

Cluster's innovation development through the territory of the regions.

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Introduction

We could defined the following factors influenced on innovation growth on the territory of regional clusters:

1. The globalization of value chains across many locations is a sign the embeddedness of these individual activities in strongly specialized local clusters. (Ketels,& Memedovic, 2008);
2. Cluster are more likely to emerge, prosper, and survive where these conditions support high productivity and innovation. (Report of European comission, 2013);
3. The cluster are seen as an instrument to improve national and regional competitiveness, it can force economic development, promote the cooperation between enterprises, universities, R&D institutions, clients and competitors, suppliers within the same geographical area. (Dan, 2012);
4. The conceptual goals of cluster-based city economic development consist of: enhancing the competitiveness of the cities (the government as facilitator); enhancing the competitiveness of industry clusters (private sector-driven); triggering local economic development tthrough public and private sector collaboration. (Chloe, & Roberts, 2011)
5. The subregional clustering of related activities, has the potential, if suitably encouraged, to generate stronger social networks between businesses, which would promote successful innovation and competitive advantage. (Gordon, & McCann, 2012)
6. Clusters often involve a mix of manufacturing and services, and combine industries in different parts of traditional industrial classification systems. (Porter, 2007)

Methodology

The authors have constructed following models of relations on innovation cluster's territory pointed out Table 1:

1) the changes of the effective index Y (the share of innovation product sales proceeds in the total volume of revenue) is provided by the influence of the factor X (the share of the government investments to the reconstruction and modernization of fixed assets in the total volume of investments);

2) the changes of the effective index conditional average Y (the share of sold innovation products in the total volume of revenue) and the factorial index X (the share of R&D organizations in the total quantity of enterprises);

To determine the relationships between the values under consideration let us introduce the concept of the sample empirical correlation moment and find out sample correlation coefficient based on the results from Table 2.

Table 1.

X	Y	x_i^2	y_i^2	$(x - x_y)^2$	$(y - \bar{y})^2$
x	y	x^2	y^2		
...		
x_i	y_i	x_i^2	y_i^2		
$\sum x_i$	$\sum y_i$	$\sum x_i^2$	$\sum y_i^2$	$\sum (x - x_y)^2$	$\sum (y - \bar{y})^2$

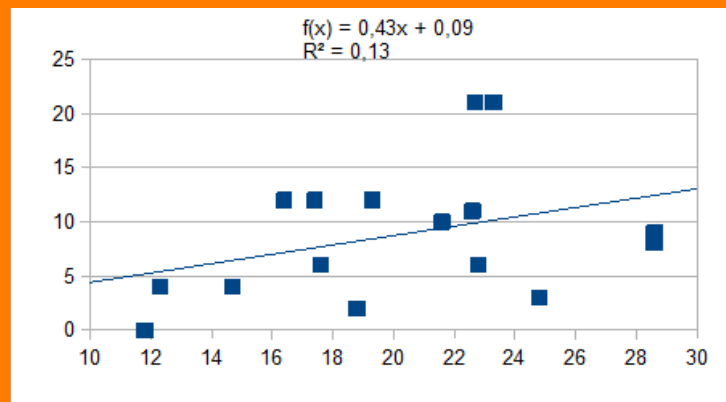
Results

The regression analysis given by the author and shown in Figure 1 was to evaluate functional relationship of the effective index conditional average (the share of innovation product sales proceeds in the total volume of revenue) and the factorial index (the share of the government investments to the reconstruction and modernization of fixed assets in the total volume of investments) on the territory of innovation clusters:

$$f(x)=0.43x+0,09$$

$$R^2=0.13$$

Figure 1. The Government Investments to the Reconstruction, Modernization and Volume of Innovation Products produced on the innovation cluster's territories in the Russian Federation.



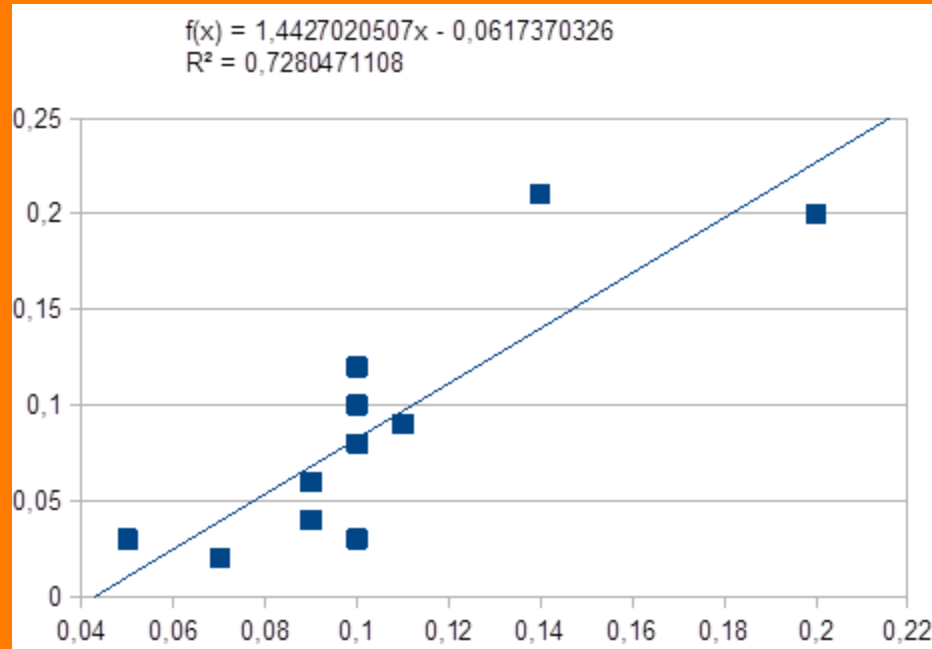
x- the share of the government investments to the reconstruction and modernization of fixed assets in the total volume of investments, percent;

y- the share of innovation product sales proceeds in the total volume of revenue, percent.

Source: Author's work

Results

Figure 2. R&D Organizations and Volume of Innovation Products produced on the innovation cluster's territories in Russian Federation.



x- the share of R&D organizations in the total quantity of enterprises, shares of units;
y- the share of sold innovation products in the total volume of revenue, shares of units.
Source: Author's work.

Implications for policy/Practice

Table 2. The types of innovation clusters on the territory of the Russian Federation in 2014.(Source: The Official Federal Government site of cluster's statistics data in Russian Federation, 2014)

Name of the federal department	The name of the region	The sector of economics
1. Siberian Federal district	- Altay - Kemerovo - Krasnoyarsk - Novosibirsk - Tomsk	-biopharmaceutics - to processing of coal, technogenic waste - innovation technology - information technology - information technology
2. North-west Federal district	- S. Peterburg - Lenin's region - Archangelsk's region	- information technology - radiation technology - shipbuilding
3. Ural Federal district	- Sverdlovsk region	- titanium production
4. Central Federal district	- Moscow city - Kaluga region	- new materials, nuclear technologies - pharmaceutics
5. Volga-region Federal district	- Novgorod region - Novgorod region - Perm region - Bashkortostan Republic - Tatarstan Republic - Samara region - Uliynovsk region - Uliynovsk region	- car structure - petrochemistry - rocket engines - petrochemistry - petrochemistry - space cluster - science and educational - radiation technology
6. Far East Federal district	Chabarovsk region	- shipbuilding icCSBs

Implications for policy/Practice

Table 3. The total volume of budget investments of the Russian Federation within the period of 2008-2015.

Volume of investments, billion rubles	2008	2009	2010	2011	2012	2013	2014	2015
1. Budget investments	1404,7	1324,1	1294,9	1622,0	1721,9	1916,3	1761,3	1699,4
1.1 Federal budget	537,9	691,8	661,9	855,1	926,6	1009,9	933,6	1000,3
1.2 Subject's budget	759,5	552,8	542,8	665,7	677,0	753,3	676,6	577,9
1.3 Local bugjet					109,3	153,1	151,2	121,2
1.4 others	23,7	16,2	21	18,2	33,3	27,9	24,0	26,8

(Sourth:The Official Federal Government site of cluster's statistics data in Russian Federation, 2015).

Conclusion

The paper deals with innovation activities of enterprises and organizations located on the territory of various federal districts: Northwestern, Siberian, Volga - region, Central and Ural Districts. The peculiar feature of all these clusters is that their activities are inspired by state investments directed to reconstruction and upgrading of capital assets as the share of cumulative i' activities is the enlargement of innovation produce share in the total volume of producenvestment in fixed-capital assets. The outcome of such state stimulation of enterprisesd and shipped goods, works done and services rendered. We considered the given key figures on the abovementioned cluster territories apart from the Arkhangelsk Region and the Perm Territory. The linear regression model of selected parameters was preconditioned by nothing else but 13%. In the given case, pure 13 % change of innovation produce share is conditioned by the enlargement of the investments share allocated to reconstruction and upgrading in the total volume of investments. From the one hand, it confirms that active stimulation of economic entities' activities on the territory of clusters not always gives positive effects. From the other hand, the given model proves permanent increase of innovation produce share in the total volume of goods, works and services. So, if the share of investments in reconstruction and upgrade in the total volume of investments is not increased but the share of innovation produce is increased by 9%, it definitely shows positive effect. The given work says that clusters are capable of producing innovation activities using other (not financial) growth factors, that is, intellectual potential (capital) formed on the abovementioned territories. Therefore, in the subsequent periods one can expect the strengthening of innovation activities of clusters on the territory of the above federal districts.

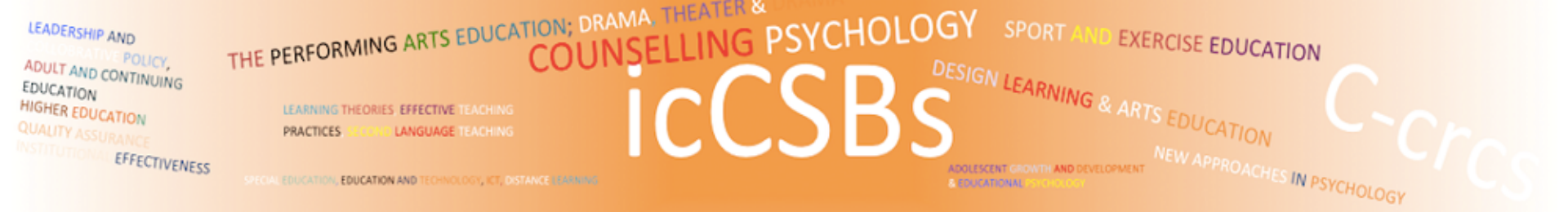
Conclusion

The model shown in Figure 2 confirms the expediency of government expenses on the activity of R&D organizations on the territory of Russian Federation. The growth rate of expenses on R&D activity is about 10 percent pointed in Table 4.

Table 4. The Government Expenses on the activity of R&D organizations on the territory of Russian Federation within the period of 2008-2014.

Indicator	2008	2009	2010	2011	2012	2013	2014
1. The total volume of expenses on science activity, billion rubles	411	461	489	568	655	700	795
1.1 including R&D, billion rubles	254	271	302	348	418	451	510
1.2 including fundamental (basic) researches, billion rubles	77	97	96	107	108	115	130

(Source: The Official Federal Government site of cluster's statistics data in the Russian Federation, 2014).



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