The Benchmarking Impact in External Quality Assessment of Universities Concerning the Quality Indices Assessment. A Case Study – The C.1.1. Index in Romanian Universities of Agricultural Sciences and Veterinary Medicine

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ABSTRACT

The purpose of our study is to emphasize, based on benchmarking analyse, the performances of the Universities of Agricultural Sciences and Veterinary Medicine from Bucharest, Cluj-Napoca, Timisoara, and Iasi, concerning the quality indicator C.1.1, used in analyze of the teaching/learning process. The research has been carried out taking into account the available data from Universities of Agricultural Sciences and Veterinary Medicine from Bucharest, Cluj-Napoca, Timisoara, and Iasi. Starting from the emphasizing of the evolution of the students number by each study cycle categorie, in each aimed university, the quality indicator C.1.1. Tha data were collected since 2009/2010 up to 2012/2013. Data were processed using IBM SPSS Statistics 20 for Windows. Our analyze emphasize the descendant tendencies of the evolution of the students within UASVMs from Bucharest, Cluj-Napoca, Timisoara, and Iasi, from all study cycles. Concerning the benchmarking analyze of C.1.1. index (ratio between teaching staff number and students number), it emphasize the positive performances of UASVM Iasi and cluj-Napoca.

Keywords: *performance, students, superior education, basic statistic.*

INTRODUCTION

The Quality Assessment in the field of Higher Education became a common place in Romanian educational space, simultaneously with the development of Bologna process and Romanian accession to the initiative of creating the European space of higher education coordinated by the Space Education Initiative Subcommittee (SEIS). This initiative has special importance because it creates the frames for reciprocal recognition of educational forms inside Europe, and for reaching a recommended quality level.

In this respect, the decision authorities in educational field from Romania have conituous preoccupation for reaching best performances, similar to those achieved within the Communitarian space. Thus, the communicates of the Romanian Ministry of Education state that quality assessment is the single way of increasing trust in higher education systems, but also easily recognisable and equated among the states of European space of higher education. At policy makers level, there is adopted the idea of

reviewing European standards and guidelines (European Standards and Guidelines) concerning quality assessment in a way that will lead to better concordance with system needs. For achieving this goals, first of all a national legislative frame is needed, in order to allow the approximation to European standards. Thus, it must be reflected by the regulations adopted at each university level, and quality assurance concerning the implementation of the quality assurance mechanisms, and also by continuous preoccupation for this aspect in all daily activities of the universities.

An important issue connected to above mentioned aspect is the tendency of optimizing universities activities. In analyze of higher education quality assessment and assurance system, this involves the discussion of the isomorphism concept. According to Hannan and Freeman (1977) this process of isomorphism is generated by the tendency of organizations to improve their functionality. In their vision, this desiderate can be achieved by innovation or by transfer of good practices, procedures and organizing mechanisms, from the organizations with best performances in organizational system. Usually, we may identify three kinds of institutional isomorphism (Di Maggio and Powell, 1983), coercive, mimetic, and normative, respectively. The coercive isomorphism is determined by the political influence and need of legitimacy, the mimetic isomorphism results from the standard answers to uncertainties, while normative isomorphism is associated to the activities professionalization.

These been said, we have to note that, in European space, and not only here, lots of attempts are made in order to state the real place of universities performances. Benchmarking represents an important tool in this respect. According to Fifer (1989), benchmarking is a process initially used for performance metrics, and/or business processes comparisons between different companies. Nowadays, it is also used by organizations, as universities, to compare strategic management performances, in order to supply the continuous improvement, because, in this context the benchmarking concept aims to help the superior education institution to both identify and implement optimal solutions, already verified in practice by universities with the same profile.

An important index taken into consideration when external assessment of universities is

performed is the C.1.1. index. It represents the ratio between teaching staff number and students number, and quantitatively illustrates both learning and teaching processes.

The purpose of our study is to emphasize, based on benchmarking analysis, the performances of the Universities of Agricultural Sciences and Veterinary Medicine from Bucharest, Cluj-Napoca, Timisoara, and Iasi, concerning the quality indicator C.1.1, used in analysis of the teaching/learning process. This indicator is a starting point in analysis of the level of resources destined to educational process, the basic element of university outputs.

MATERIALS AND METHODS

The research has been carried out taking into account the available data from Universities of Agricultural Sciences and Veterinary Medicine from Bucharest, Cluj-Napoca, Timisoara, and Iasi. Starting from the emphasizing of the evolution of the students number by each study cycle category, in each aimed university, the quality indicator C.1.1. was calculated, according to the formula:

$$C1.1^{(U)}_s = \frac{TPD^{(U)}_s}{TSF^{(U)}_s}$$

where:

$TPD^{(U)}_s$ - total number of titular teaching staff, with full norm, in science branch rs from the university U

$TSF^{(U)}_s$ - total number of physical students (budget and tax), from all study cycles (bachelor, master and doctoral studies) in science branch rs from the university U

The data were collected since 2009/2010 up to 2012/2013. The number of students by each year, by each study cycle, and by each university was emphasized. Basic statistics was used in order to emphasize the evolution of the number of the students by entire studied period, by each study cycle and university. Data were processed using IBM SPSS Statistics 20 for Windows.

RESULTS AND DISCUSSION

The evolution of the total number of students, by each analyzed university, during experimental

period (Fig. 1), even emphasizing a the same descendent trend is has different degrees of variation. If UASVM Bucharest recorded the most important decrease of the total students number, from 17,202 in 2009/2010 to 11,997 in 2012/2013, the other analyzed universities the decrease is much lower (Fig. 1). If we perform the analyze by study cycle (Fig. 2), we find ven more differences between universities.

Thus, if for bachelor cycle the biggest decrease is reported by UASVM Bucharest and UASVM Timisoara, the other two analyzed universities, UASVM Cluj-Napoca and UASVM Iasi, show even a light positive evolution if compared to the beginning of the analyze, school year 2009/2010, respectively (Fig. 2.a). For master cycle is recorded

the biggest difference of all analyzed universities (Fig. 2.b.). The doctoral students evolution (Fig. 2.c.) recorded the same descendent evolution in all USAVMs included in this study, due to the new policy of frequency doctoral students only, adopted in concernned period.

Basic statistics for the evolution of the average number of bachelor, and master students by all analysed universities, 2009/2010 – 2012/2013, shows a normal distribution (Tables 1 and 2). UASVM Bucharest has the biggest average number of bachelor students during analyzed time interval, 12, 092.25 respectively, while UASVM Iasi has the smallest, 3,428, respectively (Table 1). The same universities' hierarchy is also noted

Fig. 1. The evolution of the total number of students during analyzed period (2009 – 2014), by astudied UASVMs

Tab. 1. Basic statistics for the evolution of the average number of bachelor students by all analysed universities – bachelor, 2009/2010 – 2012/2013

UASVM	n	$\bar{X}$	$\pm$	$S_{\bar{X}}$	s	Min.	Max.	V%
Bucharest	4	12092.25	$\pm$	875.94	1751.87	10341.00	14485.00	14.49
Iasi	4	3428.00	$\pm$	41.08	82.16	3348.00	3513.00	2.40
Timisoara	4	5089.25	$\pm$	323.80	647.61	4289.00	5782.00	12.72
Cluj-Napoca	4	4759.00	$\pm$	63.15	126.29	4577.00	4869.00	2.65

for master students, with big differences between universities.

The biggest average number of master students is reported in UASVM Bucharest - 1,693.50, while UASVM Iasi reported the smallest number - 767.50 students (Table 2).

Basic statistics for the evolution of the average number of doctoral students by all analysed universities, 2009/2010 – 2012/2013, shows lack

of evolution homogeneity in UASVM Bucharest ($V\% = 38.17$), and UASVM Timisoara ($V\% = 30.08\%$). Even in this case too, UASVM Bucharest had the biggest number of doctoral students, the differences from the other universities rare much smaller (Table 3) compared to the other two cycles we analyzed (Tables 1 and 2).

The benchmarking analyze concerning the quality indicator C.1.1. (Table 4, Fig. 3) indicates

Fig. 2. The evolution of students number, by category of study (bachelor, master, doctoral), within analyzed UASVMs

Tab. 2. Basic statistics for the evolution of the average number of master students by all analysed universities – master, 2009/2010 – 2012/2013

UASVM	n	$\bar{X}$	$\pm$	$S_{\bar{X}}$	s	Min.	Max.	V%
Bucharest	4	1693.50	$\pm$	153.19	306.39	1408.00	2010.00	18.09
Iasi	4	767.50	$\pm$	38.23	76.47	694.00	835.00	9.96
Timisoara	4	1058.00	$\pm$	75.71	151.41	921.00	1236.00	14.31
Cluj-Napoca	4	987.00	$\pm$	99.33	198.66	707.00	1167.00	20.13

Tab. 3. Basic statistics for the evolution of the average number of doctoral students by all analysed universities – doctoral students, 2009/2010 – 2012/2013

UASVM	n	$\bar{X}$	$\pm$	$S_{\bar{X}}$	s	Min.	Max.	V%
Bucharest	4	419.00	$\pm$	79.97	159.94	248.00	607.00	38.17
Iasi	4	259.50	$\pm$	33.65	67.30	195.00	352.00	25.94
Timisoara	4	295.00	$\pm$	44.38	88.75	184.00	372.00	30.08
Cluj-Napoca	4	379.00	$\pm$	40.55	81.10	284.00	474.00	21.40

Fig. 3. The evolution of the quality coefficient C1.1. during analyzed period (2009 – 2014), by analyzed UASVMs**Tab. 4.** Basic statistics for the evolution of C1.1 quality indicator by all analysed universities, 2009/2010 – 2012/2013

UASVM	n	$\bar{X}$	$\pm$	$S_{\bar{X}}$	s	Min.	Max.	V%
Bucharest	4	0.066	$\pm$	0.005	0.010	0.054	0.077	14.765
Iasi	4	0.034	$\pm$	0.001	0.001	0.033	0.034	1.723
Timisoara	4	0.053	$\pm$	0.004	0.007	0.046	0.062	13.790
Cluj-Napoca	4	0.044	$\pm$	0.001	0.002	0.042	0.046	3.904

that in the end of the studied period, best results are obtained by UASVM Iasi and UASVM Cluj - Napoca.

If in UASVM Bucharest it increased, within studied interval from 0.054 to 0.077, and in UASVM Timisoara from 0.046, to 0.062, in UASVM Cluj-Napoca it recorded a very small increase from 0.044 to 0.046, while in UASVM Iasi from 0.033 to 0.034 (Fig. 3).

Basic statistics for the evolution of C.1.1. index emphasize the smallest average in UASVM Iasi, closely followed by UASVM Cluj - Napoca (0.044), UASVM Timisoara (0.053), and UASVM Bucharest (0.066). These values present homogeneity, which is demonstrated by the dispersion indices, and also by the values of variability (14.76 - 1.72%).

CONCLUSION

Our analyze emphasize the descendant tendencies of the evolution of the students within UASVMs from Bucharest, Cluj-Napoca, Timisoara, and Iasi, from all study cycles. Concerning the benchmarking analyze of C.1.1. index (ratio between teaching staff number and students

number), it emphasize the positive performances of UASVM Iasi and Cluj-Napoca.

REFERENCES

1. Chun OK (2005). Daily consumption of phenolics and total antioxidant capacity from fruit and vegetables in the American diet. *J Sci Food Agric* 85(2):1715-1724.
2. Harker FR, Marsh KB, Young H, Murray SH, Gunson FA, Walker SB (2002). Sensory interpretation of instrumental measurements: sweet and acid taste of apple fruit. *Postharvest Biol Technol* 24:241-250.
3. Hertog MGL, Hollman PCH, Katan MB (1992). Content of potentially anticarcinogenic flavonoids in different vegetables and fruits commonly consumed in the Netherlands. *J Agric Food Chem* 40:2379-2383.
4. Hudina M, Stampar F (2000). Sugars and organic acids contents of European (*Pyrus communis* L.) and Asian (*Pyrus serotina* Rehd.) pear cultivars. *Acta Aliment* 29:217-230.
5. Treutter D (2001). Biosynthesis of phenolic compounds and its regulation in apple. *Plant Growth Regul* 34(1):71-89.
6. Usenik V (2004). Flavonols of leaves in relation to apple scab resistance. *Acta Aliment* 29(2):217-230.
7. Wolfe K (2003). Antioxidant activity of apple peels. *J Agric Food Chem* 51(3):609-614.