutch disease

# Further directions of study

High ULC and slow dynamics is a threat of a long period of stagnation.  
What would be the impact of the following:

- Inflation targeting – to lower the cost of loans
- Diversification of the economy
- Get rid of other problems of the “resource curse”: corruption, better institutional quality

Switch to inflation targeting is an interesting issue to study