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## **ORDERED EDUCATION PROGRAMS AS A NEW AREA OF EDUCATION DEVELOPMENT AT UNIVERSITIES**

### **Summary**

*In Poland, there has been a gradual increase in aspirations and mass higher education. Currently studies are started by more than 40% of young people, which is one of the highest percentages in the EU. At the same time universities report their financial requirements, which would modernize the infrastructure and introduce modern teaching methods. A chance to acquire these funds is ministerial program of ordering education. This article aims to show the importance of EU funding and funding trends in the development of innovative ordered higher education in Poland.*

### **1. Introduction**

Poland's accession to the European Union initiated the accelerated modernization processes in many sectors of Polish economy. The inflow of EU funds coming mainly from two sources: European Social Fund and European Regional Development Fund, positively influenced the growth of hard investment (infrastructure) as well as the improvement of the so-called human capital quality, considered a key factor in development of knowledge-based economy.

Apart from financial flows feeding the development of entrepreneurship and infrastructure, a considerable amount of European resources has been allocated to financing the development of higher education in Poland<sup>1</sup>. One of the key elements of the program of higher education modernization is the program of developing specialties of vital importance for the development of knowledge-based economy. These are mainly mathematical and technical specialties – this is due to the fact that currently both Polish and European economies show

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1 Intermediary Institutions for contests devoted specially to universities is the Ministry of Science and Higher Education. The value of projects realized only from resources managed by the Ministry of Science and Higher Education amounted nearly 14.6 billion zlotys on 15<sup>th</sup> April 2011 ([www.nauka.gov.pl](http://www.nauka.gov.pl) on 15th April 2011).

considerable demand for technical studies graduates. Simultaneously we can observe significant deficit of university graduates possessing such qualifications.

The aim of the article is to present the significance of European funds and financing ordered specialties in the development of innovative higher education in Poland.

## **2. Higher education as the responsibility of the state and the good of its citizens**

Providing access to higher education is the responsibility of the state. This task goes beyond the state boundaries. As far as Poland is concerned, it is particularly essential to integrate the organizational structure and education programs at universities with the idea of a European area of higher education; the issue is of vital importance to European integration process. Its element is harmonization of the rules governing higher education all over the European Union.

The operations and development of higher education however, require significant expenditure which depends on the general state of public finance, budget policy of a state and the income of its citizens. Taking into account the Central and Eastern European countries, including Poland, in comparison with the countries of the so-called “old EU”, expenditure on higher education per one student in our region is much lower than the average expenditure in old EU<sup>[2]</sup> [Kwiek 2010]. At the same time nearly all countries include expenses on higher education in their *public expenditure programs*, understood in public sector economics as public good. Even in countries with highly developed market economies – USA and Canada – university fees constitute a small percentage of expenses connected with higher level education. The state plays and should play a vital role in financing higher education – both public and non-public [Stiglitz 2004, p. 298; Schwarzenberger 2008, p. 25].

Organizational, formal and legal transformations in the higher education sector in Poland started in 1990 with passing the Act on Higher Education and the Act on Degrees and Scientific Titles [the Act]. At this stage higher education schools were granted considerable autonomy, visible in organizational and financial independence with reference to the university structure and forms of didactic activities. Another step towards adjusting Polish system of higher education to requirements posed by the accession to the European Union was the passing of the Act on Higher Vocational Schools. The standardization of the higher education system and the adjustment of the system to the EU standards

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2 In Poland the expenditure on higher education (expressed in absolute values with reference to purchasing power parity) amount to \$5200 while in such countries as France, Germany or Great Britain they range from \$11000 to \$15000.

was completed with passing the Act on Higher Education in 2005 [the Act], which was amended in 2011.

As a result of systemic changes higher education in Poland has been transformed significantly. Moreover, increased importance of this sector has been responsible for the growing number of university candidates since our accession to the EU. Following increased demand for the good which is higher education, the number of universities and higher schools in Poland has also grown<sup>3</sup>. Such a large number of public and non-public universities, coupled with weakened public finances of the state, have provoked a hot debate over the system of financing higher education. With Poland's accession to the European union structures, European funds became an element of this system and since 2004 they have been increasingly participating in financing development projects of universities – both public and non-public. Recently universities have actively been seeking European funds as a result of the Ministry program of ordering higher education (in form of the so-called ordered specialties). The program is a reaction of the state to increased demand for mathematical and technical specialties graduates expressed by various sectors of Polish economy.

Poland is witnessing gradual growth of aspirations and mass education on the higher level. Currently, over 40% of young people born in a particular year start their studies, which is one of the highest values in the EU. Simultaneously, we can observe lower interest in technical and engineering studies (only around 15% of students). According to the OBOP poll data, in the next three years we will have a deficit of over 76 thousand engineers in areas like IT, programming, designing and analysis of computer systems. According to the IDC report Poland already needs over 10 thousand IT specialists. The most wanted professions are programmers and telecommunications specialists.

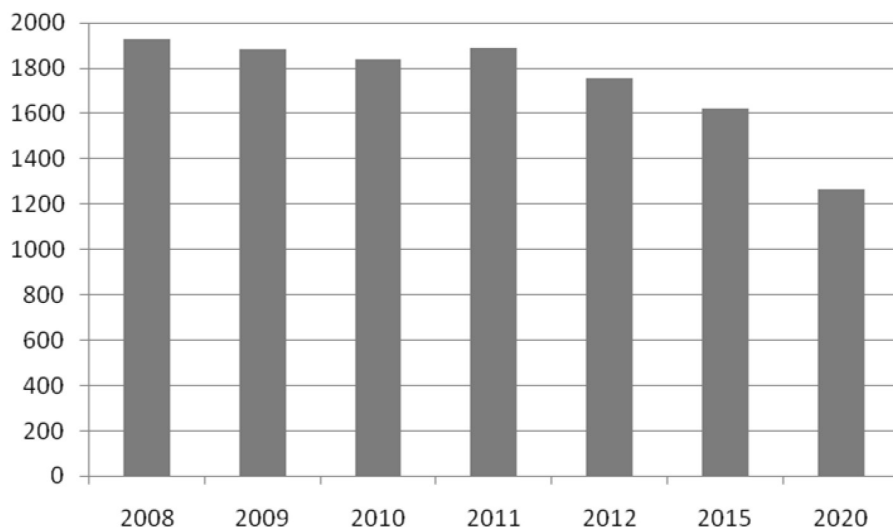
### **3. Financing higher education in Poland**

From the very beginning of the systemic changes financing higher education can be treated as a transformation dilemma. Analyzing data concerning the growing number of students in higher schools we can state that Poland looks impressive in comparison with the European Union. In spite of the population decline which is already beginning to affect Polish universities (both public and non-public), Ernst&Young consultancy predicts that until 2020 the number of people studying at Polish universities will remain on the level of 1.2 million people (see Figure 1).

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3 According to the data published on the website of the Ministry of Science and Higher Education (data for 2010) there were 457 higher schools in Poland, out of which 131 were public schools and 326 non-public ones.

**Figure 1.** The number of students in 2008-2011 and forecast for Poland until 2020



Source: own elaboration on the basis of [Strategia, p. 144].

A high number of students calls for increased financial expenditure on higher education. Poland is one of the countries which decided to maintain a dual type of expenditure on financing higher education. On one hand universities may take advantage of a subsidy for educating students, on the other hand – students' fees are a significant factor influencing financial flows in the education sector (especially non-public one). Despite the already mentioned constitutional responsibility to provide equal access to education (including higher education) in Poland, we can observe a clearly visible asymmetry concerning the number of students at free regular studies in public universities and those who pay for their education both at weekend studies at public and non-public universities<sup>[4]</sup> [Pomianek, Rozmus 2010, p. 56]. Such a situation accounts for the dominant position of revenues from didactic activity in Polish universities revenues. This is the effect of strong concentration of resources allocated towards research and development operations<sup>[5]</sup> [Pomianek, Rozmus 2010]. Analyzing the data concerning financing higher education in 2009 we can claim that

4 In the 2009/2010 academic year there were 659,400 students at non-public schools, which accounted for nearly 34.2% of all students; there were 198 thousand first-year students at non-public universities.

5 The resources for scientific research are strongly concentrated in Poland. 25 universities receive nearly 84% of all available resources for R&D in Poland.

the situation regarding distribution of resources according to titles is still being preserved. (see Table 1).

**Table 1.** Expenditure on higher education in 2009 (in zlotys)

No	Type	Mount In zlotys
1.	Subsidy for didactic activity	7.3 billion
2.	Subsidy for grants and scholarships	1.4 billion
3.	Subsidy for investment	0.3 billion
4.	Statutory activity	2.0 billion
5.	Total	11.0 billion

\*2009 was the first year in which all universities could take part in a competition concerning financing education ordered by the Minister.

Source: own elaboration on the basis of available data from the website of the Ministry of Science and Higher Education, [www.nauka.gov.pl](http://www.nauka.gov.pl).

It should be emphasized that a major part of resources allocated to financing higher education goes to public higher schools. This system does not take into account, however, the needs of the country concerning the number and structure of university graduates; this means that financing higher education by means of subsidies for didactic activity does not provide appropriate education structure for the labor market needs. Additionally, the system excludes (in spite of statutory obligation) non-public schools from financing, leaving them *de facto* only with subsidies for material support (grants and scholarships) – this situation can be attributed to lack of enforcement provisions to the Act on Higher Education Law. The only available form of fully financing didactic process at public and non-public universities are European funds, including the ordered education program, which constitutes an attempt of the Ministry of Science and Higher Education at addressing labor market demands. This program also takes into account the relations between expenditure on education, work demand and supply and costs connected with education process at particular specialties of studies.

#### **4. The essence and procedures of ordering specialties**

The economic and system transformations in Poland have revolutionized the way the labor market functions, which forced the institutions shaping this market to change their policies concerning university graduates as a vital factor shaping the competitiveness of our country and the effectiveness of its economy. Facing a visible deficit of technical professions graduates, in 2008, the Ministry of Science and Higher Education announced the program of “increasing

the number of graduates in specialties which are of key importance for the knowledge-based economy” – commonly known as the program of ordered specialties. From the very beginning the project has relied on financing ordered specialties from the European Union funds, that is European Social Fund which operates in Poland within the Human Capital Operation Program. Due to the specificity of the higher education sector, the realization of the program is supervised by the Ministry of Science and Higher Education<sup>6</sup>.

The first stage of ordered specialties program implementation was realized in 2008 and consisted in conducting the so-called pilot activity in which 47 Polish universities participated. Within this stage of ordered education implementation a list of areas of studies of key importance for the knowledge-based economy was selected. These are:

- Automation and Robotics,
- Biotechnology,
- Construction Industry,
- Chemistry,
- Power Industry,
- Physics (technical);
- Information Technologies,
- Materials Engineering,
- Environmental Engineering,
- Mathematics,
- Mechanics and Machine Construction,
- Environment Protection,
- Designing.

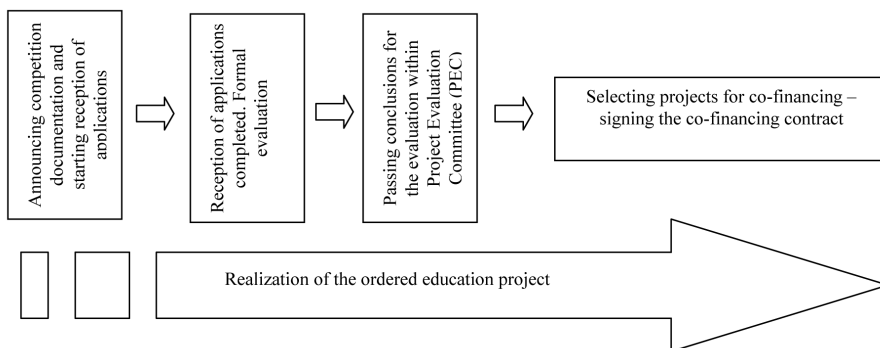
The second stage of the project implementation was the competition announced by the Ministry of Science and Higher Education within its plan of action for OP HC for a particular year<sup>7</sup>. This time the competition was for all higher schools realizing education in specialties covered by the ordering procedure. Excluding 2008 (pilot activity), in 2009-2011 the competition procedure was allocated 600 million zlotys (the project was covered by the financial engineering, that is 85% of the sum comes from EU resources, and 15% from the state budget). Figure 1 presents the procedure of realizing ordered education in higher schools.

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6 The ordered specialties program is realized within Priority IV of HC OP, Measure 4.1, Sub-measure 4.1.2. Ministry of Science and Higher Education plays the role of an Intermediate Body.

7 Ministry of Science and Higher Education announced a competition for ordered specialties in 2009, 2010 and 2011.

**Figure 1.** Procedure of ordering education at higher schools



Source: own elaboration.

The first stage in ordering education is the announcement of competition documentation. So far the Institution Organizing the Competition (IOC – Ministry of Science and Higher Education) has changed the provisions of the documentation each year in order to adjust them to current trends of education and labor markets. Competition documentation binds potential beneficiaries and sets project framework. This means that the documentation provisions are the basis on which an application for co-financing an ordered specialty is prepared. On this foundation MSHE defines minimum requirements that must be met by a potential beneficiary who wants to participate in the project (the so-called access criteria).

Documentation also defines strategic criteria (program assumptions essential for the ordering institution), namely the ones which, if met, are given additional bonus by the project evaluation teams.

The next step in the procedure of ordering specialties is formal evaluation of applications sent by potential beneficiaries.

Formal evaluation consists in checking whether the application for co-financing the project has been completed properly, especially if:

- the application was prepared on appropriate form and in an appropriate version of application generator;
- the documentation confirming financial situation of the beneficiary has been properly made (required especially from universities outside the public finance sector);
- the application has been signed by a person authorized to represent the beneficiary.

Proper formal verification of an application results in automatically passing it for the substantial (expert) evaluation. At this stage particular tasks proposed by the beneficiary are evaluated. Special verification is applied to eligibility aspects of budget expenses. The application is evaluated by two independent experts. On the basis of these evaluations the so-called ranking list is formed. Depending on the resources at the disposal of MSHE and the size of budgets of potential beneficiaries, a list of projects recommended for financing is produced.

## **5. Opportunities and barriers in the development of higher education through ordered specialties**

Currently ordered education on higher level covers 157 specialties at 75 universities<sup>8</sup>.

The ministerial program of ordering education is in many ways a very attractive and innovative form of financing higher education. This is due to the fact that the process of applying for financing activities from European funds requires universities to join the competition procedure and therefore to prepare an innovative and competitive didactic offer, which must be built in the frame of an application for financing within Human Capital Operational Program resources (HC OP). This, so to speak, constitutes a new area in university functioning, as so far universities (depending on their organizational form) have financed their activities from subsidies or student fees.

Ordered specialties undoubtedly provide opportunities for dynamic development of technical and mathematical studies. This is possible due to full refund of costs anticipated in the project budget. Thanks to the support from European fund resources (ESF), the program of ordered specialties provides full eligibility of expenses – this mainly concerns:

- conducting make up classes from secondary school subjects;
- running additional classes which make education in specific specialty more attractive and which are not included in the “standard” teaching program (language courses and trainings, professional certificates);
- creating a special grant program for the best students;
- paid work practice at potential employers;
- modernization of university infrastructure.

The prospect of modernizing university infrastructure (within HC OP) seems very interesting. It is possible thanks to the principle of flexible financing (*Crossfinancing*). This procedure allows participants to allocate 10% of their

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<sup>8</sup> Data obtained on 15<sup>th</sup> May 2011 from: [www.nauka.gov.pl](http://www.nauka.gov.pl).



budget for the purchase of fixed assets (research apparatus, IT equipment) or modernization of the building (for example adjusting it to the needs of disabled people). This offers an opportunity to improve university competitiveness and to obtain competitive edge in the education market.

The realization of such projects carries along certain threats, too, which are sometimes the consequence of incoherent government policy. The greatest worry of universities participating in the ministerial program of ordered education is the so-called principle of proportional expenditure. It refers to the procedure of settling the project budget adequately to the degree in which the main aim was realized – that is the number of educated engineers. The implementation of the principle (which aims at disciplining beneficiaries conducting courses and professional training) to quite long-lasting and complex projects<sup>9</sup> raises some fears in academic circles: this is because natural fluctuation of students of difficult and demanding technical specialties causes (in accordance with the principle) proportional limitation of the project budget (even if the payment application of the beneficiary has been settled properly and accepted).

So far MSHE has not developed a coherent concept of solving this problem even though this fact has been brought to its attention by professional media and beneficiaries have asked the Intermediate Body to give their statement on this issue.

## 6. Conclusions

Ordered specialties (despite the difficulties in realization of such projects) are an opportunity for modernization of higher education in two areas.

Firstly, the initiative of ordering education was one of the first attempts at introducing market principles of financing higher education. This is connected with abandoning subsidies for the objective competition which selects the best projects constituting an education offer of both public and non-public universities.

Secondly, European funds strengthen the position of universities which are project beneficiaries. They allow them to modernize their programs of studies, education in new specialties created in response to labor market needs. Universities, being beneficiaries of ordered specialties programs within the *Crossfinancing*, procedure may modernize their infrastructural base.

Priority IV of HC OP assumes eligibility of expenses until 2015 – that is until the moment in which the new budget for 2014-2020 has been defined and implemented. This period of time should also witness financing higher

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<sup>9</sup> Financing concerns engineering studies which usually last three years or supplementary, second degree studies.

schools with the procedure developed within ordered specialties proposed by the Ministry of Science and Higher Education in 2008.

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