

Fostering Industrial Innovation: Russian Evidence

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Motivations and Objectives

- In recent years the Russian innovation policy has made a significant progress, its 'tool kit' has been strongly developed, however there are no noticeable positive changes in innovation at macroeconomic level
- A lot of 'experiments' in the Russian innovation policy have been carried out, but the learning process is very weak. Budget constrains make it necessary to select the most effective instruments for further development
- There is a lack of studies focusing on microeconomic analysis of the impact of various government incentives on Russian companies' innovation activities

The main purpose is to consider key instruments of Russian innovation policy and their impact on companies in the post-crisis period

Main Issues

- I. Increase in productivity of Russian companies in the post-crisis period – mainly due to innovation or not ?
- II. Role of the government support for industrial innovation in Russia – significant or not ?
- III. Beneficiaries of the public support for innovation : main features
- IV. Tax incentives and public financing: impact on companies' innovation
- V. Problems of implementation of Russian innovation policy instruments

Empirical Data

2 questionnaire surveys of top managers of Russian industrial companies

2011 - 602 companies; 2012 - 652 companies

	Percentage of companies, %	
	2011	2012
Age of company		
less than 5 years	9,0	10,7
5-10 years	18,6	18,3
10-20 years	24,6	25,3
over 20 years	47,8	45,7
Industry		
extraction of crude petroleum and natural gas	6,5	6,7
manufacture of food products, including beverages	16,7	15,6
manufacture of textiles and textile products	13,1	13,8
manufacture of wood, wood products, pulp, paper and paper products	13,3	11,3
manufacture of chemicals and chemical products	11,0	10,3
manufacture of rubber and plastic products	7,6	6,7
manufacture of other non-metallic mineral products	-	6,7
manufacture of basic metals	8,1	7,5
manufacture of machinery and equipment	9,1	8,0
manufacture of electrical machinery and equipment	6,6	6,1
manufacture of transport equipment	8,0	7,1

	Percentage of companies, %	
	2011	2012
Number of employees		
up to 250 people	35,8	49,8
251-500 people	28,1	18,6
501-1000 people	18,8	15,8
over 1000 people	17,3	15,8
Ownership		
participation of foreign owners	21,4	18,9
of which more than 10%	15,3	13,8
participation of government and/or municipalities	11,1	10,7
Exporting		
to the former Soviet Union (FSU) countries	49,8	48,2
to other countries	29,5	28,2
Financial condition		
poor	14,5	11,0
satisfactory	65,7	65,2
good	19,8	23,3

Productivity Growth and Innovations: Initial Proposition

1. In general, companies' innovation activities have a positive influence on their performance
2. The imitation model of innovations is of big importance for technologically underdeveloped companies in Russia
3. Mukoyama, 2002 – learning from imitation is important
4. Mckinsey Global Institute, 2009 – adoption of technologies can significantly improve productivity of Russian companies
5. Giannangeli, Gomez-Salvador, 2008 – European firms are highly heterogeneous in terms of their productivity both among different industries and within the same industry
6. Bessonov et al, 2009 – a lack of 'jobs circulation' is the major obstacle for reducing the difference in the level of performance of Russian companies
7. Simachev, Kuzyk, 2012 – during the crisis, the opportunities of companies to cut jobs were restricted (mainly due to the pressure of Russian authorities)

Proposition *Most Russian companies, which recently have increased their productivity, do innovate actively. The growth of the performance of companies is connected with their investments in new equipment.*

Growth of Companies' Productivity: Two Different Models

20% companies in the panel increased their productivity in 2011-2012



	11% - innovative	9% - without innovation activities	
'Age' of company	++ less than 5 years		+++ / - - - significant at 1% level
Size (number of employees)	++ up to 250 people		
Technological level		+ low	++ / - - significant at 5% level
Competition		- with domestic firms	
Exporting	++ exporters	-- exporters	+ / - significant at 10% level

Innovative group: young small exporting companies; they are often characterized by growth of revenues and investment in fixed assets

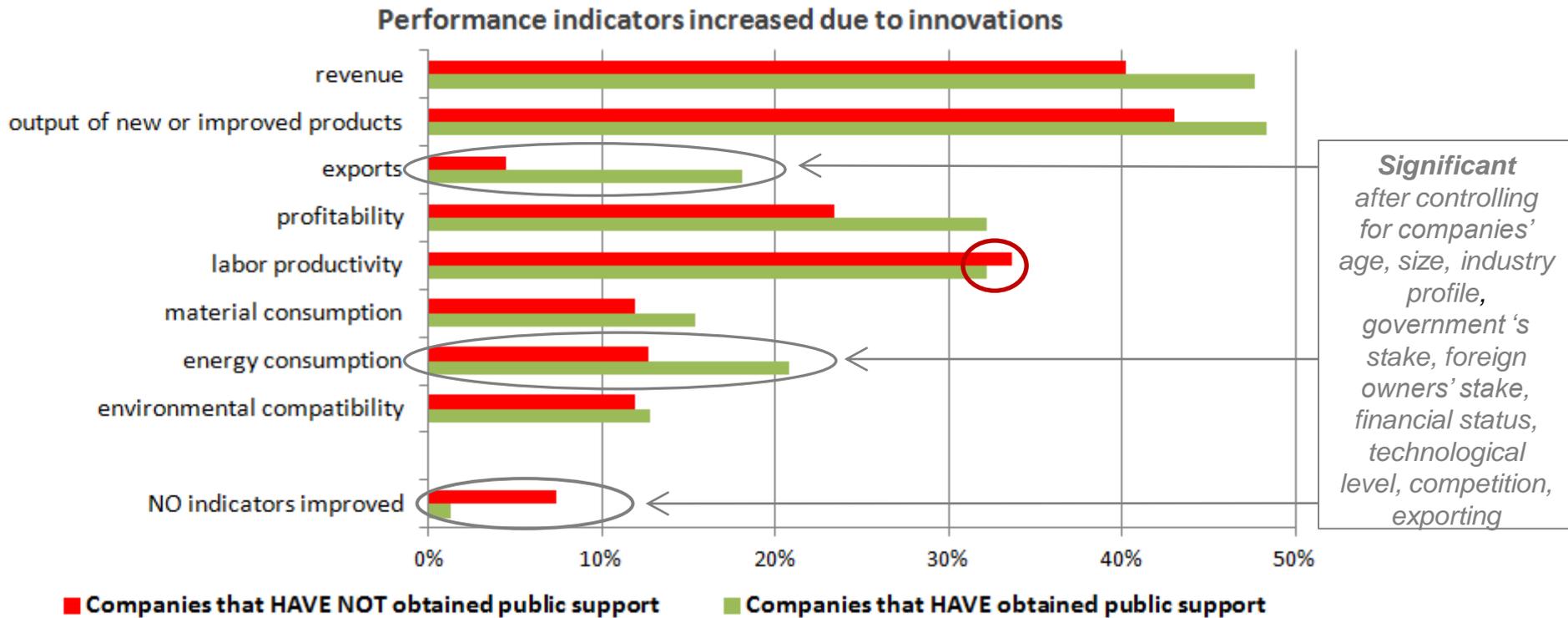
Non-innovative group: technologically underdeveloped firms without exports, that often have reduced their staffs

Value of Public Support for Innovation: Proposition

1. OECD, 2011; Goldberg et al, 2011 – public support for innovations can be fruitful for companies, but it also can cause significant distortions and imbalances
2. Frye, 2002 – receiving public support has its costs and risks, so successful companies could prefer to innovate without getting support
3. David, Hall, Toole, 2000 – there is a risk of rent-seeking behavior of companies being supported by the government
4. Under conditions of information asymmetry the government faces difficulties in assessing the effectiveness of incentives and has to focus on the most transparent and observable indicators, such as new production or exports

Proposition Companies innovating without public support are more successful in improving their efficiency (productivity, profitability, etc.). Public support for innovation contributes mainly to increasing basic 'direct' indicators of companies' performance (revenue, production, exports).

Public Support for Innovation: Is There a New Quality?



Getting public support generally contributes to improving companies' performance (first of all, their exports and energy consumption), but it does not really affect labour productivity.

Beneficiaries of Public Support for Innovation: Proposition

1. Fier, Heneric, 2005; Aschhoff, 2010 – there is a positive relationship between the size of companies and their chances to get public support
2. Garika, Monhen, 2010 – significant proportion of large companies among recipients of public support shows tendency of the government to avoid risks
3. Large companies innovate more often, so focus on supporting large firms provides a pseudo-positive result, which is important for reporting
4. Simachev et al, 2010 – concentration of employment in large and strategic Russian enterprises forces the government to pay more attention to them
5. Giving support to state-owned companies makes it easier for the government to control its use and provides additional opportunities for solving public problems

Proposition Public support for innovation is more often given to: (1) large companies, (2) companies where the government is a shareholder

Beneficiaries of Public Support for Innovation: Empirical Observations

	any kind of public support	tax incentives	public funding
'Age' of company	+++ less than 5 years	++ less than 5 years -- over 20 years	
Size (number of employees)	-- 101-250 people		+ over 1000 people
Shareholders	- government	- government	
Technological level	- low		
Financial status	--- pour + good	-- pour ++ good	+++ good
Competition		++ no with foreign firms	++ tough with foreign firms
Key customers			+ government
Exporting	--- no +++ to far abroad countries	--- no +++ to far abroad countries	+ to far abroad countries

- We have not detected a significant shift of innovation policy in whole towards big companies (it is characteristic only of public funding), but there is a certain 'gap' in supporting medium-sized firms
- There is a negative relation between being supported and having the government among shareholders
- Getting public support for innovation is more typical of companies in good financial condition and exporters to far abroad countries, and less characteristic of technologically underdeveloped firms and companies without exports
- Public support for innovation is more often given to relatively 'young' firms
- Distinctive features of public funding are that its beneficiaries are more likely to be in fierce competition with foreign firms and/or have the state as one of the main customers

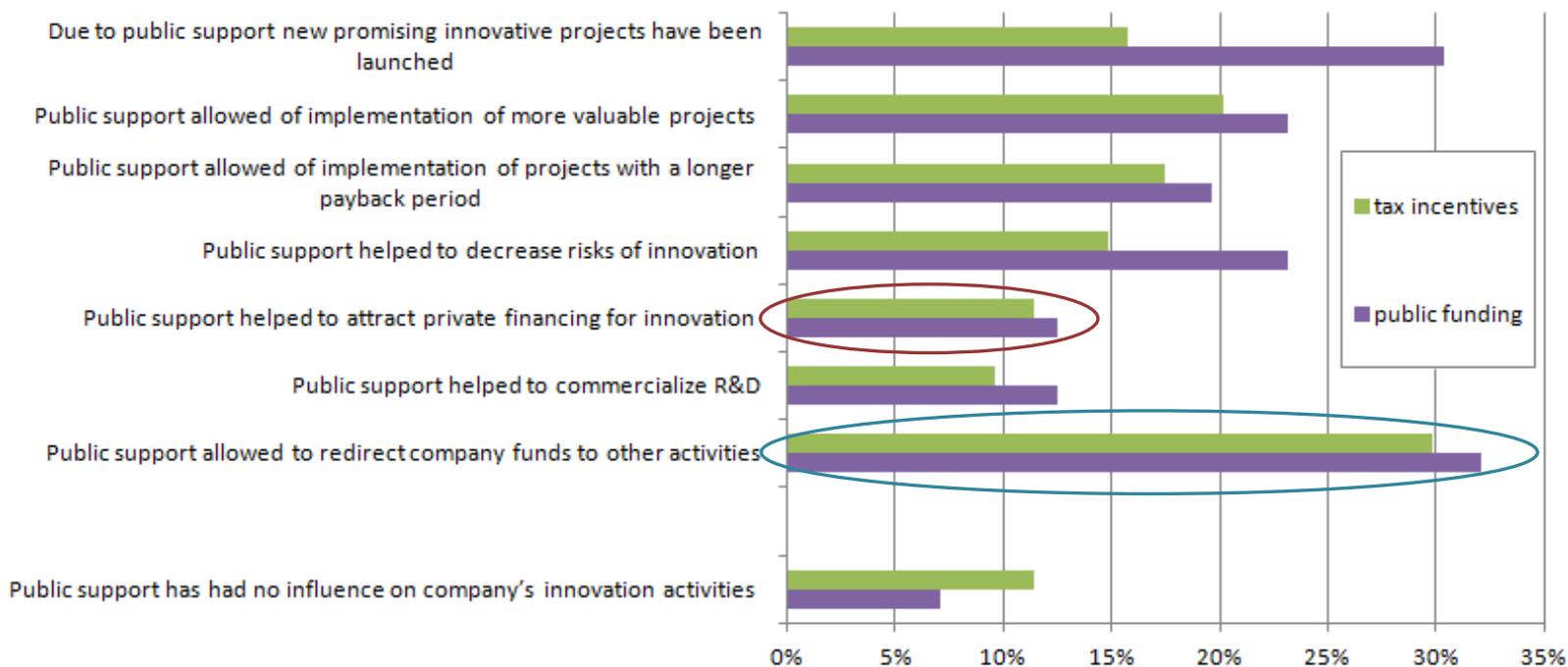
Influence of Tax Incentives and Public Funding Instruments on Companies' Innovations: Proposition

1. Guellec, Van Pottlesberghe, 2003; Jaumotte, Pain, 2005 – state subsidies have more prolonged effects than tax incentives which primarily stimulate investment in existing projects
2. Berube, Mohnen, 2007 – beneficiaries of financial support more often innovate internationally and succeed in the commercialization than companies that benefit from tax incentives only
3. Klette et al, 2000; Wallsten, 2000; Lach, 2002 – as a result of public support private financing can be substituted by state subsidies
4. David, Hall, Toole, 2000 – in order to demonstrate high efficiency of public financing, authorities prefer to support reliable projects that would have been implemented without any external assistance

Proposition: As compared with tax incentives public financing is more conducive to a decrease of risks and launch of new projects, but it also more often leads to crowding out private financing

Effects of Tax Incentives and Public Financing on companies innovation

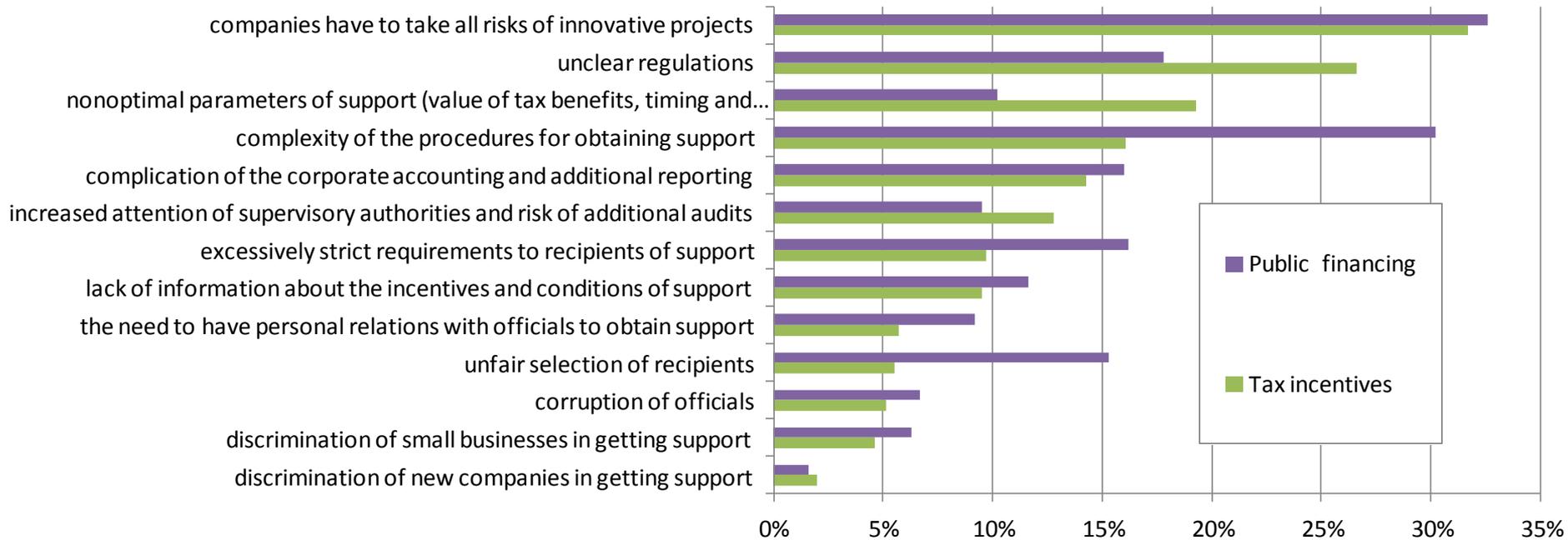
Changes in companies' innovation activities due to public support



The most common effect of public support consists in redirecting of some funds to other lines of companies' development, while rising finance from private investors is among the rarest results – in case of public funding it could be considered as a sign of the crowding out effect

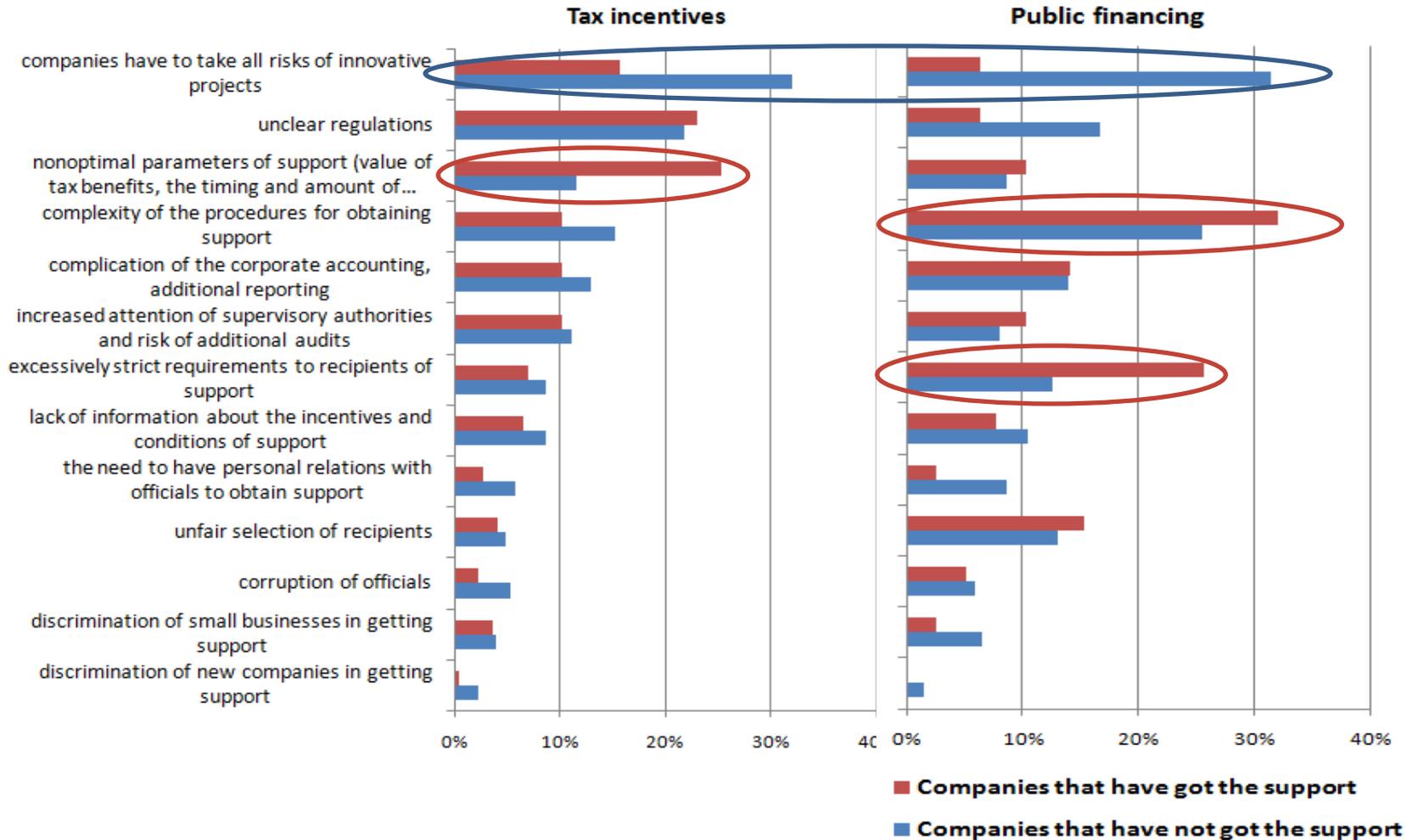
Additional analysis shows that public funding is more likely to lead to launch of new innovative projects, whereas tax incentives are more conducive to innovations with a longer payback period

Disadvantages and Problems of the Innovation Policy Instruments



- The key problem for both kinds of instruments is that there is a lack of risk sharing
- The problems of unclear regulations and non-optimal support parameters are more typical of tax incentives, whereas the problems of procedures' complexity and excessively strict requirements are more substantial for public financing
- In general, more significant problems are typical of direct public funding

'Theoretical' and 'Practical' Views of the Problems



Assessments of problems differ significantly depending on whether the companies have got the support or not.

In general, the 'theorists' are excessively pessimistic, especially in their assessment of insufficient risk sharing.

Those that received the support, pay more attention to several specific problems, such as non-optimal parameters of tax incentives, too complex procedures of getting public financing, excessively strict requirements to its recipients

Results and Discussion (1)

- 1. Growth of productivity of Russian companies is determined not only by innovation. A common way for non-innovative companies to improve their productivity is downsizing**
- 2. Public support for innovation does not influence significantly productivity growth**
 - time lag between obtaining a support and its effects (Lopez-Acevedo, Tan, 2010)**
 - informal constraints on ability of Russian companies (especially the largest ones) to reduce the staff**
- 3. Beneficiaries of public support are more likely to be successful companies, as well as relatively new firms**
- 4. Public funding to some extent replaces private investment, but it often leads to starting new projects. Tax incentives tend to increase duration of projects**

Results and Discussion (2)

- **Instruments of public support for innovation are quite various – details are of great importance**
- **It is necessary to assess results both at macro and micro level**
- **In-depth interviews are important**
- **More attention should be paid to evaluation and adjustment of innovation policy instruments**
- **Innovation policy is not enough for boosting innovation – creating pro-business environment is of vital importance**