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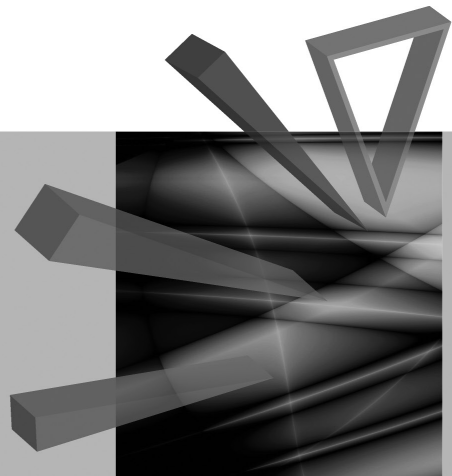
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THE ENTERPRISE FINANCIAL SOURCES AND EXPENDITURE FOR INNOVATION: CASE OF POLISH REGIONS

Abstract: The analysis and interpretation of public statistics data, focused on particular interdependencies between the level of enterprise expenditure on innovation activities and their financing sources, should be based on logical sequence of the underlying discussion. The course of its development depends, to a great extent, on becoming acquainted with adequate terminology and rules regarding data collection, as well as their attributes, and should be accompanied by the selection of an adequate research method, since without these activities the presentation of correct conclusions is not possible. Such order is followed by the hereby paper the conclusion of which indicates that the size of expenditure incurred by enterprises on innovation implementation in Polish regions depends on financial possibilities of companies and more precisely on their own funds.

Keywords: innovation activities, expenditure and means for innovation processes.

1. Introduction

The implementation of new or significantly improved solutions depends on many activities (scientific, technical, organizational, financial and commercial), however, among all of them particular attention is paid to these which refer to collecting adequate means for innovation processes. The undertaken operations and choices in this matter can rank enterprises from different regions depending on the size of expenditure incurred on innovation activities. This hypothesis verification forms the core subject matter of the hereby discussion which, in its logical sequence, is subject to the achievement of two goals. The first of them refers to the explanation of terminology used in public statistics and its rules underlying data collection regarding enterprise expenditure on innovation activities and their financing sources. The second goal refers to the identification of interdependencies between the size of enterprise expenditure on innovation activities and the categories of means financing these activities in Polish regions.

2. Expenditure on enterprise innovation activities and their financing sources

– Central Statistical Office (CSO) statistics

Proper understanding and correct analysis of information regarding enterprise expenditure on innovation activities, as well as their financing sources, is related to the knowledge of terms and concepts used by public statistics. Its terminology (CSO solutions) clearly defines expenditure on innovation activities which cover the following¹:

- research and development activities (internal, carried out in an enterprise and external, related to R&D purchasing),
- the already existing technology purchase in the form of documents and rights (the period of 2006–2007), or knowledge purchase from external sources (the period of 2008–2011),
- software,
- investments in fixed assets (buildings and property, objects of civil and water resources engineering, as well as land (1, 2, 0 Fixed Assets Classification (FAC) groups); technical machines and technical equipment, means of transport, tools, instruments, movables and equipment (3–8 FAC groups), including imported ones,
- personnel trainings directly related to the implementation of product or process oriented innovation,
- marketing related to launching new or significantly improved products,
- the remaining activities referring to launching innovative products and/or processes.

The transparency of the above terminology should be supplemented by clearly identified (defined, specified) financing sources of new or significantly improved solutions. Among them the following means are listed: *own funds*, *public means* (including *means received from the state budget*), *obtained from foreign sources (non-repayable)*, *originating from venture capital funds*, credit resources (*bank credits*) and others, not listed above (*other means*). Unfortunately these terms do not have colloquial, generally accepted meanings and this gap is not fully covered by the positions and the assigned explanatory notes in reporting forms about innovations in industry and service sector (respectively PNT-02 and PNT-02u). Based on information and explanations presented there the following conclusions can be drawn²:

¹ See: Reports on innovation in industry sector PNT-02 [*Sprawozdanie o innowacjach w przemyśle 2004–2006, 2007, 2006–2008, 2009, 2008–2010, 2009–2011*] and in services PNT-02u [*Sprawozdanie o innowacjach w sektorze usług 2004–2006, 2006–2008, 2009, 2008–2010, 2009–2011*].

² PNT-02, *Sprawozdanie o innowacjach w przemyśle za lata 2009–2011*, p. 2, *Objaśnienia do formularza PNT-02*, p. 5, <http://form.stat.gov.pl/formularze/2012/passive/PNT-02.pdf>.

- *means obtained from foreign sources (non-repayable)* cover the capital (means) obtained from foreign units and centres, including the European Union and the Operational Programme Innovative Economy for innovation processes financing, excluding funds from repayable loans, unless these loans meet particular conditions defined in adequate agreements allowing for their cancellation, and also non-repayable financial assistance from their foreign parent companies;
- venture capital funds (VC) are a type of *private equity* and invest their means in enterprises at early stages of their functioning as the form of seed capital aimed at either company start-up or its expansion; *private equity* is defined as “investments at the non-public capital market aimed at obtaining revenues by means of medium and long-term profits from capital value growth;”³
- bank credits refer to monetary means provided by both domestic and foreign banking units focused on innovation activities financing;
- public financial support for innovative activities, including R&D, covers land, funds, subsidies, tax reliefs, preferential credits, credit guarantees, etc., however, they must not be related to any activities performed exclusively for the public sector.

The means owned or received from the state budget are not defined. The latter have a terminological dimension which is clear and does not raise any doubts. The situation is different in case of owned means which can be analysed in terms of own internal or external financing type. As far as internal financing is concerned, they potentially refer to retained profit, depreciation and property structural transformation (sale of unnecessary assets), while external financing type refers to payments made for the benefit of private equity, stable increase of shareholders or stockholders number, obtaining surplus from the selling price of shares or capital company stocks over its face value and also refers to venture capital funds. These funds are presented in a separate reporting row of PNT-02 and PNT-02u reports, but does the sum of the remaining own financing components (internal or external) co-create the category of own funds? A missing answer to this question is not the only disadvantage of reporting on innovation. Outlays on innovations, with the underlying financing sources, refer only to innovations implemented in products and processes⁴. Additionally, enterprises can present data as estimations (if adequate records are missing) which refer to successfully completed projects (i.e. innovation implementation), interrupted, abandoned and unfinished ones till

³ PNT-02, *Sprawozdanie o innowacjach w przemyśle za lata 2009–2011*, p. 2, Objasnienia do formularza PNT-02, p. 5, <http://form.stat.gov.pl/formularze/2012/passive/PNT-02.pdf>.

⁴ See: PNT-02, *Sprawozdanie o innowacjach w przemyśle za lata 2009–2011*, <http://form.stat.gov.pl/formularze/2012/passive/PNT-02.pdf>, s. 2; PNT-02/u, *Sprawozdanie o innowacjach w sektorze usług za lata 2009–2011*, <http://form.stat.gov.pl/formularze/2012/passive/PNT-02u.pdf>, s. 2.

the end of a particular year⁵. In consequence the sphere of public statistics interest is deprived of expenditure means for financing organization and marketing oriented innovation and the reported data do not always report the actual size of expenditure as well as their total amount cannot be associated exclusively with implemented innovations. It is also worth emphasizing that these analyses are not carried out in industrial and service enterprises which employ fewer than 10 workers [*Program badań...* 2010, pp. 218, 225; GUS 2008, p. 5, 2010, p. 8, 2011, p. 15, 2012, p. 15].

The compiled definitions, explanations and information are supplemented by the logic nature of PNT-02 and PNT02u reports construction. Their content clearly shows that *private equity received from the state budget, obtained from foreign sources (non-repayable), originating from venture capital funds, credit resources*, as well as these referred to as other means equal general (total) outlays on innovation activities and therefore define the sum of means allocated to innovation processes. This transparency is missing in the generally available statistical materials. In the resources provided by local data bank (LDB; Bank Danych Lokalnych – BDL) innovation financing sources are identified as own funds, budgetary means, obtained from foreign sources and bank credits, while the category of other means covering innovation activity costs, is not used.

To sum up the discussion of terminological and methodological nature, it is worth remembering that the constructed analytical compilations and the interpretations put forward on their basis refer to entities and data collected about them in the form defined by the solutions of public statistics.

3. Expenditure on enterprise innovation activities vs. their financing sources – cross-section analysis of Polish regions

The expenditure on enterprise innovation activities and own funds, budgetary means, means obtained from foreign sources and credits covering these activities are described in Local Data Bank by means of values marked as letter “B”⁶, which means that certain phenomena, associated with specific attributes, have occurred and their size was defined without any methodological alterations comparing to previous years. This information constitutes the basis for correct data interpretation and therefore opens possibilities for positioning enterprises

⁵ See: *Objaśnienia do formularza PNT-02 za lata 2009–2011*, <http://form.stat.gov.pl/formularze/2012/passive/PNT-02.pdf>, s. 3; *Objaśnienia do formularza PNT-02/u za lata 2009–2011*, <http://form.stat.gov.pl/formularze/2012/passive/PNT-02u.pdf>, s. 3.

⁶ Except zero values which were assigned:
– “#” symbol informing that a particular data is subject to statistical confidentiality and cannot be made publicly available,
– letter “A” which communicates that this phenomenon was analysed in a given reporting year, however, it did not occur.

from different regions based on aggregated (added) values from several periods which eliminate the uncertainty element. In this perspective it is worth noticing that in the period of 2006–2011 (Table 1)⁷:

1. The value of budgetary means aimed at supporting innovation activities of production and service enterprises was not high enough to position particular regions based on general outlays on innovation processes. The resulting discrepancies are natural, but the occurring compliance is surprising, especially in the environment of the wealthiest voivodships. Among them Mazowieckie can be listed, which reported the highest outlays on innovation activities carried out by production and service enterprises and, at the same time, attracted the most of innovation oriented budgetary resources. Similar privileges were true for Śląskie as the runner up in the ranking of total outlays on innovation in industry and services, and also the service sector of Pomorskie voivodship (3rd position), as well as the industrial one of Wielkopolskie (4th position). The leaders of the ranking undermine the aid nature of budgetary means as well as their role in equalizing regional development disproportions.

2. It is difficult to indicate clearly any substantial correlation between the value of obtained foreign means, to be invested in innovation processes, and the level of expenditure on these activities. It is true that there are regions in which this relation did occur (e.g. industrial and service enterprises in Mazowieckie and Śląskie voivodships), however, there were also regions which clearly contradict such interdependence (e.g. industrial enterprises in the following voivodships: Dolnośląskie, Lubelskie and Podkarpackie). These rankings, on the one hand, seem to confirm that applying for foreign non-repayable aid means is justified but, on the other, point to alternative opportunities for innovation processes financing in enterprise sector.

3. Minor differences were present in the majority of regions ranking with reference to the size of credits obtained for enterprise innovation activities and total expenditure on such processes, which proves certain correlation of these values, however, not significant enough to consider bank funds as crucial in the structure of financing sources responsible for enterprise innovation activity.

4. The ordering of regions followed almost entirely the largest to the smallest amount of private equity allocated to innovation processes and the total expenditure on these activities, which confirms the strategic role of funds owned by enterprises while constructing their budgets focused on both the development and implementation of innovation.

⁷ The conclusions referring to service sector do not cover data for 2007 since the underlying analyses, regarding expenditure on innovation activities, were not conducted in that year in relation to these entities and their financing sources.

Table 1. Expenditure on enterprises innovation activities and their financing sources in the cross-section of Polish regions in the period covering 2006–2011 (thousands PLN, positions)

Sector	Voivodship	Total expenditure		Budgetary means		Foreign means		Bank credits		Own funds	
		value*	position**	value	position	value	position	value	position	value	position
Industry	Dolnośląskie	9 514 377	3	42 471	11	286 255	7	1 290 291	6	7 430 601	3
	Kujawsko-pomorskie	6 087 132	8	109 555	7	493 428	3	831 140	8	4 453 395	7
	Lubelskie	3 339 701	10	117 469	6	146 725	11	398 123	12	2 644 966	10
	Lubuskie	1 601 270	15	17 728	15	85 083	15	383 078	13	1 077 665	15
	Łódzkie	9 114 933	5	66 336	9	179 990	10	2 119 811	3	5 675 084	5
	Małopolskie	7 170 946	6	105 876	8	230 534	8	873 569	7	5 607 082	6
	Mazowieckie	28 039 728	1	261 463	1	1 227 372	1	1 823 100	4	23 749 071	1
	Opolskie	2 005 826	13	12 911	16	84 618	16	422 188	11	1 354 852	13
	Podkarpackie	5 909 200	9	194 304	2	367 982	5	714 613	9	4 396 487	8
	Podlaskie	1 732 210	14	31 436	13	89 376	14	292 716	16	1 247 117	14
	Pomorskie	6 686 049	7	45 856	10	302 721	6	2 829 630	1	3 361 633	9
	Śląskie	24 969 868	2	176 941	3	599 979	2	2 296 862	2	20 244 742	2
	Świętokrzyskie	2 149 801	12	137 176	5	145 712	12	370 958	14	1 355 946	12
	Warmińsko-mazurskie	1 505 500	16	33 948	12	91 535	13	364 020	15	977 047	16
Wielkopolskie	9 469 220	4	150 206	4	473 630	4	1 727 070	5	6 531 827	4	
Zachodniopomorskie	2 411 236	11	18 566	14	219 316	9	431 517	10	1 506 663	11	
Services	Dolnośląskie	1 801 672	4	526	13	14 157	11	245 845	3	1 309 281	4
	Kujawsko-pomorskie	491 846	9	18 716	6	8 047	12	53 329	10	345 844	9
	Lubelskie	387 487	10	856	12	27 416	6	87 027	8	265 515	10
	Lubuskie	173 081	13	2 358	10	7 417	13	25 950	12	128 331	13
	Łódzkie	656 001	7	31 159	4	23 159	9	223 793	4	369 740	7
	Małopolskie	1 389 230	5	23 782	5	59 783	2	109 090	7	1 101 203	5
	Mazowieckie	36 912 258	1	149 243	1	311 608	1	2 895 041	1	33 277 856	1
	Opolskie	128 573	15	221	15	1 435	15	18 401	13	107 421	14
	Podkarpackie	508 944	8	11 274	7	40 840	4	86 957	9	350 911	8
	Podlaskie	78 518	16	407	14	1 906	14	10 884	14	52 880	16
	Pomorskie	2 123 574	3	37 204	3	40 306	5	218 241	5	454 529	3
	Śląskie	2 316 662	2	62 274	2	43 104	3	171 064	6	862 849	2
	Świętokrzyskie	133 606	14	–	16	158	16	5 626	16	95 492	15
	Warmińsko-mazurskie	191 456	12	3 180	9	15 210	10	6 830	15	129 560	12
Wielkopolskie	1 089 005	6	5 869	8	26 823	7	491 869	2	529 251	6	
Zachodniopomorskie	295 702	11	984	11	24 426	8	32 446	11	215 321	11	

* Value – the sum of amounts from 2006–2011; ** position – classification of regions from the highest to the smallest value of expenditure or its financing sources.

Source: author's compilation based on Local Data Bank, <http://www.stat.gov.pl/bdl> (11.04.2013).

4. Final remarks

The presented rankings of regions, with reference to expenditure on enterprise innovative activities and their financing sources, clearly indicate that the size of expenditure on “**innovation activities** as all scientific, technological, organisational, financial and commercial steps which actually, or are intended to, lead to the implementation of innovations” [OECD, Eurostat, 2005, p. 47] depends on the financial wealth of companies, or more precisely on their own funds. The domination of these advantages in the structure of budgets covering costs of new or substantially improved products or processes can be explained in two ways. It is more or less true that it derives from preferences presented by investors who, having limited aid means at their disposal (obtained from foreign sources or budgetary ones), provide outlays for innovative projects from their own resources and only at their absence, or insufficiency, apply for bank credits or search for other, not presented in the statistical information, instruments for innovation processes financing⁸. The alternative or supplement to this hypothesis can be the limited access of enterprises to financial means from external sources.

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⁸ Total share of own funds, budgetary resources, means from foreign sources and bank credits in the overall outlays on innovation activities of industrial and service enterprises rarely reaches 100% in particular regions which confirms taking advantage of other, not listed in LDB, financing sources for innovation processes.

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WYDATKI ORAZ ŹRÓDŁA FINANSOWANIA INNOWACJI W PRZEDSIĘBIORSTWACH – PRZYPADEK POLSKICH REGIONÓW

Streszczenie: Analiza i interpretacja danych statystyki publicznej ukierunkowana na poszukiwanie zależności między wysokością nakładów na działalność innowacyjną przedsiębiorstw a źródłami ich finansowania powinna być oparta na logicznej sekwencji rozważań. W jej porządku szczególnie ważne jest zaznajomienie się ze stosowanymi pojęciami i zasadami gromadzenia informacji oraz ich atrybutami, a w dalszej kolejności dobranie właściwej metody badań, gdyż bez tych czynności nie jest możliwe sformułowanie prawidłowych wniosków. Porządek tak określonych dociekań zachowuje niniejszy artykuł, którego konkluzja wskazuje, że wielkość wydatków przedsiębiorstw ponoszonych na rzecz wdrażania innowacji w regionach Polski zależy od finansowej zasobności firm, a ściślej ich środków własnych.

Słowa kluczowe: działalność innowacyjna, nakłady i środki na procesy innowacyjne.