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Foresight in normative economics - an example of a public university

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Abstract-**Research background: The research area covered the issue of foresight from the perspective of normative economics exemplified by a public university. Foresight is a method that supports making decisions and facilitates mobilization to joint actions, which is reflected in normative economics. An economic entity, for example, a public university, can carry out tasks more efficiently and effectively using foresight instruments. Purpose of the article: The aim of the study is to (1) identify the possibilities of using the foresight method in the activities of a public university, (2) indicate areas of public university activity that should be improved with the use of foresight instruments from the point of view of economic effectiveness and efficiency, (3) identify barriers limiting application of the foresight method.**

Methods: participant observation, critical analysis of the literature on the subject, Delphi method, CAWI survey technique. Findings & Value added: Foresight can be analysed within the framework of normative economics. When using the participant observation method and other research methods, it can be concluded that foresight is gaining more and more importance in achieving the goals and tasks of a public university. There are areas that should be covered by foresight in the first place, as they are important for the effective and efficient achievement of results by public universities. This method is subject to certain barriers that limit the possibilities of its application at a public university. Research limitations/implications: The proposed FORx index was designed for public universities operating in Poland Originality/value: The FORx index is a universal tool that can be used to improve the practices of public universities. With the index, stakeholders obtain information about which foresight instruments are currently used by these entities and which tools they want to use in the next year of their activity.

Keywords: foresight, normative economics, public university, planning.

I. INTRODUCTION

Economics is a science that gathers and organizes knowledge about management, which is understood as the provision of goods and services to stakeholders. Stakeholders expect management to be effective, efficient and fair. Moreover, as

Czerny rightly emphasizes (2011, pp. 31-32), "the knowledge gathered by economists is sometimes divided into descriptive judgments and value judgments (recommendations, opinions). Value judgments cannot be classified as true or false, they do not inform about reality, but about people's attitude to reality (...), as those who express a value judgment usually refer to their beliefs". Value judgments are the domain of normative economics.

The research area concerned the issue of foresight presented from the perspective of normative economics on the example of a public university. Foresight is a method that supports making daily decisions and facilitates mobilization to joint actions, which is reflected in the normative economy. An economic entity, for example, a public university, can carry out tasks more efficiently and effectively using foresight instruments.

The aim of the study is to (1) determine the possibilities of using the foresight method in the activities of a public university, (2) indicate the areas of activity of a public university, which should be improved with the use of foresight instruments from the point of view of economic effectiveness and efficiency (3) identify barriers limiting application of the foresight method. The following methods were used: participant observation, critical analysis of the literature, Delphi method, CAWI survey technique. Hypothesis (H1): Foresight has a variety of instruments that can be used by public universities to formulate value judgments and postulate the desired directions of changes in the conducted activity, with only some of these tools being dedicated to universities and accepted by stakeholders.

The general conclusions state that foresight can be considered within the framework of normative economics. Using the participant observation method and other research methods, it can be concluded that foresight is gaining more and more importance in the implementation of the goals and tasks of a public university. There are areas that should be covered by foresight in the first place, as they are important for the effective and efficient achievement of results by public universities. This method is subject to certain barriers that limit

the possibilities of its application in a public university.

II. LITERATURE REVIEW

Normative economics is studied by economists who make value judgments by stating what they think certain issues should be. Supporters of this approach not only make value judgments, but also postulate the desired directions of changes, establishing certain standards of conduct (normative economics). It should be emphasized that the values held by individual economists often differ, therefore their proportions are also more determined by individual, subjective assessments, than by the results of an analysis based on specific theoretical assumptions. Normative economics should provide answers to questions (1) How should it be? (2) What needs to be done to make it so? (3) Who should do it? Cf: Caldwell (2001); Bruni (2002); Alvey (1999, pp. 53-57); Woll (2003, p. 16); A. Zimny (2017) W. Jarecki (2011).

Foresight, which is defined as a process where full understanding of the forces shaping the distant future takes place, can be considered within the framework of normative economics. It is a process that systematically attempts to look at the long-term future of an organization. Foresight can be considered in economics as a process of analysing the environment, learning and creating a vision. In the context of the analysis of the environment, foresight provides decision-makers with such (up-to-date) information about the environment of the organization that will increase the entity's ability to react and make it possible to prepare for future important events (trends, surprises, revelations). The main activity in this process is related to the observation, analysis and evaluation of new information or activities. As a learning process, foresight consists in confronting one's own (internal) interpretations of finances, costs, revenues, budgets, business or strategies with different scenarios of the future, as well as various chances and risks. The result of this confrontation is the verification of existing thinking patterns, taking into account other scenarios, and the development of alternative concepts. Foresight:

- is a process, not a technique (forecasting),
- is interdisciplinary,
- covers long-term time perspectives,
- integrates various perspectives, including scientific, technological, economic, financial and social development,
- is a tool supporting the decision-making process.

Foresight plays an increasingly important role in today's society and business entities. The use of foresight increases the probability of choosing the right course of action. It can affect the higher quality of knowledge-based economy institutions and determines social development. Cf.: (Rohrbeck, Arnold, Heuer 2007); (Müller, 2008, p. 44); (Burmeister, Neef, Beyers 2004, p.12); Mietzner, Reger (2005, pp. 220-239); (Costanzo 2004, pp. 219-235); (Heger, Rohrbeck, 2012, pp. 819-831); Slaughter (1997, p. 12-27); Bootz (2010, pp. 1588-1594); Balcerzak, Pietrzak (2016); Balcerzak, Pietrzak (2017); Gibson,

Dunlop (2019); Fairbank, Williams (2001); Diefenbach (2009). Based on the literature on the subject, it should be emphasized that while foresight itself is an issue often discussed in the literature, referencing it to a public university is an interesting and still little explored area.

From an economic point of view, foresight in a public university can be considered as a certain process aimed at searching for a vision of the future, carried out by interested parties through actions taken in real time. It is a creative process where future analyses are created on the basis of the collected and available data as well as information and knowledge delivered in time. It is programming of the future, taking into account real and potential determinants of risk, opportunities or threats.

A public university conducts education services during studies, carries out scientific activity, provides research services, transfers knowledge and technology to the economy, as well as educates and promotes university staff. The tasks of a public university focus on achieving social goals. A university finances the implementation of statutory tasks from public funds.

Foresight in a public university is understood as the ability to use strategic thinking, also in terms of assessments; it is about satisfying the subjective expectations of stakeholders and correlating the costs and benefits of activities.

III. RESEARCH METHODOLOGY

The starting point for the research was participant observation. The preparation of the article was also preceded by a literature review in the field of normative economics, foresight and the activities and role of public universities. Theoretical considerations in this area were supplemented with empirical research. Foreign literature was reviewed and empirical research was carried out in November and December 2020. The survey questionnaire (CAWI) used for the research was prepared in the Microsoft Forms application and contained 7 closed questions in the main part. The respondents were asked the following questions:

- What do you understand by foresight?
- There are different definitions of foresight. Which of them is in your opinion the most accurate in terms of a public university?
- In your opinion, can foresight be used in the activities of public universities?
- Which of the foresight methods can be useful for public universities?
- Which areas of a public university's activity can/should be improved first with the use of foresight methods?

Indicate which elements of foresight projects are, in your opinion, the most important in the activities of a public university.

Indicate the main barriers limiting the application of foresight methods.

The survey was carried out electronically in two stages. The link to the survey was sent to: people who represented various

sectors and businesses (practitioners), e.g. industry, trade, services, also financial and accounting services, transport and logistics, the local government sector, education. Among these respondents there were also students (extramural and part-time studies) studying at public universities and employed in the enterprise sector; lecturers (experts) employed by a public university. Among the lecturers, there were people employed additionally in the enterprise sector and the public finance sector (Delphi method).

The questionnaire was presented to 190 people representing various industries and to 30 experts. 39 people, which constitute 21% of the research sample, and 15 experts (50%), responded to the survey. The returned questionnaires allowed for further analysis of the empirical material. The study should be treated only as a pilot study – an introduction to further in-depth research on the possibility of using the foresight method in the activities of public universities due to the low number of surveys returned. The selection of methods should be considered correct, and determined by the availability of data, cost and profitability, as well as the time of the study.

IV. RESEARCH RESULTS AND DISCUSSION

46 women (85%) and 8 men (15%) took part in the empirical study. The group of respondents consisted of practitioners, students, experts and lecturers. The characteristics of the groups of respondents are presented in Table 1. Table 2 presents the results of the survey on how respondents define foresight. 53% of respondents indicated that foresight is the possibility of predicting and assessing future events in the long or medium term, while according to 19% of respondents, it is an instrument of forecasting and making operational decisions.

TABLE 1. THE STRUCTURE OF THE GROUPS OF RESPONDENTS PARTICIPATING IN THE EMPIRICAL RESEARCH

Sex	Number	Post	Number	Generation	Number
- woman	46	- university student	39	generation BB	1
- man	8	- academic worker	2	generation X	12
		- teaching employee	1	generation Y	41
		- teaching-research employee	12		

Source: Own elaboration based on empirical research n =39+15

When asked which of the proposed definitions of foresight would be the most appropriate in terms of a public university (Table 2), the respondents replied that the most appropriate definition understands:

- foresight as a process of environmental analysis (37%),
- foresight as a process of creating a mission and a vision (41%).

According to 59% of respondents, foresight can be successfully applied in the activities of public universities.
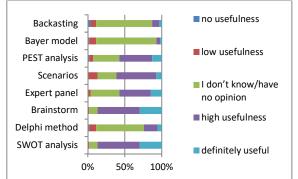
According to the respondents, foresight offers many instruments and tools, some of them being more or less useful for public universities. The research results in this area are presented in Figure 1. They indicate that the best foresight methods for public universities will be "brainstorming" and "SWOT analysis" - as many as 87% of the respondents gave such an answer (definitely useful + 29.6%; high usefulness - 54.4%). The "expert panel" is also characterized by high usefulness (42.6%). The respondents emphasized that both "scenarios" and "PEST analysis" may be useful in the activities of a public university. This is what 53.7% of respondents claimed in regards to their opinion on the scenario method, while 44.4% emphasized the high usefulness of the PEST method. The participants in the study were asked to evaluate instruments, such as the Delphi method, Bayer model and Backcasting. From the obtained answers, it can be concluded that the respondents do not know these foresight tools or have not had the opportunity to apply, use and learn about them.

TABLE 2. DEFINING THE CONCEPT OF FORESIGHT

Proposed definition	Number of answers	%
General definition		
1. The possibility of predicting and assessing future events in the long or medium term	29	53
2. A source of diagnoses and significant social and economic problems over time	4	8
3. An instrument of forecasting and making operational decisions	11	19
4. Possibilities of thinking about the future in terms of organization and human resources management.	6	12
5. It is a method of supporting management and planning.	4	8
In terms of a public university		
1. Foresight as a process of environmental analysis.	29	37
2. Foresight as a process of learning.	13	16
3. Foresight as a process of creating a mission and a vision.	33	41
4. Foresight as a process of stakeholder correlation.	5	6

Source: Own elaboration based on empirical research n =39+15

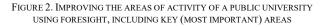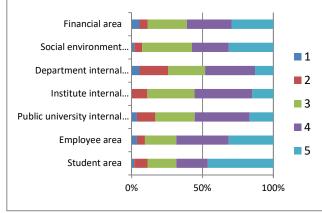Figure 1. Usefulness of foresight methods for a public university

Source: Own elaboration based on empirical research n =39+15

A significant number of respondents could not refer to the usefulness of these instruments in the activities of public universities. Answers: "I do not know"/"I have no opinion" were expressed in the following areas:

- 64.8% of respondents – regarding the Delphi method,
- 81.5% of respondents – regarding the Bayer model,
- 75.9% of respondents – regarding Backcasting.

The next question was: "Which areas of public university activity can/should be improved in the first place with the use of foresight methods? Please specify the order level of applying new methods, where: 5 - the first (most important, key) area; 1- the last (least important) area". The results are shown in Figure 2.

FIGURE 2. IMPROVING THE AREAS OF ACTIVITY OF A PUBLIC UNIVERSITY USING FORESIGHT, INCLUDING KEY (MOST IMPORTANT) AREAS

Source: Own elaboration based on empirical research n =39+15

The research results indicate that the most important area of public university's activity that should be improved is the area concerning the student. This was indicated by 46.3% of the respondents. Equally important is the area of the employee and the social environment of the public university (administration, experts or employers cooperating with the university) - this is the opinion of 31.5% of respondents. The next step is improving the organization inside the given institute (40.7) and within the public university itself (38.9%) with the use of foresight. According to the respondents, the least important area that

should be improved with the use of dedicated foresight instruments is the area inside the smallest organizational unit of a public university, i.e. a department or institute (26%). The financial area (39%) is also not significantly important.

It is worth considering why, according to the respondents, such an important area as a department or an institute that are closest to the student and employee, was assessed so severely by the respondents. The financial element, which, according to the respondents, does not need to be improved with the use of tools offered by the foresight method, is also worth noting. This may result from the fact that a public university is a budgetary unit and its activity is subsidized by a superior institution. It is publicly funded, a fact which, in the author's opinion, may lead to a wrong view on this subject.

The next question asked to the respondents concerned the elements of foresight projects that can be considered the most important in the activities of public universities. In the opinion of those participating in the study, the most important are:

- Thinking about the future (analysis of the situation and development trends) – 90.7%.
- Discussing the future (views of various environments) – 81.5%.
- Identifying the key success factors – 81.5%.

When asked about the main barriers limiting the use of foresight methods in the activities of public universities, the most responses indicated:

- lack of committed personnel – 77.7%,
- information barriers (incomplete information, lack of information, information not delivered on time) – 75.9%,

Some of the respondents could not comment on the barriers limiting the use of foresight methods with regard to the following statements:

- cognitive barriers (insufficient understanding of the essence of pro-development activities) – 25.9%,
- lack of interest in the foresight method – 35.2%.

Full results of the respondents' answers regarding the main barriers limiting the application of foresight methods are presented in Table 3.

V. CONCLUSIONS AND RECOMMENDATIONS

The analysis of quantitative and qualitative data, observation and the conducted results of empirical research allow for the formulation of the following conclusions:

There are different ways of defining foresight - foresight is the possibility to predict and assess future events in the long or medium term, whereas in relation to a public university, it is understood as the process of creating a mission and vision.

Thus, it should be noted that the aim of the study was achieved, and the possibilities of using the foresight method in the activities of public universities were determined.

Foresight offers many instruments and tools, with „brainstorm" and SWOT analysis being considered the best ones for an university.

TABLE 3. THE MAIN BARRIERS LIMITING THE APPLICATION OF FORESIGHT METHODS

Barriers	I do not agree	I do not know/ have no opinion	I agree
		%	
1. Information barriers (incomplete information, lack of information, information not delivered on time)	9.3	14.8	75.9
2. Cognitive barriers (insufficient understanding of the essence of pro-development activities)	1.9	25.9	72.3
3. Lack of interest in the foresight method	5.6	35.2	59.2
4. Environmental barriers	26.0	31.5	42.6
5. Ability barriers (reluctance to any changes that require additional commitment)	9.3	18.5	72.2
6. Lack of funding	18.6	31.5	50.0
7. Lack of involved personnel	3.8	18.5	77.7

Source: Own elaboration based on empirical research n =39+15

When using foresight instruments, the area of the student and the employee as key areas of the public university's activity should be improved first, with the use of foresight instruments from the point of view of economic efficiency and effectiveness.

The main barriers limiting the use of the foresight method in a public university include organization issues in the area of human resources, reluctance to change and additional workload.

It should be stated that the hypothesis stating that "foresight has various instruments that can be used by a public university to formulate value judgments and postulate the desired directions of changes in the conducted activity, but only some of these tools are dedicated to universities and accepted by stakeholders" was proved.

As a part of normative economics, it is recommended to formulate value judgments in the activities of public universities using the foresight method. The possibility of choosing the right instruments can significantly improve communication and coordination of the university's activities, as well as allows keeping the university's operating costs at a low level. Both students and university employees should be activated, especially in times of pandemic and distance education.

First of all, it is recommended to broaden the knowledge of foresight tools, as the conducted pilot studies clearly indicate that the respondents do not have extensive knowledge in this field. Due to a small research sample, this study should be treated only as an introduction to further in-depth research in this area. It is not recommended to make any generalizations. However, it is anticipated that this study will contribute to the expansion of scientific research in this field.

The results of the conducted pilot studies allow for the presentation of the scientific contribution on the methodological level. Since foresight, understood as a process of environment analysis, the process of learning and creating a university's mission and vision, is a complex issue, the authors have created their own, innovative diagnostic tool (index) of the use of foresight instruments by public universities. Foresight index - FORx.

In total, the index can take values from 0 to 40 +…n. In order to improve readability and facilitate comparisons between universities, the final value of the indicator is calculated after conversion to a standardized index ranging from 1 to 100 according to the following formula:

$$FORx = \frac{FORx + \cdots n}{38 + \dots n} * 100$$

where:

FORx - standardized value of Foresight index;

FORx + …n - provisional FORx index value (on a scale from 1 to 38)

n - value of additional new foresight instruments in the analysed periods.

The index presented in the form of a scoreboard - Table 4 (i.e. the value of each of the 40 variables or each of the five basic indicators) may be useful for direct comparisons of universities, as it shows them the areas of deficits and possible recommendations for new solutions. It should be remembered that public universities of similar size and complexity should be compared.

TABLE 4. INDICATORS COMPOSING THE FORX INDEX AND THE CORRESPONDING COMPONENT VARIABLES AND QUESTIONNAIRE QUESTIONS

No.	Indicator	Index component variables	Questionnaire question
1.	Providing information on currently used foresight methods (the indicator takes the values 0-8 and up to …..n)	The indicator includes 8 variables that take the value 0 or 1: - SWOT analysis - Delphi method - Brainstorm - Expert panel - Scenario analysis - PEST analysis - Bayer model - Backcasting	Which of the foresight methods are currently used at your university?
2.	Providing information on the areas of the university that are improved with the use of foresight methods (the indicator takes values 0-8 and up to .....n)	The indicator includes 8 variables that take the value 0 or 1: - Student area - Employee Area - Organization inside university - Organization within the Institute - Organization inside the Department - The social environment of university - Administration - Financial area	Which areas of your university are being improved using foresight methods?
3.	Providing information on which elements of foresight projects are the most important for a given university and are implemented by it (the indicator takes values 0-6 and up to .....n)	The indicator includes 6 variables that take the value 0 or 1: - Thinking about the future (analysis of the situation and the development of trends) - Discussing the future (views of different circles) - Identifying key success factors - Preparing a vision of the future (building scenarios at a general level) - Consultations with individual groups of university stakeholders - Shaping the future (expert recommendations, brainstorming)	Which elements of foresight projects are the most important and are implemented at your university?
4.	Possibility to provide information on which key success factors are implemented in a given university using foresight methods (the indicator takes values 0-6 and up to ….n)	The indicator includes 6 variables that take the value 0 or 1: - Financial factors - Economic factors - Social factors - Environmental factors - Cultural factors - Technical factors	Which key success factors are implemented at your university using foresight methods?
5.	Possibility to provide information on which foresight methods will be used by a given university next year (the indicator takes the value 0-10 and up to ....n)	The indicator includes 10 variables that take the value 0 or 1: - Methods based on the extraction of expert knowledge for the development of a long-term strategy (Delphi method, expert panel, SWOT analysis, public consultation) - Quantitative methods (extrapolation, modelling, cross-impact analysis, scenarios) - Methods defining key activity points (key technologies, reference tree)	Which foresight methods will you be using next year?
SCORING IN THE INDEX: method used, the instrument scores 1 point. None, no use of a given instrument 0 points.			

Source: Own elaboration

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