Agro Ekonomi

Agro Ekonomi, Vol.xx/Issue x, December, Page xx-xx

Are Official Statistics Underexploited by Researchers and Policymakers? The Case of Agriculture Sector in Indonesia

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ARTICLE INFO

Article History :
Submitted 17 December 2023
Revised 26 May 2024
Accepted 30 January 2025

Keywords :
Agriculture policy
Agriculture research
Official statistics
Policymaking ecosystem

How to cite:
Priyarsono, D.S and Ahmad, F.S 2025. Are Official Statistics Underexploited by Researchers and Policymakers? The Case of Agriculture Sector in Indonesia . Agro Ekonomi xx(x), xx-xx

ABSTRACT

This study is intended to evaluate the utilization of official statistics for academic research as well as for policymaking in agriculture sector in Indonesia. To achieve the goal a conceptual framework of the relationship among official statistics, academic research, and policymaking was constructed. The intensity of official statistics use for academic research was examined by analyzing the content of 7814 articles published in all 47 scientific journals officially affiliated with the Indonesian Society of Agricultural Economics (PERHEPI), 1978-2023. It is found that the majority of the articles (62.6%) did not use BPS data. Furthermore, in the last two decades the utilization of secondary data for academic research papers tends to decrease, from 55.7% of the total articles published in 2004-2013 to 42.4% in 2014-2023. These results of calculation and other quantitative analyses were shown to 80 prominent resource persons for evaluation. The majority of the respondents assessed that the level of utilization of BPS data was low or very low. The factors that determine the level of utilization are relevance, accessibility, preference, and quality of the data. The respondents also identified the needs to solve the problems of communication, collaboration, and coordination among the stakeholders of the ecosystem (official statistics agency, academia, and policymakers) to improve the functioning of the ecosystem of data utilization. These findings are potentially beneficial for providing points of consideration in public discourses including those for revising the statistics law (UU Statistik) that has been undertaken by lawmakers in the Indonesian parliament (DPR) since 2023.

INTRODUCTION

Since long time ago idealists have aspired to create public policies that are based on a solid scientific reasoning. It means that the policies are not only logically valid but also empirically well proven. Evidence-based policy is a concept in public policy that advocates for policy decisions to be grounded on, or influenced by, rigorously established objective evidence. This concept presents a stark contrast to policymaking predicated on ideology,

ISSN 0215-8787 (print) ISSN 2541-1616 (online)
Available at https://jurnal.ugm.ac.id/jae
https://doi.org/10.22146/ae.92071

'common sense,' anecdotes, or personal intuitions (Baron, 2018).

Boswell & Smith (2017) set out four different approaches to theorizing the relationship between research and policymaking: (1) knowledge shapes policy; (2) politics shapes knowledge; (3) co-production; and (4) autonomous spheres. See Figure 1 in Appendix 1. In each of the approaches, data from the official statistics (officially produced by government) presumably have important role. If the first three (but not the fourth) theories of the relationship between research and policymaking are valid, then official data are expectedly analyzed in academic research activities. The results of the research are then discussed in academic forums, including scientific publications.

Figure 2 (see Appendix 1) shows a simple view of the relationship among official statistics, academic research, and policymaking. Official statistics are data that are collected (by surveys, censuses, or other methods), compiled, analyzed, and published by a governmental agency such as BPS (Badan Pusat Statistik, Statistics Indonesia) in Indonesia. See Yung (2021) and Navarro et al. (2023) for the most recent development of official statistics in an international perspective. Theoretically, through Arrow-1 in the figure, there is a flow of official data from the provider of official statistics to the academia where research projects are conducted. The projects can use the data for evaluating and planning public policies (government programs). They can also produce recommendations regarding new initiatives for solving various problems or new innovative public policies. These recommendations flow through Arrow-2 in the figure. On the other hand, there is a feedback of information flow from the policymakers to the provider of official statistics and to the academia through Arrow-3 and Arrow-4, respectively. This flow of information is needed to make sure that the data and the output of academic research are relevant for policymaking. Similarly, there is a flow of information from the academia to the provider of official statistics through Arrow-5 to ensure the relevance of official data with the needs of the academia. Some official statistics are ready to be used by policymakers (government officials) for policymaking without requiring interpretation or analysis in academic research. These official statistics flow through Arrow-6. In many occasions the simple view is simply too good to be true. Indeed, policies are often products of complicated political economic process. This phenomenon may help explain why some policies are ineffective, inefficient, or even irrational from the point of view of decision science.

This study is intended to demonstrate to what extent the theories of the relationship between research activities and policymaking are empirically evident. More specifically, this study addresses the issue of the utilization of official statistics for research. This approach

is based on the proposition that (1) *evidence-based policies are formulated based on evidence produced by scientific research*, and (2) *the scientific research activities are conducted by intensively exploiting official statistics*. Studies on the relationship between academic research and policymaking are exemplified by Duiveman (2020), Cairney & Oliver (2020), Hillgren et al. (2020), and Capano & Malandrino (2022).

The scope of the study is confined to the case of agriculture sector in Indonesia. There are many unsolved serious problems in the sector, such as problems of food insecurity, low productivity, unemployment, poverty, unstable prices, unfair international trade, deteriorating environmental conditions, etc. To solve the problems good public policies are needed. For discussions on evidence-based agricultural policies in international perspectives, see Yu & Wu (2018), Laiprakobsup (2019), Gava et al. (2020), Mdee et al. (2021), Hamman et al. (2021), Metz et al. (2021), Fusco (2021), Houaga et al. (2023), Purnamasari et al. (2023), and Hoshide (2023).

The fact that there are many unsolved problems in the agriculture sector in Indonesia may indicate that there are missing links in the ecosystem of policymaking in Indonesia. In a popular public discussion forum (The Conversation) it is reported that Indonesian policymaking is not supported by quality research and academic freedom (Appendix 2:1). Similar findings were reported by Blomkamp et al. (2018) and several major research reports published, among others, by Overseas Development Institute (Appendix 2:2), and Knowledge Sector Initiative, Bappenas & Australian Government (Appendix 2:3). Prasetiamartati et al. (2018) explored the challenges faced by Indonesian academics in producing policy-relevant research. From a wider perspective, Professors Hal Hill (Australian National University) and Thee Kian Wie (Indonesian Institute of Sciences) evaluated strategic environments in higher education system in Indonesia that are not conducive for creating healthy research ecosystem. Their work entitled "Indonesian Universities in Transition: Catching Up and Opening Up" appeared in *Bulletin of Indonesian Economic Studies*, *48*(2), 229–251. Policy failures may also indicate some immaturity in the democratic mechanism of law making in Indonesia (Mahy, 2022), such as the lack of public participation in the making of the controversial Omnibus Law on Job Creation (Appendix 2:4).

The objectives of this study are (1) to describe the utilization of official statistics for research on agricultural development in Indonesia, (2) to assess the trends of intensity of official statistics utilization for research on agricultural development in Indonesia by comparing sets of data from several periods of time, (3) to identify the factors that determine the intensity of official statistics utilization for research on agricultural development in Indonesia based experts' opinion,

and (4) to propose recommendations for improving the intensity and quality of official statistics utilization for research on agricultural development in Indonesia.

METHODS

The method of this research consists of several steps:

1. Analysis of content of all articles (7814 academic papers available on the internet) published in all 47 journals officially affiliated with the PERHEPI (Indonesian Society of Agricultural Economics), 1978-2023,
2. Classification of articles based on type of utilized data,
3. Comparison of intensity of data utilization from two consecutive decades (2004-2013 and 2014-2023), and
4. Survey on the opinions of respondents (resource persons) for interpreting the results of the articles content analysis, identifying the factors that determine the intensity of official statistics utilization for the research, and synthesizing the strategies for improving the intensity and quality of official statistics utilization for research on agricultural development in Indonesia.

The use of articles published in the journals as the observation objects assumes that members of PERHEPI in their professional activities use Indonesian agriculture data most frequently relative to members of any other societies in the country. PERHEPI was established on February 13, 1969, in Ciawi Bogor. In 2017 the number of registered members of PERHEPI was 2269 (www.perhepi.org). They are people from the academia (researchers, lecturers, and students) as well as government officials from ministries or agencies related to agriculture sectors in 32 major cities in Jawa, Sumatera, Kalimantan, Bali, and other islands in Eastern Indonesia. PERHEPI regularly hosts academic forums in which reports of research results on agricultural development in Indonesia are presented and discussed. Academic journals officially affiliated with PERHEPI publish scientific articles on agricultural economics, development studies, and related public policies. Therefore, articles in the journals can be perceived as representative indicators of research activities of academicians as well as policymakers in the agriculture sector.

The content of each article published in the journals was analyzed to answer the following questions:

(1) Did it use primary or secondary data?
(2) If it used secondary data, did it use BPS data?
(3) If it used BPS data, did it use agricultural census data?

Additionally, the analysis also attempted to identify whether the BPS data were used as primary source of information for constructing arguments or they were used only for supporting evidence.

Results of the content analysis are provided in Tables 1 and 2. These tables are shown to the respondents of the survey. The following criteria were applied in selecting the respondents: he/she must (1) be a Ph.D. (doctorate) degree holder, (2) have educational background in agricultural economics or social sciences related to agricultural development, (3) be a university lecturer, a researcher, a policy analyst, or a public servant in a field related to agricultural development. The questionnaires in Google Form were sent by smartphone via WhatsApp application to 139 potential respondents purposively selected from five networks, i.e., PERHEPI, universities, Ministry of Agriculture, Ministry of National Development Planning / National Development Planning Agency (Bappenas), and Statistics Indonesia (BPS). The success rate is 58%, i.e., 80 respondents sent back their answers.

RESULT AND DISCUSSION

Figure 3 (Appendix 1) exhibits a chart showing the distribution of published articles in all PERHEPI officially affiliated journals in the period of January 1978 to September 2023. Clearly, over the years the number of published articles in the journals grow rapidly (almost exponentially).

Content analysis was implemented to 7814 articles published in the 47 journals officially affiliated with PERHEPI (see Supplementary Files). It is found that among the articles there are 2922 articles (37.4% of the total articles) using BPS data either from the result of *Sensus Pertanian* or agriculture census (24.5%) or from other surveys (from non-agriculture census data, 12.9%). The first finding of this study is that most of the articles (62.6%) did not use BPS data. In other words, most of the articles (62.6%) use primary data or non-BPS secondary data. See Table 1.

Data produced by agriculture censuses were used by 1915 articles (24.5% of all articles published in the journals). Among all articles that use agriculture census data it is found that 937 (48.9%) articles use the data as the main material for analysis,

Table 1. The intensity of official statistics (BPS data) utilization for research on agricultural development as represented by the articles published in all PERHEPI officially affiliated journals, 2000-2023

Data Type			Number of articles	%
Primary Data			4102	52.5
Secondary Data	Non-BPS Data		790	10.1
	BPS Data	Non-Agriculture Census Data	1007	12.9
		Agriculture Census Data	1915	24.5
Total			7814	100.0

Source: Authors' analysis (2023)

Table 2. The role of Agriculture Census Data in research on agricultural development in Indonesia as represented by the number of articles published in PERHEPI officially affiliated journals, 2000-2023

Role	Number of articles	%
The main material for analysis	937	48.9
Citation for supporting the argument	978	51.1
Total	1915	100

Source: Authors' analysis (2023)

whereas the other 978 articles (51.1%) use the data as citations for supporting argument. See Table 2. Articles in the first category can be considered as utilizing the data more intensively than those in the second category. For discussions of the importance of 2023 agriculture census (ST2023), see (Priyarsono, 2023b, 2023a).

To analyze the trends of the use of official statistics for academic research, the data of the last two decades are compared (2004-2013 versus 2014-2023). The cutting point of the two periods is chosen based on the consideration that every ten years since 1963 through 2023 a census of agriculture was conducted by BPS. Table 3 shows that in the last two decades the percentage of articles using secondary data has decreased significantly, from 55.7% in the first decade to 42.4% in the second decade.

On the other hand, despite the many improvements in the quality and diversity of data produced by BPS, the statistics for academic research as represented by the percentage of

Table 3. The number and percentage of the articles using primary and secondary data in the last two decades (2004-2013 versus 2014-2023)

Type of data used	Number and percentage of the articles	
	2004-2013	2014-2023
Primary data	581 (44.3%)	3491 (57.6%)
Secondary data	730 **(55.7%)**	2570 **(42.4%)**
Total	1311 (100%)	6061 (100%)

Source: Authors' analysis (2023)

Table 4. The number and percentage of the articles using BPS and non-BPS data in the last two decades (2004-2013 versus 2014-2023)

Type of data used	Number and percentage of the articles	
	2004-2013	2014-2023
BPS data	450**(34.3%)**	2157 **(35.6%)**
Non-BPS data	861 (65.7%)	3904 (64.4%)
Total	1311 (100%)	6061 (100%)

Source: Authors' analysis (2023)

Table 5. The number and percentage of the articles using BPS and non-BPS data in the last two decades (2004-2013 versus 2014-2023)

Type of data used	Number and percentage of the articles	
	2004-2013	2014-2023
BPS data	450 **(61.6%)**	2157 **(84.0%)**
Non-BPS data	280 (38.4%)	413 (16.0%)
Total	730 (100%)	2570 (100%)

Source: Authors' analysis (2023)

scientific articles has been stagnant or only very slightly increased, from 34.3% in the first decade to 35.6% in the second decade. (Table 4).

However, if the articles using primary data are excluded, the trend of percentage of articles using BPS data is significantly positive, from 61.6% in the first decade to 84.0% in the second decade (Table 5). This is a positive progress even though most of the articles did not use BPS data (the first finding of this study). It is also interesting to note that among the articles using BPS data, the percentage of articles using data of agriculture census has significantly increased, from 46.9% in the first decade to 67.6% in the second decade (Table 6). This may indicate that the data of agriculture census have become more relevant to academic research needs.

To summarize, the second finding of this study regarding the trend of official statistics utilization for academic research includes (1) the percentage of the articles using secondary data tends to decrease, (2) if the articles utilizing primary data are included in the calculation, then the percentage of the articles using BPS data tends to be stagnant, (3) if the articles utilizing primary data are excluded in the calculation, then the percentage of the articles using BPS data tends to increase, (4) among the articles using BPS data, the percentage of those using agriculture census data tends to increase.

Tables 7 and 8 were shown to the respondents as part of the questionnaire document in the Google Form. Most of the respondents are university lecturers (70.0 %) and

Table 6. The number and percentage of the articles using BPS data: comparison between those using agriculture-census data and non-agriculture-census data in the last two decades (2004-2013 versus 2014-2023)

Type of data used	Number and percentage of the articles	
	2004-2013	2014-2023
Agriculture-census data	211 **(46.9%)**	1459 **(67.6%)**
Non-agriculture-census data	239 (53.1%)	698 (32.4%)
Total	450 (100%)	2157 (100%)

Source: Authors' analysis (2023)

Table 7. Occupational distribution of the respondents

Main occupation	Number of respondents	%
University Lecturer	56	70.0
Researcher	14	17.5
High-Ranking Government Official	6	7.5
Official Statistician	4	5.0
Total	80	100

Source: Authors' survey (2023)

Table 8. Regional distribution of alma maters of the respondents

Region of respondent's alma mater	Number of respondents	%
ASIA Indonesia 38 (47.5%) Japan 6 (7.5%) Others 5 (6.2%)	49	61.2
EUROPE	11	13.8
USA	11	13.8
AUSTRALIA & NEW ZEALAND	9	11.2
Total	80	100

Source: Authors' survey (2023)

researchers (17.5%), while the other categories - high-ranking government officials and official statisticians - are minorities, which contribute only 7.5% and 5.0%, respectively (Table 7). All the respondents are doctoral degree holders who are alumni of reputable universities in Asia, Europe, Australia, and America (Table 8). After observing the tables, the respondents were requested to answer the questions in the questionnaire. Table 9 describes the opinion of the respondents on the intensity of BPS data utilization for academic research.

With the context of Table 1 and Table 9, a respondent who thinks that the intensity of BPS data utilization is

Table 9. Distribution of opinions on the intensity of BPS data utilization for academic research specifically on agriculture development

Opinion	Number of respondents	%
Given the result of the content analysis of 7814 articles published in 47 PERHEPI officially affiliated journals, the utilization of BPS data for research in general and agriculture development is		
a.Very low	2	2.5
b. Low	40	50.0
c. High	31	38.7
d.Very high	7	8.8
Total	**80**	100

Source: Authors' survey (2023)

Table 10. Association between main occupation and level of satisfaction

Main occupation	Level of satisfaction				Total
	Very low	Low	High	Very high	
University lecturer	2	30	20	4	56
Researcher	0	6	7	1	14
High-ranking government official	0	2	3	1	6
Official statistician	0	2	1	1	4
Total	2	40	31	7	80

Source: Authors' survey (2023)

Table 11. Distribution of opinion on the determinants of BPS data utilization for academic research on agriculture sector

Opinion (a respondent may give more than one point) Determinants of intensity of BPS data utilization for research specifically on agriculture sector are	**Number of responses**	**%**
a. Relevance (BPS data are relevant with the need of the research)	62	35.4
b. Accessibility (it is not difficult to acquire BPS data)	49	28.0
c. Preference (preference to select methods that use BPS data)	35	20.0
d. Quality (degrees of accuracy and scope of BPS data are adequate)	29	16.6
Total	175	100

Source: Processed Primary Data (2023)

"low" can be interpreted as "dissatisfied" by the situation, because he or she expects that BPS data are used more intensively. The respondents' expectation of the number of articles that use BPS data is higher than that reported in Table 1. If the categories are merged to two categories (the first two and the last two), then it is evident that the majority of the respondents (52.5%) concluded that the utilization of BPS data for research in general and research for agriculture development in particular was low or very low. Therefore, the third finding of this study is that according to most of the experts participated in the survey, the intensity of BPS data utilization for academic research especially on agriculture development was low or very low.

Table 10 shows that, with the utilization of official statistics, university lecturers tend to feel dissatisfied (or very dissatisfied), whereas high-ranking government officials tend to feel satisfied (or very satisfied). It should be noted that the obligations of university lecturers include also research activities. It can be concluded that the fourth finding of this study is that most university lecturers felt dissatisfied with the intensity of utilization of official statistics for academic research. The fifth finding of this study is that there are four major factors that

determine the intensity of BPS data utilization for research especially on agriculture sector, which can be represented by the following keywords: relevance, accessibility, preference, and quality (Table 11). By the first keyword (relevance), it is meant that there is no significant gap between what the data users (researchers) need and what the data producer (BPS) provides. For example, when researchers need micro data with household as the unit of observation and BPS can only provide data with a bigger unit of observation (e.g., village or district), then there is an indication of lack of relevance. BPS cannot publish micro data ("by name, by address" data) because it may violate the personal data protection law. There is a statistical technique to solve this problem, namely the Random Tabular Adjustment (Stinner, 2018). However, so far, BPS has not applied this technique.

Public access to BPS data has not been as easy as expected by researchers. In many cases it is easier and relatively less expensive for Indonesian researchers to access data about Indonesia from international sources than it is from BPS. A popular example is the Indonesia Family Life Survey (IFLS) data which are publicly accessible in the RAND Corporation website (Appendix 2:5). RAND is an American think tank. BPS has issued new regulations that enable Indonesian researchers, especially universities lecturers, to access BPS data free of charge, but some administrative terms and conditions (which are not always easy to fulfil) are still applied.

Data requirement is heavily dependent on the methodology used in a research project. The methodology is selected based on the objectives of the study and to some extent it also depends on the researcher's preference. Some methods used in research projects need primary data, whereas some others need secondary data. Some secondary data are available in BPS, but some others are not. The fact that most articles published in PERHEPI journals used primary data (Table 1) indicates that most research projects in agriculture sector in Indonesia do not require secondary data. That fact also indicates that the researchers prefer methods that do not require secondary data including BPS data.

United Nations Conference on Trade and Development (UNCTAD) established "Statistics Quality Assurance Framework" (Appendix 2:6). These guidelines have also been adopted by BPS (Figure 4). Based on these guidelines BPS conducted a national survey on data needs (including Customer Satisfaction Index regarding the quality of BPS data) the results of which have been analyzed and reported (Appendix 2:7). The survey involved 18385 respondents from all (32) provinces in Indonesia. According to this report, 94.46% of the respondents are satisfied with the quality of BPS data in general. Similarly, the percentages of respondents who are satisfied regarding the completeness, accuracy, and recentness of BPS data are

Table 12. Distribution of the level of satisfaction with BPS data utilization for research on agriculture development

Determinants of BPS data utilization for research on agriculture development	Respondent's level of satisfaction				Total responses
	Very low	Low	High	Very high	
Relevance	0	28	28	6	62
Accessibility	0	24	21	3	48
Preferred method	1	18	13	3	35
Quality	2	9	13	4	28

Source: Authors' survey (2023)

91.46%, 93.02%, and 92.37%, respectively.

The data in the report are in line with the opinion of Márquez-Ramos (2020) in her paper "A survey of papers using Indonesian firm level data: Research questions and insights for novel policy-relevant research in economics" published in the Bulletin of Indonesian Economic Studies that (p. 160-161)

"... I explored ... data from BPS surveys and confirmed that the central statistics agency has provided unusually rich and accurate data sets over more than 40 years... The data are an excellent resource for those who aim to publish in top economic journals."

Table 12 reports a different perspective regarding the level of satisfaction of BPS data users. It must be considered that the characteristics of respondents in the survey (Tables 7 and 8) are sharply different from that in the BPS survey. In the former, all the respondents are Ph.D. degree holders, whereas in the latter the highest education levels of most of the respondents are high school (38.22%) or undergraduate (*sarjana*) level (39.27%). In the former, the context is the utilization of BPS data for research (100%). In the latter, the percentage of respondents that use BPS data for research is only 36.65%; and 18.85% of the respondents are public servants who use the data for "development planning, monitoring, and evaluation". It is also notable in Table 12 that only 27 respondents (34.62% of the total respondents) raised the issue of quality as a determinant of BPS data utilization for research on agriculture development; most of them are satisfied with the quality (62.96%) and the remaining 37.04% of the respondents are dissatisfied. It would take another study to verify that politically sensitive data like food security (e.g. rice production) and poverty rates are usually the targets of criticism from the BPS data users. Based on the description above, the level of satisfaction on the official data depends on the purpose of the utilization. If the purpose of the use of official data is for general public administration, then the level of satisfaction tends to be high. However, if it is for academic research, then the level of satisfaction tends to be lower.

Table 13 shows the recommendation from the respondents on building

Table 13. Distribution of opinions on the necessary steps for building a healthy ecosystem for developing research and formulating public policy

Opinion (a respondent may give more than one point) The steps to build an ecosystem that is conducive to developing research and formulating public policy include the following	**Number of responses**	**%**
Public accessibility to BPS data	30	28.0
Communication, coordination, and collaboration among the stakeholders	24	22.4
Quality of BPS data	22	20.6
Relevance of BPS data with the needs of academic research	20	18.7
Preference to select a method using BPS data	11	10.3
Total	107	100

Source: Authors' survey (2023)

an ecosystem that is conducive to developing research and formulating public policy. Most of the recommendations are direct implications of the points in Table 12. The new point is a recommendation to improve communication, coordination, and collaboration among the stakeholders. Therefore, the sixth finding of this study, the most needed step to increase the level of exploitation of official data by researchers and policymakers is to improve public's accessibility to BPS data.

Figure 5 in Appendix 1 summarizes the recommendations of this study. The fifth recommendation in Table 13 is not included in Figure 5 because it is addressed to individual researchers. The main message in this summarized recommendation is that BPS data are generally underutilized in academic research and therefore researchers should exploit BPS data more. In fact there are some additional points of recommendation proposed by the respondents but their frequencies are low, i.e., (1) to avoid political interventions in the work of BPS, (2) to develop clear priority setting for BPS research capacity building, (3) to anticipate the rapidly growing role of big data analysis, (4) to increase fund for research, and (5) to improve the effectiveness of visual communication in BPS website.

CONCLUSION AND SUGGESTION

This study was motivated by the fact that there are many unsolved problems in agriculture development in Indonesia. It was conjectured that official statistics were underexploited by policy researchers as well as policymakers. Among the 7814 analyzed articles published in the agriculture development related academic journals, only 37.4% utilized data produced by BPS. More than half (52.5%) of the expert resource persons assessed that the figure was low or very low. Despite the many positive improvements in the development of BPS, the trends of the utilization of official statistics for academic research and policymaking in the last two decades have not been very satisfactory. The respondents suggested that the factors affecting the utilization level were relevance, accessibility, preference, and quality of the data. They also suggested that the stakeholders of the

ecosystem (Figure 5) improve communication, coordination, and collaboration among them to optimize the exploitation of official statistics for policy research and policymaking in Indonesia.

The scope of this study is limited to the sector of agriculture. For future research projects, the scope can be expanded to other major sectors. The number of resource persons should also be increased. Face-to-face interview methods and focus group discussions (FGD) can also be recommended to earn more insightful findings. Findings of studies in this topic can certainly improve the quality of public policymaking. The findings are also important for consideration in the process of revising the statistics law (*UU Statistik*) that has been undertaken by lawmakers in the Indonesian parliament (DPR) since 2023.

ACKNOWLEDGMENT

An earlier draft of this research interim report was orally presented at an international annual conference hosted by the Indonesian Regional Science Association (IRSA) in Bogor, on July 17, 2023. The authors gratefully acknowledge comments and suggestions from two anonymous referees of this journal and the audience of the conference for improving the quality of this report. Any errors that may remain in this article are solely the responsibility of the authors.

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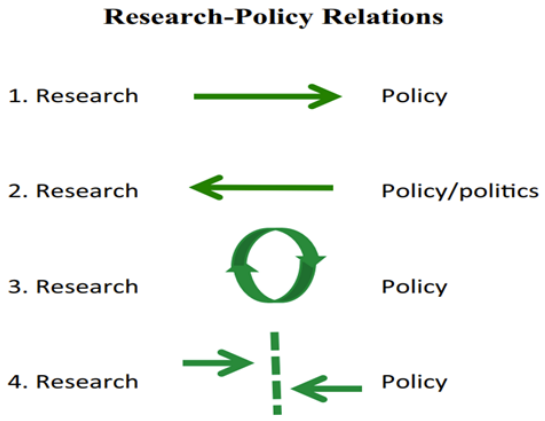

Figure 1. Four Models of Research-Policy Relations
Source: Boswell & Smith (2017)

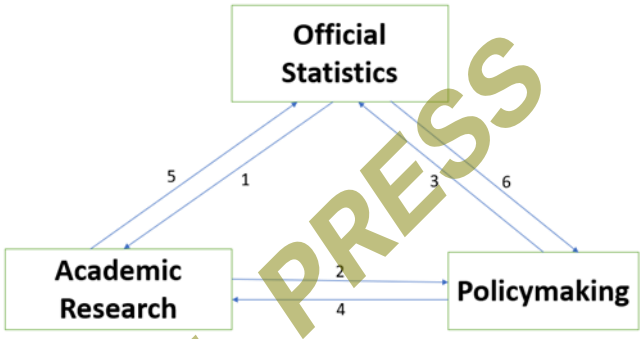

Figure 2. Official Statistics, Academic Research, and Policymaking: Flow of Data and Information
Authors' interpretation (2023)

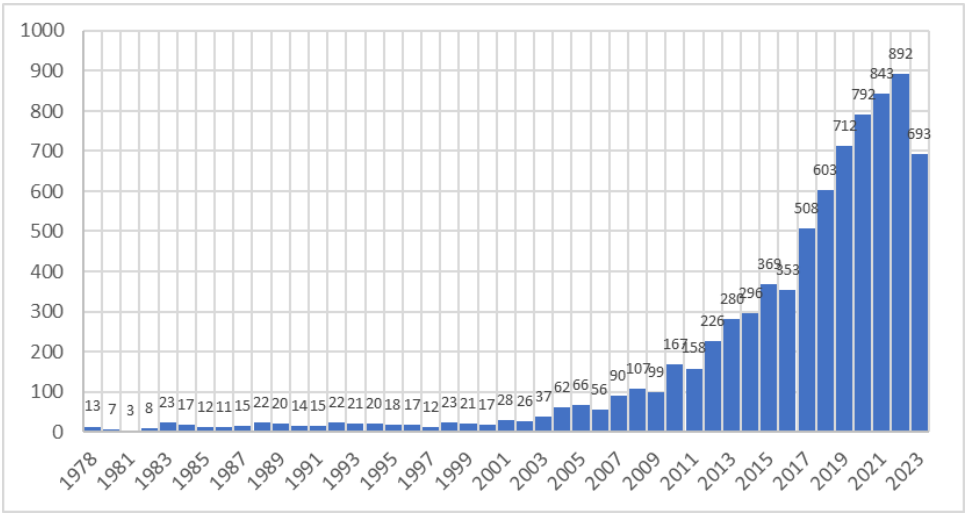

Figure 3. Distribution of articles published by PERHEPI officially affiliated journals (January 1978 – September 2023)
Source: Authors' analysis (2023)

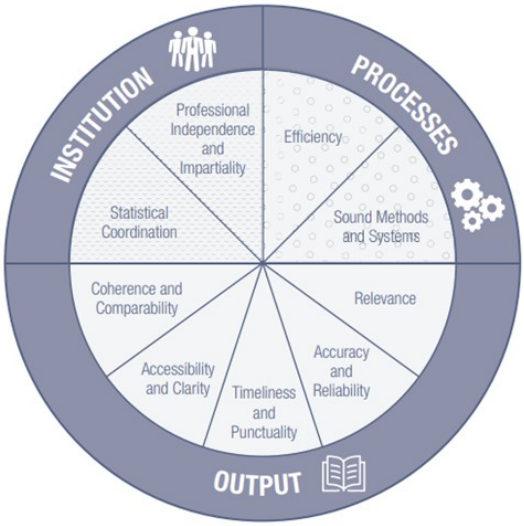

Figure 4. Statistics quality: Dimensions and components
Source: UNCTAD (2019)

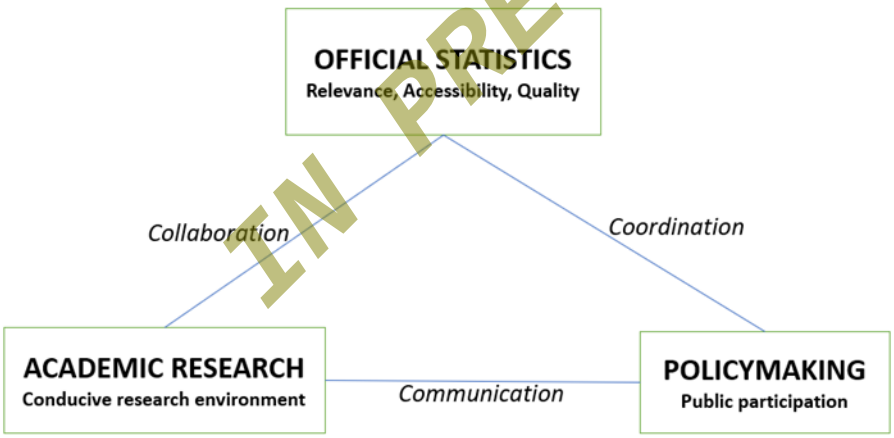

Figure 5. Simplified model of ecosystem of policymaking and keywords of the recommendations
Source: Authors' interpretation (2023)

Appendix 2. List of URL Links

https://theconversation.com/ analysis-indonesian-policymaking-is-not-supported-by-quality-research-and-academic-freedom-126023
https://cdn.odi.org/media/documents/7531.pdf
https://www.ksi-indonesia.org/assets/uploads/original/2020/01/ ksi-1580139207.pdf
https://koran.tempo.co/read/opini/449523/partisipasi-publik-dalam-pembentukan-omnibus-law and https://www.reuters.com/world/asia-pacific/ indonesia-court-orders-government-amend-controversial-labour-law-2021-11-25/
https://www.rand.org
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https://www.bps.go.id/en/publication/2020/12/25/e24527742a687e1939c54e13/analisis-hasil-survei-kebutuhan-data-2020.html