The Differences in Research Productivity Based on Gender, Age, Marital Status, and Academic Position Among Lecturers

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The Differences in Research Productivity Based on Gender, Age, Marital Status, and Academic Position Among Lecturers

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Abstract. This study aims to identify the figure of the research productivity among faculty members based on lecturer demographics at the Faculty of Economics, Universitas Negeri Medan (Unimed). This study was conducted by a survey using an electronic questionnaire. Research respondents were all lecturers at the Faculty of Economics, Unimed. From 119 populations, researchers have collected 48 research responses as samples with random sampling techniques. The results indicated that Permenristekdikti no. 20 yr 2017 and PAK-Dikti 2019 impact lecturer research productivity in terms of differences in the number of lecturer publications concerning an academic position. Thus government policy has stimulated a new motivational format for lecturers in writing scientific articles. Future studies can explore institutional factors that can maintain the quality and productivity of research in higher education.

Keywords: Research Performance · Lecturer · Higher Education

1 Introduction

Research productivity in Indonesia has become an interesting topic for discussion among academics or researchers in Higher Education. In terms of quantity, research productivity in Indonesia is still in the low category, namely at 0.05% of the National Research Master Plan (RIRN), from the target of 15% [1]. Thus, Higher Education has a strategic responsibility to increase the productivity figures of the research. In fact, the Government of the Republic of Indonesia, through the Ministry of Research, Technology and Higher Education (Ristekdikti) has urged this productivity through regulations in measuring lecturer performance. Kemenristekdikti issues Minister Regulation in Permenristekdikti no. 20 yr 2017 concerning monitoring and evaluation of scientific publications with the aim to urge the productivity of the research of the lecturer according to their academic

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position, such as associate professor and Professor [2]. If a lecturer is identified as not meeting the publication criteria, refer to Permenristekdikti no. 20 of 2017 will result in the temporary suspension of the professional allowance of lecturers. Additionally, in the demands of the fulfillment of Credit Score Assessment (PAK) for lecturers who submit an upgrading of Academic Position also requires the availability of certain scientific publications in accordance with the level of academic position.

Interestingly, this issue is not only being discussed of Indonesian academicians but also in various country, especially in research institutions [3]. Even research productivity is used as a major factor considered in faculty recruitment, promotion, and tenure so that it has social and economic value [3–5]. In Indonesia, the social and economic value of research publications began to take shape after the launch of Permenristekdikti no. 20 yr 2017 and publication index for lecturer and researcher through an information system called the Science and Technology Index (Sinta).

National evaluation systems like Permenristekdikti no. 20 year 2017 had actually been carried out by various developed countries and indeed had an impact in producing a more competitive academic environment [6–9]. However, the demographics of faculty members is vary naturally. So that the response of each university related to government policy would also vary depending on the culture and work orientation that had been formed from the academicians in the institution. There are some universities that responsively improve their research performance, but there are also some campuses that require a long time of adaptation [8, 10].

To anticipate those conditions, Unimed has taken a stance to bind lecturers with the enactment of the performance contract which contains the commitment of lecturers in the implementation of three value (in bahasa: Tridharma) of higher education referring to outcomes in the form of student acievement (teaching), scientific publications (research), community engagement and services (community service), and participation in scientific and profesional forums (other). The policy making is intended to build a new culture that is able to encourage the performance of lecturers' tridharma, especially in the achievement of publication productivity. However, unfortunately, this policy does not seem to have optimally resulted in performance achievements in line with institutional expectations, especially at the Faculty of Economics.

Based on demography, previous studies have found that there are differences in stress levels experienced by faculty members, in relation to research productivity demands, referring to their race, gender, and family obligations [3]. Furthermore, Aiston and Jung [11] review that gender produces a gap in research productivity. But they suspect that the gap was born from disadvantage of women in the academic profession which gives more privileges for men [11]. While several studies related to gender often link the limitations of women with family obligations [3]. This view certainly depends on the culture of a particular organization. Related to that, another study indicated that feeling of happiness had a relationship with the research performance of faculty members besides physical apperance [12]. On the other hand, Becker et al. [13] tested intrinsic and extrinsic motivation in reviewing research performance. They use the construct of commitment to the profession as an antecedent of intrinsic motivation and commitment to the institution as an antecedent of extrinsic motivation [13].

From the various organizational dynamics above, this study aims to review the research productivity of the faculty member at the Faculty of Economics, Unimed, from the point of view of respondents demographic distribution in Gender, Age, Marital Status, and Academic Position. These four conditions will describing various organizational dynamics as discussed above such as: gender as access distribution, age as self competitiveness, marital satus as a family obligation, and academic position as a commitment to profesion. This study seeks to review the productivity of research referring to these demographics to predict the readiness of Faculty Members in addressing Permenristekdikti no. 20 yr 2017 and compete competitively in the research sector nationally and globally. This study is an initial study of a series of studies that has implications for policy formulation in an effort to increase productivity and quality of research at the Faculty of Economics, Universitas Negeri Medan. Theoretically, this study would enrich the insight regarding human resources productivity and its determinant based on human characteristics, particularly in academic organizations. This study's findings also could be a reference for managerial action in higher education to improve academician research productivity.

2 Conceptual Framework

Referring to Law No. 12 of 2012 Article 1 Paragraph 9, Higher Education is obliged to carry out the Three Value (Tridharma) of Higher Education, namely Organizing Education, Research, and Community Service [14]. Education is the responsibility of the lecturer as an academic community, while research is the responsibility of the lecturer as a scientist, and community service is the responsibility of individuals who know who is then responsible for implementing their knowledge by transferring it to the community in various practices that are appropriate to their expertise. Furthermore, when referring to the reciprocal triangle conceptual framework of accounting theory, teaching, research, and practice is an inseparable cycle of mutual influence [15]. Teaching will be more fruitful with new research findings, while research will develop due to limited teaching. The most up-to-date teaching will result in cutting-edge practices, while the limitations of practice can be improved through teaching that continues to be improved through research. Furthermore, research can also directly recommend improvements in practice, and the limitations of practice will continue to demand research newness. From the above discussion, it can also be assumed that the novelty of teaching and practice, which in tridharma can be represented in community service, rests on research. Because research, with scientific methodology, can capture phenomena that are the root of the problem and can test solutions to problem-solving scientifically and carefully to produce new teaching material in the form of theories or conceptual frameworks which if implemented will improve quality of practice. Thus it can be understood both in terms of regulation, [illegible] theoretical research is an essential and strategic part of the field of lecturer work in Higher Education.

On the other hand, higher education is a strategic sector in the development of human resources. Interestingly, human resources are also strategic assets because humans have intangible assets in the form of knowledge. Therefore, since the late 1990s, organizational orientation has shifted from natural resources to knowledge resources which are, of

course, only possessed by humans [16, 17]. Although the global flow has shifted to the use of technology, the creation, development, and management of technology cannot be separated from the knowledge possessed by humans. Interestingly, knowledge creation and development is generally carried out by research, while knowledge dissemination is usually carried out from formal teaching in educational institutions, and informally through community service, or informal discussions with the community. These activities if reflected in higher education institutions, are the primary mandate that universities must carry out in tridharma [14].

Unfortunately, some tertiary institutions seem awkward in facing dynamic performance demands such as the integration of research results and the use of technology in learning, the needs of research outputs to reputable international publications, and the application for downstream of research results in community service activities. These policies facilitate coherence in the field of expertise of lecturers in the implementation of tri dharma. In general, previous studies have submitted a thesis related to the determinants of research productivity in higher education, among which are individual factors and institutional factors. This study will focus on individual factors on faculty members first. Associated with individual factors Cole and Cole & Cole [18] are of the view that productive academics have strong abilities and motivations in themselves that they love and enjoy their work and have implications for the creativity and productivity of their research. Such an individual has an inner drive in himself so that he has the stamina, determination, and desire for self-development which leads to continuous being in productive activities [18–20]. While Merton [21], in the theory of accumulative advantage, revealed that productive individuals would continue to be productive while those who are unproductive will also continue to be unproductive. The concept is related to reward because productivity that gets reward will trigger other productivity while non-productivity which will not get a trigger to produce productivity [18]. Furthermore, another study revealed, referring to the Utility Maximizing Theory, that an academic would abandon the productivity of his research if he felt other activities provided higher utilities [21, 22]. On the other hand, Cresswell [23] revealed the characteristics of individuals as innate attributes that can affect the productivity of a scientist such as ability, stamina, personality, gender, age, and years of experience.

Accordingly, individual factors themselves are formed from various aspects of personal self-motivation that are identical in their characteristics. So, each individual has their motivation to arrive at research productivity. Interestingly, if you look at the patterns seen in the Unimed Faculty of Economics, the lecturers' work patterns have been formed for a long time to become a habit and are thought to produce obstacles in accepting the demands of lecturer productivity. The formation of the habit can be as an implication of the accumulative advantage while the initial trigger should be suspected of the Utility Maximizing Theory. However, for the initial stage, this study seeks to explore lecturer demographics about research productivity. Demographics are identified by reviewing the number of research grants, the publication of research, and books of research results that are linked to individual characteristics such as gender, age, marital status, and academic positions. The individual characteristics chosen refer to Cresswell's [23] view which reveals that research productivity can be determined by individual characteristics identified from his / her innate attributes such as ability, stamina, personality, gender,

Table 1. Demography of sample

Factors		N	Mean	Std. Dev.	Std. Error Mean	t	Levene's Test for Equality of Variances	
							F	Sig.
Gender								
Research Grant	Female	14	2,071	1,491	0,398	-1,303	1,517	0,225
	Male	32	3,093	2,751	0,486	-1,625		
Article Publication	Female	14	6,142	7,969	2,130	0,063	0,043	0,838
	Male	32	5,968	8,902	1,573	0,066		
Book	Female	14	0,642	0,633	0,169	0,048	0,650	0,424
	Male	32	0,625	1,313	0,232	0,062		
Ages								
Research Grant	< 45	26	2,769	1,903	0,373	-0,041	4,087	0,049
	> 45	20	2,800	3,105	0,694	-0,039		
Article Publication	< 45	26	6,192	9,397	1,843	0,153	0,022	0,883
	> 45	20	5,800	7,515	1,680	0,157		
Book	< 45	26	0,461	0,646	0,126	-1,147	1,157	0,288
	> 45	20	0,850	1,565	0,350	-1,043		

age, and years of experience. Although only testing the demographics of the sample, this study will indicate several things, namely the concept of accumulative advantage, which is proxied in obtaining a research grant. The impact of Permenristekdikti no. 20 yr 2017, which is proxied in an academic position which will also simultaneously test the Utility Maximizing Theory. Because the utility obtained from research is no longer just a grant, and credit, but the value is added to the publication criteria and makes it a requirement for a promotion. Thus the value of the publication automatically increases the utility of research productivity. This study will produce a new database related to lecturer.

demographics which will then be conceptually translated as the basis for strategic decision making. The output of this study will be useful for developing policies that can stimulate lecturers to increase their research productivity. The policy can be in the form of new rules, evaluation policies, reward and punishment policies, as well as ongoing training to improve lecturer competence.

3 Research Method

The current study was conducted at the Faculty of Economics, Medan State University. The population of this study was lecturers at the Faculty of Economics, Unimed. Data were collected using random sampling techniques in the population [24]. From 119 faculty member, researchers have received 48 responses. The unit of analysis is the

individual. Researchers use the survey method for collecting the data. Survey is a measurement process that is used to gather information in a well-structured interview, with or without the interviewer [25]. The survey in this study was carried out with the help of electronic forms. Electronic forms are distributed to all lecturers privately to ensure all faculty members have access to the questionnaire. Instrument filling is voluntary and anonymous. It was done to ensure the independence and honesty of faculty members in filling out the instruments.

The collected data is then tabulated and analyzed with descriptive statistics, t-test, and MANOVA test. Descriptive statistics are used to identify the mean and standard deviation of the data so that demography is known from the sample. Then the t-test is used to sharpen the demographics so that the differences in productivity of research grants, article publications, and books from gender and age variables would be known. T-tests were chosen because gender and age only have two categories, although there are three dependent variables [26] while MANOVA is useful for reviewing differences in research productivity from marital status and academic position variables. Manova was chosen because marital status and academic positions have three categories with three dependent variables, namely: productivity of research grants, article publications, and books [26]. With MANOVA data analysis can be done in the single test.

4 Result

The demographics of respondents, presented in Table 1, show that the male population is greater than the women in faculty members. The number of men is twice the number of women, while in the age category groups < 45 and > 45 are generally evenly distributed. Based on the t-test, there were no significant differences in the productivity of male and female studies. While in age, there was a significant difference in the productivity of research grants. If viewed from the actual average of the numbers owned by the two groups are relatively similar. However, the contrast is seen in the standard deviation figures, which indicate a significant productivity gap in groups > 45. Thus the significance is assumed to occur due to the gap.

Furthermore, Table 2 presents the results of the MANOVA analysis on the variable academic position and marital status. The results of the MANOVA test show that, in the variable academic position, there were no significant differences in the productivity of research grants and books, while there were significant differences in the productivity of article publications. Furthermore, in the marital status variable, there were no significant differences in the productivity of research grants, article publications, and books.

These results found that there were significant differences in the productivity of scientific articles in the sample group with certain academic positions. These findings indicate that the policy related to the research performance of lecturers as regulated in Permenristekdikti no. 20 yr 2017 began to have an impact on the research performance of lecturers at the Faculty of Economics. By making the publication as a condition for academic promotion, every lecturer in a certain academic position must prepare research publications at a certain level to be categorized as academically qualified so that they are eligible to occupy higher levels of academic positions. This conjecture is reinforced by other findings that do not show any significant differences, and only

Table 2. Result of MANOVA analysis for academic position and marital status

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Academic Position	Reserch Grant	9,707	2	4,853	0,790	0,460
	Article Publication	533,348	2	266,674	4,170	0,022
	Book	3,163	2	1,581	1,224	0,304
Marital Status	Reserch Grant	22,772	3	7,591	1,270	0,297
	Article Publication	33,869	3	11,290	0,146	0,932
	Book	5,406	3	1,802	1,420	0,250

scientific publications on academic positions indicate the significance of the differences. So the findings of this study are pursed in this phenomenon.

5 Discussion and Conclusion

The results showed no significant differences in research productivity, both research grants, article publications, and books for lecturer groups distributed according to gender, age, marital status, and academic position. Exceptions occur specifically in academic positions because it shows significant differences in the productivity of article publications. Researchers suspect that the phenomenon occurred as a result of government policy in Permenristekdikti no. 20 yr 2017. Permenristekdikti no. 20 yr 2017 increases the value of a scientific publication by making it a condition of academic promotion. Also, lecturers' publication should meet certain criteria, such as propriety threshold, linearity with a lack of knowledge, published in national accredited journals or internationally reputable. In this context, the Utility Maximizing Theory works. As the value of scientific publications increases, so does its utility. Furthermore, any increase in an academic position, as well as metra, increases economic benefits and accessibility to other economic benefits such as access to certain research grants, sabbatical leave, reputation, and so on.

Referring to the views of Becker et al. [13], related to commitment to the profession and commitment to institutions, policies such as Permenristekdikti no. 20 yr 2017 actually covers both motivations. Profession commitment is locked in the obligation of lecturers to have certain scientific publications as conditions for academic promotion. Whereas, the career of a lecturer is determined based on the continuity of academic positions to the highest level as a professor. Thus the lecturer is directly motivated to increase the productivity of his scientific publications. Furthermore, as a commitment to the institution, lecturers are urged to maintain their publication productivity through higher education accreditation regulations. Faculty members are required to have adequate publication ratios to contribute to preserving accreditation points to get the highest

accreditation profile. Thus faculty members are required to produce a sufficient quantity of article publications on an ongoing basis.

Regarding the commitment to the institution, Unimed strengthened the level of engagement with a performance contract. Since 2018 lecturers have been bound by certain performance contracts to ensure the performance of teaching, research and community service following the accreditation targets and targeted institutional achievements. Thus, the lecturer has a target of publication, both in quantity and quality, which must be done in one fiscal year. These efforts were made in addition to increasing research productivity in general as well as equitable distribution of productivity among all faculty members. So that research productivity does not grow only from a group of lecturers, but whole faculty members. So that the distribution of academic performance occurs holistically.

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