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CONSECUENCIAS DE LA POLÍTICA DE ASEGURAMIENTO DE CALIDAD EN LA PRODUCCIÓN CIENTÍFICA DE LAS UNIVERSIDADES MANABITAS: UN ANÁLISIS CIENCIOMÉTRICO

CONSEQUENCES OF QUALITY ASSURANCE POLICY IN THE ACADEMIC PRODUCTION OF MANABÍ UNIVERSITIES: A SCIENTOMETRIC ANALYSIS

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RESUMEN:

El propósito de este estudio es explorar la influencia de la Política de Aseguramiento de la Calidad en la producción científica de las universidades ecuatorianas localizadas en la provincia de Manabí. Se utilizó una muestra de documentos publicados en SCOPUS para obtener una caracterización de su producción científica usando indicadores cienciométricos (número de artículos, distribución de citaciones e índice-h). Los resultados muestran que la producción científica se ha incrementado en número desde la implementación de la política, pero el 47% de los artículos producidos en las universidades de Manabí han recibido cero citas durante el periodo seleccionado. Para efectos de comparación, se ha incluído en el estudio una de las universidades mejor ranqueadas en el país que cuenta solo con el 15% de sus artículos sin citas. El gobierno depende de los resultados de las evaluaciones para definir el presupuesto de las universidades y esta vinculación de la evaluación con el presupuesto contribuye a incrementar las inequidades entre las Instituciones de Educación Superior en el Ecuador.

Palabras Clave: calidad de la educación, evaluación de la educación, investigación.

ABSTRACT:

This study is aimed to explore the influence of the Research Quality Assurance Policy in the academic production of the Ecuadorian Universities located in the province of Manabí. A sample of documents published on journals indexed in SCOPUS was used to characterize their research production using scientometric indicators (number of items, distribution of citations and h-index). Results show that scientific production has increased since the policy implementation, but 47% of the papers produced in the universities of Manabí have received zero citations during the selected period. One of the top-ranked universities in the country was included in the study to establish a comparison, and only 15% of their papers have not been cited. The government relies on the evaluation outcomes to determine university budget allocation, increasing inequalities among Ecuador's Higher Education institutions.

Keywords: educational quality, educational evaluation, research.

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1. INTRODUCTION

This study explores the influence of the Research Quality Assurance Policy in the academic production of the Ecuadorian Universities located in the province of Manabí. It provides a characterization of Manabí Universities’ research production using scientometric indicators (Fernández-Cano & Bueno, 1999).

Ecuador has 55 Universities that integrate the Ecuadorian Higher Education System. To become a member of this system, all universities, including public and private,) must participate in the process of evaluation and accreditation, as defined by the country's higher education governing institutions: CES (Consejo de Educación Superior – Higher Education Council) and CACES (Consejo de Aseguramiento de la Calidad de la Educación Superior - Higher Education Quality Assurance Council).

CES has the objective of planning, regulating, and coordinating the Higher Education System in Ecuador and overseeing the relationships between higher education institutions, the government, and the Ecuadorian society (Colcha & Quinde, 2014). CACES, on the other hand, oversees policy development for the evaluation, accreditation and quality assurance of Ecuadorian Higher Education Institutions (Colcha & Quinde, 2014). To achieve its supervisory goal, CACES carries out periodic processes of evaluation and accreditation based on the "Evaluation Model for Universities and Polytechnic Schools," an assessment tool created for accreditation purposes (CACES, 2015).

The Model of Evaluation sets the Quality standards for higher education institutions. It is developed considering different criteria (CACES, 2015):

- Institutional organization. - This criterion considers institutional, organizational processes that enable higher education institutions to establish, control and evaluate the achievement of institutional objectives.
- Faculty Members. – This criterion evaluates the qualification of the faculty members and the existence of working conditions that promote an adequate development of their teaching, research and community outreach activities.
- Research. The research criterion evaluates the institutional dissemination of research objectives

and plans and the results achieved by the researchers in higher education institutions. Research is considered a central element of universities and polytechnic schools and should be planned and executed, considering the availability of human talent and resources.

- Community outreach. – This criterion measures the capacity of higher education institutions to address the necessities of their environment and the contribution of the universities and polytechnic schools to solve community problems and generate social development.
- Infrastructure. – In this criterion, the characteristics of physical and digital infrastructure are examined, measuring its capacity to provide an adequate framework for the development of the activities of the academic community.
- Students. – This criterion considers the policy and initiatives of the higher education institutions to facilitate acceptable conditions for the students to achieve success in their academic formation.

The research criterion has two indicators related to the planning and management of research activities and funding and three indicators related to research outcomes (scientific papers and book publication). In terms of scoring for the universities accreditation, the most important of these indicators is the one related to the number of publications in journals indexed by SCOPUS or ISI Web of Knowledge(CACES, 2015 p.26). With a weight of nine percent, this is the indicator with the most significant score in the entire model (CACES, n.d.).

Perspectives

The Evaluation Model for Universities and Polytechnic Schools in Ecuador considers quality the "permanent search for excellence, pertinence, optimal production, knowledge mobilization and thinking development using auto-criticism, external criticism and continuous improvement" (CACES, 2015). The research production indicators are now fully integrated into the Ecuadorian universities' activities. Because policy reshapes the environments in which they have been introduced (Shore & Wright, 2011), these indicators have implications for instructors and researchers' training,

internal policy formulation, implementation and funding. Around 60% of the yearly budget allocation for each university is defined by the outcomes of the CACES periodic evaluations (CES, 2013).

Quality is the main objective of the research indicators, but at this point, the indicators are calculated to prioritize quantity over relevance and impact. As long as the papers are published, no importance is given to what they are used for or their contribution to other researchers. This situation is evident in the four public universities located in the province of Manabí. This motivation toward increasing "productivity" (measured by the number of published papers) is not entirely aligned with the quality definition in the Ecuadorian Higher Education System.

2. METHODS AND DATA SOURCES

This research has a descriptive scope. The purpose of considering this scope is to describe the specific characteristics of the research production of the universities in the province of Manabí. Descriptive studies are helpful to show the dimensions and perspectives of different phenomena, situations, communities or contexts (Hernández et al., 2010). In this case, it can be helpful to show the policy's influence on research practices.

SCOPUS was selected because it is one of the two only explicitly declared databases (the other is ISI Web of Knowledge) considered valid by the Evaluation Model (CACES, 2015). This work was conducted on the research papers produced by the universities in Manabí, using scientometric analysis. Fernández and Cano (Fernández-Cano & Bueno, 1999), scientometric research is based on different indicators to represent the structure of research production. Even though they describe several indicators (related to diachronic production, author's productivity, institutional productivity, citation analysis, analysis of content, among others), not all of them are used in this research.

An ad hoc selection was performed because this work focuses more on the institutional level. The chosen indicators are the number of items per year and institution, distribution of citation frequencies and h-index (indicators description can be found in Table 1). The h- index for four universities was calculated to relate paper production in numbers with their impact. The h-index is

commonly used for authors in different databases (SCOPUS, ISI WOK and Google Scholar), but its application is not restricted to groups of documents or institutions. Microsoft Excel 2016 was used to calculate the indicators and generate figures and tables.

Table 1. *Description of the scientometric indicators used in this study.*

Indicator	Description
A. Number of items per year and institution	Each year the published items (mainly articles) are counted. Although it is a common practice to group years, in this case, the only created group is the one formed by papers published before 2010. This will show the evolution of the generated documents before and after the research quality policy enactment.
B. Distribution of citation frequencies by papers	I am using the following intervals: studies with no citations, with 1 to 10 citations, 11 to 20 citations, or more than 20 citations.
C. H-index	"An entity has an h-index value of y if the entity has y publications that have all been cited at least y times" (Hodge & Lacasse, 2011, p. 583)

There are four public universities in Manabí: UTM (Universidad Técnica de Manabí), ULEAM (Universidad Laica Eloy Alfaro de Manabí), UNESUM (Universidad Estatal del Sur de Manabí), and ESPAM-MFL (Escuela Superior Politécnica Agropecuaria de Manabí – Manuel Félix López). The affiliation search performed using SCOPUS search tools showed that only UTM and ULEAM have institutional profiles on that database. An author search allowed to get the affiliation for UNESUM and ESPAM-MFL. Some of the results include an additional university: USFQ (Universidad San Francisco de Quito), the best-ranked university in the country at the date of this study (according to QS ranking). USFQ will serve as a reference to better understand the differences among the universities in Ecuador.

The sample selection process considered all types of documents (articles, conferences, book chapters, reviews, notes, editorials, letters) in SCOPUS, as long as they fulfill the following conditions:

- They were published in 2018 or before.
- They must be already published ("in press" documents were not considered).

- Authors must have provided an explicit affiliation with their respective Universities.

3. RESULTS

Indicator A: Items per year and institution. Universities in Manabí have generated a combined total of 296 SCOPUS indexed papers while USFQ has produced 1.847, which is 16% of USFQ's production. Considering the 2013 -2018 period, the difference is still very high, with Manabí's Universities generating 289 items and USFQ 1168, with a proportion of 25%. Table 2 details the production per year and institution.

Table 2. Document production per year and institution. The yellow line represents the introduction of the Quality Assurance Policy.

	UTM	UNESUM	ESPAM-MFL	ULEAM	USFQ
Before 2010	5	0	0	2	436
2010	0	0	0	0	55
2011	0	0	0	0	81
2012	0	0	0	0	107
2013	2	6	2	3	88
2014	0	1	1	11	92
2015	7	1	0	26	115
2016	12	2	3	25	179
2017	38	7	1	38	314
2018	51	7	2	43	380

Indicator B: Distribution of citation frequencies. This indicator focuses on the number of citations each university's publication achieves. Only 157 (53%) of the items have been cited at least once, and 6 of those items have reached more than 20 citations. The most common interval is 1 to 10 citations per item with 135 documents in total (see table 3 for individual institutions' details).

Table 3. *Distribution of citations frequency*

	UTM		UNESUM		ESPAM-MFL		ULEAM		USFQ	
	#	f	#	f	#	f	#	f	#	F
Zero citations	64	56%	16	67%	2	22%	57	39%	272	15%
1 to 10 citations	49	43%	6	25%	6	67%	74	50%	772	42%

11 to 20 citations	2	2%	2	8%	1	11%	11	7%	292	16%
21 to 30 citations	0	0%	0	0%	0	0%	4	3%	187	10%
More than 30 citations	0	0%	0	0%	0	0%	2	1%	324	18%
Total	115	100%	24	100%	9	100%	148	100%	1847	100%

Indicator C: h-index. The highest h-index value in Manabí is 13, belonging to ULEAM (Table 4). The remaining universities do not exceed a value of 7 (UTM:7, UNESUM: 5 and ESPAM-MFL:5).

Table 4. *Citation percentages and h-index*

	UTM	UNESUM	ESPAM-MFL	ULEAM	USFQ
Number of documents	115	24	9	148	1847
Cited documents	51	8	7	91	1575
Percentage of cited documents	44%	33%	78%	61%	85%
h-index	7	5	5	13	75

Discussion

The paper production of universities in Manabí shows sustained yearly growth. It may not be the only cause, but it could be hypothesized that the model's formulation (in 2013) and implementation motivated researchers to publish more (Figure 1). Unfortunately, this progress is far from the best-ranked university in the country.

It was beyond the scope of this paper, but it could be of interest to do more research about the influence of the access type (Open access, subscription) over the number of citations. This could also show how the universities have adopted these practices in the province of Manabí.

Comparing this indicator with the number of produced items raises questions about the purpose of research production in Manabí's universities. More in-depth research is needed to analyze how resources have been used and how universities in Manabí support the researchers' activities. Further studies could use the acknowledgment index to provide insights about budget allocation

from the government to higher education institutions.

4. CONCLUSIONS

Comparing the values of Manabí Universities with USFQ's h- index (75) shows that even though the government policy aims to improve quality in all universities of the system, linking these results with the budget allocation seeks to reward prolific paper production as a sign of good resources usage. The actual problem is that in the way it is formulated now, instead of generating new opportunities for improving less developed universities with training and consulting, the quality model contributes to increasing inequalities between the higher education institutions in Ecuador. Universities with more experience and infrastructure will get more money, while the model punishes others with several restrictions, and they eventually will receive fewer resources.

To conclude, it is essential to note that this work is just one piece in the analysis of the policy enactment; policy enactment is not a linear process and is heavily dependent on actors and context (Ball et al., 2012). This study's scope only describes the impact of scientific production; still, future research can focus on the interaction between researchers, administrators, and the research offices' role as interpreters of the policy. The purpose of providing this characterization of the academic production of the universities in the province of Manabí is to generate discussion about the quality discourses that the government is promoting inside the higher education system in Ecuador and how those discourses are shaping the research practices in higher education institutions.

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REFERENCES

Ball, S., Maguire, M., & Braun, A. (2012). Doing enactment research. In How Schools Do Policy: Policy Enactments in Secondary Schools (pp. 1–9). NY Routledge.

CACES. (n.d.). Evaluación Institucional de Universidades y Escuelas Politécnicas - Instrumentos de Cuantificación del Desempeño Institucional.

CACES. (2015). Modelo de evaluacion institucional de Universidades y Escuelas Politecnicas.

CES. (2013). Reglamento De Aplicación de la Fórmula de Asignación de Recursos destinados anualmente por parte del Estado a favor de las Instituciones de Educación Superior (Issue 021).

Colcha, G., & Quinde, D. (2014). Implementación de un modelo y herramienta de inteligencia (balanced scorecard y cuadro de mando) para el mejoramiento de la gestión universitaria en el sistema administrativo, de la Escuela Superior Politécnica De Chimborazo, para el período 2014-2018. Escuela Politécnica de Chimborazo.

Fernández-Cano, A., & Bueno, A. (1999). Synthesizing scientometric patterns in Spanish educational research. In Scientometrics (Vol. 46, Issue 2, pp. 349–367). Kluwer Academic Publishers. https://doi.org/10.1007/BF02464783

Hernández, R., Fernández, C., & Baptista, M. (2010). Metodología de la investigación. McGraw Hill Mexico.

Hodge, D. R., & Lacasse, J. R. (2011). Ranking disciplinary journals with the Google scholar h-index: a new tool for constructing cases for tenure, promotion, and other professional decisions. Journal of Social Work Education, 47(3), 579–596. https://doi.org/10.5175/JSWE.2011.201000024

Shore, C., & Wright, S. (2011). Conceptualising policy: Technologies of governance and the politics of visibility. In Policy Worlds: Anthropology and the analysis of contemporary power (pp. 1–26). NY: Berghahn.