

ARTICLE



SOCIO-DEMOGRAPHIC DETERMINANTS OF FACULTY RESEARCH PRODUCTIVITY IN A LEVEL-III PHILIPPINE STATE COLLEGE

 Ryan Mark A. AMBONG*

Research, Development and Extension Unit, Occidental Mindoro State College, Philippines


*Corresponding author (ryanmark.ambong2017@gmail.com)

 Rizzi Angelica T. DAGOS

College of Agriculture, Occidental Mindoro State College, Philippines

 Susanita G. LUMBO

College of Agriculture, Occidental Mindoro State College, Philippines

 Amalia E. ROLDAN

Graduate School, Occidental Mindoro State College, Philippines

 Veronica C. FERRER

College of Teacher Education, Occidental Mindoro State College, Philippines

PUBLISHED: 26/08/2022

ACCEPTED: 23/08/2022

SUBMITTED: 11/08/2022

COPYRIGHT NOTICE:



© 2022 by authors. Licensee ERUDITUS®. This article is an **open access** article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

CITE THIS PAPER:

Ambong, Ryan Mark A.; Dagos, Rizzi Angelica T.; Lumbo, Susanita G.; Roldan, Amalia E.; Ferrer, Veronica C. (2022). "Socio-Demographic Determinants of Faculty Research Productivity in a Level-III Philippine State College" *Journal of Social Sciences: Transformations & Transitions (JOSSTT)* 2(05):22. DOI: <https://doi.org/10.52459/josstt25220822>

ABSTRACT

This paper explores the extent of research productivity and its socio-demographic determinants among faculty members in a level-III state college in the Philippines. The results aim to influence the decision-making on identifying appropriate interventions to further enhance research productivity and encourage faculty members to engage in research undertakings. The results suggest that socio-demographic characteristics of faculty members such as age, administrative designation, and supervision of graduate research determine their likelihood of publishing a research paper.

KEYWORDS

Research productivity, Higher education, Socio-demographics, Graduate school, State college, Philippines

1. INTRODUCTION

The generators and transmitters of knowledge in the Philippine educational system are the Higher Education Institutions (HEIs) ([Inigo, 2017](#)). Likewise, the performance of scientific institutions like HEIs is gauged by the scientific productivity of their researchers ([Mulyanto, 2016](#)). According to the Philippine Commission on Higher Education (CHED), the scientific organizational system of the Philippines is composed of 1,943 public and private HEIs. About 98% of these are privately-run and the remaining comprise the State Universities and Colleges or SUCs (Saloma, 2017).

Graduate school is the research gear of HEIs ([Inigo, 2017](#)). According to Aihara ([2019](#)), the productivity of graduate students contributes to the success of graduate schools. Without a productive graduate program in science, technology, engineering, and mathematics (STEM), a research HEI would not flourish. On the other hand, a graduate HEI could not produce a PhD degree without a fertile venue for research since a PhD is a research degree ([Padilla-Concepcion, Padlan, & Saloma, 2008](#); [Inigo, 2017](#); Saloma, 2017). In general, universities and colleges measure research productivity in terms of the number of publications a researcher has produced ([Abramo & D'Angelo, 2014](#)).

Publications are also being considered as a major indicator of academic success, especially in a refereed journal with high impact or visibility ([Altbach, 2015](#)). With that, this paper aims to explore the extent of faculty research productivity and its socio-demographic determinants. This paper further aims to influence decision-making on identifying appropriate interventions to further enhance research productivity and encourage faculty members to engage in research undertakings.

2. METHODOLOGY

2.1. Research Design

This paper explores the research productivity and its socio-demographic determinants among faculty members of Occidental Mindoro State College, a level-III state college based on the SUC levelling classification by the Philippine Department of Budget and Management (DBM) and the Commission on Higher Education (CHED) (DBM-CHED, 2016). This study is based on the documentary evidence obtained from the Human Resource Management Office and the Research Office of Occidental Mindoro State College. Profile of tenured faculty members for the academic

year 2019-2020 and five-year data on research publications were obtained from these offices.

2.2. Data Analysis

For the main objective of this study, the authors follow the operational definition of research productivity by Alghanim and Alhamali (2011). Research productivity for this purpose is based on journal article authorship that had been published or accepted for publication by either peer-reviewed journals or conferences or both. Other forms of scholarly productivity such as book authorship and paper presentations were excluded (Alghanim & Alhamali, 2011).

A five-year data from a total of 270 tenured faculty members were included in the analysis. Data obtained were processed and analysed using IBM SPSS Statistics 20. Chi-Square Test was used to assess the difference between categorical variables (socio-demographic characteristics) while Binary Logistic Regression was used to determine the significant factors that influence research productivity. Tests conducted were two-tailed 0.05 level of significance. Moreover, Odds Ratio with a corresponding 95% confidence interval (CI) was also computed. According to Bland and Altman (2000), Odds Ratio enables to determine the effects of other variables on the relationship between binary variables (“yes or no”), using logistic regression.

3. RESULTS

Faculty members reported having refereed publications in the past five years comprised 15.92% (n=43) of the total tenured faculty members. Among these faculty members, 70.09% have published in refereed journals and 20.93% have publications in both refereed journals and refereed conference proceedings. The majority, or 69.46%, have their works published as co-authored work while about a quarter or 25.58% published as sole authors. From the total quantity of faculty members who have refereed publications, only 16.28% have published in either Scopus or WoS-indexed journal. Table 1 made by authors shows the research productivity among faculty members.

Table 1. Research productivity among faculty members

Indicators	Frequency	Percentage
<i>With refereed publication in the past five years ^a</i>		
Yes	43	15.92
No	227	84.08
<i>Type of authorship</i>		
Sole author	11	25.58
Co-author	26	69.46
Both	6	13.95
<i>Publication outlet</i>		
Refereed Journal	31	70.09
Refereed Conference proceedings	3	6.98
Both	9	20.93
<i>Published in Scopus/WoS-Indexed Journals ^b</i>		
Yes	7	16.28
No	36	83.72

^a with accepted paper for publication

^b or with paper accepted for Scopus/WoS-indexed publication

Table 2 presents the comparison between faculty members with publication and without publication in the past five years. There is a total of 270 teaching workforce where 65.56% are female and 34.44% are male. The results reveal that 43 out of 270 faculty members (15.93%) were able to publish in the past five years and 32 out of 43 (74.42%) of those faculty members are female, showing that they are more research productive than their male colleagues. Likewise, younger faculty members are more productive than older ones (30 out of 43 or 17.96%). In terms of years in the academic service, results show that faculty members with lower years of experience almost have the same productivity as those who have longer years of experience in the academe. Moreover, junior faculty members (up to assistant professor rank) have a higher level of research productivity than seniors (up to full-fledged professor rank). With regards to having a designation, it is revealed that faculty members with administrative designations (i.e., program heads, college deans, and unit directors) have a higher percentage of research productivity than those who are not involved in administrative functions. Finally, in terms of graduate research supervision, results reveal that faculty members who are involved in graduate research (47.83%) serving as advisers and technical panels were found to be more productive in research than those who were not.

Table 2. Research productivity according to selected socio-demographic characteristics among faculty members (n=270).

Characteristics	Published ^a (in the past five years)		X ²	p- value
	Yes (%)	No (%)		
Sex				
Male (n= 93)	11 (11.83)	82 (88.17)	1.7793	.182
Female (n= 177)	32 (18.08)	145 (81.92)		
Age (years)				
< 45 years (n= 167)	30 (17.96)	137 (82.04)	1.3581	.244
≥ 45 years (n= 103)	13 (12.62)	90 (87.38)		
Academic service (years)				
< 10 years (n= 150)	21 (14.00)	129 (86.00)	0.9349	.333
≥ 10 years (n= 120)	22 (18.33)	98 (81.67)		
Academic rank				
Junior (Instructor/Assistant Professor) (n= 239)	30 (12.55)	209 (87.45)	17.694	.000
Senior (Associate/Full Professor) (n= 31)	13 (41.94)	18 (58.06)		
Designated official				
Yes (n= 112)	17 (15.18)	95 (84.82)	0.0798	.778
No (n=158)	26 (16.46)	132 (85.54)		
Supervising graduate research^b				
Yes (n=23)	11 (47.83)	12 (52.17)	29.7067	.000
No (n=247)	32 (12.96)	215 (87.04)		

^a with accepted paper for publication

^b member of the advisory committee

The result of the binary logistic regression is summarized in Table 3. The results of the current study suggest that there is no statistically significant association between research productivity and socio-demographic characteristics such as sex, length of academic service, and academic rank. Hence, they do not predict nor determine the research productivity of faculty members. Meanwhile, the results of this current study indicate that younger faculty members are more likely to publish than older ones (p=0.010). Similarly, faculty members with designations are more likely to publish than those who are not (p=0.032) while those that supervise graduate research have a higher likelihood to publish research (p=0.003).

Table 3. Demographic determinants of research productivity: parameter estimates from binary logistic regression (n=270).

Characteristics	Odds Ratio (95% CI)	p-value
Sex		
Male (n= 93)	.435 (.18-1.05)	.065
Female (n= 177)		
Age (years)		
< 45 years (n= 167)	4.79 (1.44-15.86)	.010
≥ 45 years (n= 103)		
Academic Service (years)		
< 10 years (n= 150)	.508 (.18-1.41)	.194
≥ 10 years (n= 120)		
Academic rank		
Junior (Instructor/Assistant Professor) (n= 239)	1.44 (.38-5.45)	.596
Senior (Associate/Full Professor) (n= 31)		
Designated official		
Yes (n= 112)	.426 (.20-.93)	.032
No (n=158)		
Supervising graduate research		
Yes (n=23)	.15 (.04-.53)	.003
No (n=247)		

4. DISCUSSION

The findings of this study reveal that only 15.92% of tenured faculty members have refereed publications in the past five years and 83.72% of these publications are not indexed in Scopus and Web of Science (WoS) databases. This study also explores the socio-demographic determinants of research productivity. According to Okiki (2013), demographic variables have generally been associated with research productivity. However, the current study reveals that socio-demographic characteristics such as sex, length of academic service, and academic rank do not determine research productivity.

In terms of the number of refereed publications, female faculty members are found to be more research productive than their male colleagues. This finding comes in accordance with Wilder and Walters (2020) who found that women have higher research productivity than men in American Colleges and Universities. Even though more than 65% of the total population of faculty members are female, research productivity of males will still be lower when the total number of faculty members in each gender group is used as the denominator. The results, however, contradict the finding of Roro et al. (2021) who found that male faculty members have a higher likelihood to publish

in peer-reviewed journals than their female colleagues. de Kleijn, et al. (2020) further suggest that women are less represented among authors with a long history of publication. Likewise, Nygaard and Bahgat (2018) mentioned that most of the findings of the studies on research productivity suggest a gender gap such that women publish less than men. In the study of Feyera et al. (2017), it was found there was no statistically significant difference between publication productivity and sex. Nevertheless, the gender gap varies in different studies and there are few initiatives that would look if the proposition that men publish more than women is sensitive to what is measured and how it is being done (Nygaard & Bahgat, 2018).

In terms of age, results reveal that younger faculty members are more productive than older ones and younger faculty members are more likely to publish than the older ones which is supported by Alghanim and Alhamali (2011). This finding contradicts Feyera et al. (2017) who argue that productivity and age have no statistically significant difference. Moreover, results show that research productivity is not determined by the length of academic experience. According to Nafukho, Wekullo, and Muyia (2019), the experience of faculty is not a determinant factor of their research productivity and a faculty with longer years of experience is less productive. This also corroborates with Dakik, Kaidbey, and Sabra (2006) who mentioned that a higher publication rate is evident among new faculty members. On the other hand, Jung (2012) suggests that experience, depending on the discipline of the faculty, can either have a positive or negative effect on research productivity. Jung (2012) further mentioned Wanner et al. (1981) who propose that the research productivity of faculty will have different peak points depending on their specific fields of specialization. Experience has a greater impact on faculty researchers in soft disciplines than those in hard disciplines (Wanner et al., 1981; Jung, 2012).

For academic rank, this study reveals that junior faculty members (up to assistant professor rank) have more publications than senior faculty members (up to full professor). Studies such as that of Quimbo and Salubo (2014) and Tabago (2017) support the proposition that academic rank has a significant relationship with research productivity. Roleda, Tan, Caluba, Roleda, & Bombongan (2014) argue that this is possible since research output is required for a faculty to be promoted.

The current study also found that those faculty members with administrative functions have a higher likelihood of publishing research work. The finding, however, does not conform with Saloma (2017) who mentioned that the roster of faculty members in Philippine state universities and colleges (SUCs) with the potential to conduct research is decreasing since they are given administrative

positions after finishing research degrees or PhDs. Feyera et al. (2017), however, argue that there is no statistically significant difference in publication productivity in terms of the involvement of faculty in administrative functions. The current finding further contradicts some earlier studies (Alghanim & Alhamali, 2011; Iqbal & Mahmood, 2011; Cocal, Cocal, & Celino, 2017). With regards to graduate research supervision, it was found that faculty members who serve as mentors of graduate students are more likely to produce research publications. The same finding is supported by previous studies (Alghanim & Alhamali, 2011; Kotrlik, Bartlett, Higgins, & Williams, 2002). Furthermore, Hadjinicola and Soteriou (2006) mentioned that postgraduate students supervised by faculty members help in improving the quantity and quality of research outputs. Collaborative work between postgraduate student and their supervising professors also helps enhance research productivity (Alghanim & Alhamali, 2011).

To conclude, research productivity is critical for faculty career development and augmenting the accreditation level of state universities and colleges (SUCs). However, a gender gap is evident where female faculty members have more publications than male faculty members. Declining research productivity is also manifested by senior faculty members. However, it is worth mentioning that even though the length of academic experience does not necessarily predict research productivity, faculty members have varying productivity curve depending on their specific fields of specialization. It is important to recognize that research productivity is more critical to faculty members in soft disciplines than those in hard disciplines. Likewise, graduate school has a very essential role in enhancing research productivity. Hence, understanding the factors affecting the research productivity of the faculty members will facilitate the decision-making of the top management in identifying interventions that will further enhance productivity and will motivate more faculty members to engage in research activities.

ACKNOWLEDGEMENT: The proponents would like to acknowledge the Human Resource Management Office of Occidental Mindoro State College for providing the academic data of the regular faculty members used in this article.

FUNDING: The authors did not receive any external funding.

CONFLICT OF INTEREST: The authors declare no conflict of interest.

REFERENCES

- Abramo, G., & D'Angelo, C. A. (2014). How do you define and measure research productivity? *Scientometrics*, 101(2), 1129-1144. Available at: <https://arxiv.org/ftp/arxiv/papers/1810/1810.12830.pdf>
- Aihara, S. (2019). Determinants of the Research Outcomes of Doctoral Candidates in the Engineering Field of the American Research University. 8th International Congress on Advanced Applied Informatics (pp. 430-433). Toyama: Institute of Electrical and Electronics Engineers, Inc. DOI: <https://doi.org/10.1109/IIAI-AAI.2019.00094>
- Altbach, P. G. (2015). What Counts for Academic Productivity in Research Universities? *International Higher Education*. DOI: <https://doi.org/10.6017/ihe.2015.79.5837>
- Alghanim, S. A., & Alhamali, R. M. (2011). Research productivity among faculty members at medical and health schools in Saudi Arabia. *Saudi medical journal*, 32(12), 1297-1303. Available at: <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.976.3138&rep=rep1&type=pdf>
- Bland, J. M., & Altman, D. G. (2000). The odds ratio. *Bmj*, 320(7247), 1468. DOI: <https://doi.org/10.1136/bmj.320.7247.1468>
- CHED. (2012). Supplemental Implementing Guidelines on Cascading Performance Targets of State Universities and Colleges (SUCs) in Line with Executive Order (EO) No. 80 series of 2012. CHED Memorandum Order No. 35, s. 2012. Quezon City, Metro Manila, Philippines: Commission on Higher Education.
- Cocal, C. J., Cocal, E. J., & Celino, B. (2017). Factors Limiting Research Productivity of Faculty Members of a State University: The Pangasinan State University Alaminos City Campus Case. *Asia Pacific Journal of Academic Research in Social Sciences*, 2, 43-48. Available at: <http://research.lpubatangas.edu.ph/wp-content/uploads/2018/01/APJARSS-2017-1-07.pdf>
- Dakik, H. A., Kaidbey, H., & Sabra, R. (2006). Research productivity of the medical faculty at the American University of Beirut. *Postgraduate medical journal*, 82(969), 462-464. Available at: <https://pmj.bmj.com/content/82/969/462.short>
- DBM-CHED. (2016). FY 2016 Leveling Instrument for SUCs and Guidelines for the Implementation Thereof. DBM-CHEd Joint Circular No. 1, s. 2016. Manila, Philippines: Department of Budget and Management & Commission on Higher Education.

- de Kleijn, M., Jayabalasingham, B., Falk-Krzesinski, H. J., Collins, T., Kuiper-Hoyng, L., Cingolani, I., et al, e. (2020). The Researcher Journey Through a Gender Lens: An Examination of Research Participation, Career Progression and Perceptions Across the Globe. Elsevier. Available at: https://www.elsevier.com/data/assets/pdf_file/0011/1083971/Elsevier-gender-report-2020.pdf
- Feyera, T., Atelaw, H., Hassen, N. A., & Fufa, G. (2017). Publication productivity of academics in Jigjiga University, Ethiopia. *Educational Research and Reviews*, 12(9), 559-568. DOI: <https://doi.org/10.5897/ERR2017.3221>
- Hadjinicola, G. C., & Soteriou, A. C. (2006). Factors affecting research productivity of production and operations management groups: An empirical study. *Advances in Decision Sciences*, 2006. DOI: <https://doi.org/10.1155/JAMDS/2006/96542>
- Inigo, C. J. (2017). Productivity in Higher Education: Research insights for universities and governments in Asia. Chapter 8 Philippines. Lyceum of the Philippines University. Tokyo: Asian Productivity Organization. Available at: https://www.academia.edu/40005504/Productivity_in_Higher_Education_Research_insights_for_universities_and_governments_in_Asia_Cambodia
- Iqbal, M. Z., & Mahmood, A. (2011). Factors related to low research productivity at higher education level. *Asian social science*, 7(2), 188. Available at [ResearchGate](https://www.researchgate.net/publication/312211111)
- Jung, J. (2012). Faculty Research Productivity in Hong Kong across Academic Discipline. *Higher education studies*, 2(4), 1-13. Available at: <https://eric.ed.gov/?id=EJ1081295>
- Kotrlik, J. W., Bartlett, J. E., Higgins, C. C., & Williams, H. A. (2002). Factors associated with research productivity of agricultural education faculty. *Journal of Agricultural Education*, 43(3), 1-10. DOI: <https://doi.org/10.5032/jae.2002.03001>
- Mulyanto. (2016). Productivity of R&D institution: The case of Indonesia. *Technology in Society*, 44, 78-91. DOI: <https://doi.org/10.1016/j.techsoc.2015.12.001>
- Nafukho, F. M., Wekullo, C. S., & Muyia, M. H. (2019). Examining research productivity of faculty in selected leading public universities in Kenya. *International Journal of Educational Development*, 66, 44-51. DOI: <https://doi.org/10.1016/j.ijedudev.2019.01.005>
- Nygaard, L. P., & Bahgat, K. (2018). What's in a number? How (and why) measuring research productivity in different ways changes the gender gap. *Journal of English for Academic Purposes*, 32, 67-79. DOI: <https://doi.org/10.1016/j.jeap.2018.03.009>

- Okiki, O. C. (2013). Research productivity of teaching faculty members in Nigerian Federal Universities: An investigative study. Available at: <http://ir.unilag.edu.ng:8080/xmlui/handle/123456789/500>
- Padilla-Concepcion, G. P., Padlan, E. A., & Saloma, C. A. (2008). Selected Essays on Science and Technology for Securing a Better Philippines. Quezon City: University of the Philippines Press. Available at [Google Books](#)
- Quimbo, M. A., & Salubo, C. E. (2014). Research productivity and its policy implications in higher education institutions. *Studies in Higher Education*, 1955-1971. DOI: <https://doi.org/10.1080/03075079.2013.818639>
- Roleda, R., Tan, R. R., Caluba, A., Roleda, L., & Bombongan, D. J. (2014). Academic Linkages and Research Productivity. DLSU Research Congress 2014. Manila, Philippines: De La Salle University. Available at: <https://www.dlsu.edu.ph/wp-content/uploads/pdf/conferences/research-congress-proceedings/2014/TPHS/TPHS-II-015-FT.pdf>
- Roro, M., Abebe, W., Wondimagegnehu, A., Nega, A., Girma, S., Getnet, Y., ... & Sisay, M. M. (2021). Gender Difference in Research Productivity and its Associated factors in Addis Ababa University: a Cross-Sectional study. *Ethiopian Journal of Health Development*, 35(2). Available at: <https://www.ajol.info/index.php/ejhd/article/view/211672>
- Saloma, C. (2017, June). Measuring the Performance of our Higher Education Institutions- Part II. *Philippine Journal of Science*, 146(2), vii-viii.
- Tabago, L. C. (2017). Research Dissemination and Productivity of Faculty Members in a Higher Education Institution. *Advanced Science Letters*, 23(2). DOI: <https://doi.org/10.1166/asl.2017.7484>
- Wanner, R. A., Lewis, L. S., & Gregorio, D. I. (1981). Research productivity in academic: A comparative study of the Sciences, Social Sciences and Humanities. *Sociology of Education*, 54(4), 238-253. DOI: <http://dx.doi.org/10.2307/2112566>
- Wilder, E. I., & Walters, W. H. (2020). Publishing Productivity of Sociologists at American Colleges and Universities: Institution Type, Gender, and Other Correlates of Book and Article Count. *Sociological Perspectives*, 63(2), 249-275. DOI: <https://doi.org/10.1177%2F0731121419874079>