Diffusion of social science research in Nigeria

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Abstract

Understanding the research–policy nexus in developing economies requires knowing who disseminates and how social science research (SSR) is diffused. Based on survey and secondary data on a diverse set of critical stakeholders, this paper characterises the SSR diffusion landscape in Nigeria. We find that university researchers are the most active disseminators of SSR though other actors also engage in dissemination activities. Collaboration among different categories of actors, both locally and internationally, is pervasive in the system. However, online visibility of research is poor in the Nigerian SSR system. Most of the local scientific journals do not operate online, and a large share of the published SSR output is missing from widely used bibliographic databases. For a better research–policy nexus, research producers need to become skilled research advocates and policymakers need to be accessible to other actors.

1 │ INTRODUCTION

In the field of development, enormous emphasis is being placed on creating a strong "research–policy nexus". In other words, there is now an intense realisation of the need to bridge the space between the actual results of development research and their adoption and utility through policies. Research itself is not an end; rather, it is an activity that constitutes a means to an end. Part of the ultimate utility of research is to produce new knowledge and improve welfare through evidence-based policies. Therefore, good research does not only focus on the quality of results, but also on their ultimate social relevance, thereby increasing the capacity and spheres of other practitioners (Lubchenco, 1998). To achieve this, effective collaboration among academic researchers and other stakeholders is important to heighten knowledge sharing, transfer and uptake among actors (Cherney et al., 2015). To facilitate the translation of research findings into policy action, it is critical to effectively disseminate these findings (Derman and Jaeger, 2018). Indeed, the diffusion phase is critical in the social science research (SSR) system because it is the link between the production of SSR and its uptake.

Weak demand for scientific evidence by the policy and political community is one of Africa's biggest obstacles to evidence-based policymaking. On the supply side, lack of sufficient capacity and skills for science communication and policy advice is a huge problem. Dealing with these

problems requires an understanding of the current research diffusion landscape (Sanni et al., 2016). With a focus on SSR, this paper provides information on the SSR landscape in a developing country, thereby improving understanding of how to bridge the research–policy gap. SSR in general is aimed at strengthening policies and practices for economic growth, development and societal welfare. Adequate deployment of SSR findings, therefore, has the potential to inform vital positive interventions by policy makers and governments, if properly communicated. However, connecting evidence to policy and practice is not automatic. Researchers have to be skilled and active in adopting effective channels and networks appropriate to their contexts to ensure the uptake of their research evidence (INGSA, 2020).

In this paper, we examine the actors involved in the diffusion of SSR in Nigeria, the products they use in SSR diffusion, and the nature of collaboration and networking available to foster social science debate in Nigeria. By so doing, we contribute towards increasing knowledge about the research–policy nexus in developing countries. Our empirical context, Nigeria, is the most populous country and one of the largest producers of SSR in Africa. Evidence from this context serves to typify the process of SSR diffusion in a large developing country. This paper provides a descriptive assessment that will facilitate a better understanding of the system and spur further research.

The analysis is based on data collected through a combination of key informant interviews, desk review, bibliometric analysis, and a set of three surveys—one each for researchers, administrators and policymakers. In all, we interviewed 17 key informants and surveyed 805 individuals from 130 organisations across the country, including 585 researchers, 145 administrators and 75 policymakers. The response rate was 90%at the institution level, and 85% at the individual level. Our results show that SSR dissemination in Nigeria is driven by universities and research institutes (RIs) that produce most of the SSR[1]. The most common means of research dissemination are academic publications, policy briefs and networking events. Foreign donors and civil society organisations (CSOs) contribute to research dissemination through funding and the use of research results in advocacy activities, respectively.

The rest of the paper is structured as follows: a summary of the literature that motivates our specific research questions and the corresponding analyses is provided in Section 2. Section 3 describes our data and methods. In Section 4, we discuss the results of the data in relation to the aim and specific questions of the study. We offer some concluding thoughts in the final section.

2 | RELATED LITERATURE

2.1 | A case for studying national SSR systems

Social science research helps shed light on issues around societies and human behaviour. It contributes to an understanding of complex developmental challenges on both national and global levels, including but not limited to issues such as why some countries are underdeveloped, the causes of abject poverty, what brings about technological change and what reasons are behind youth unemployment. More specifically, SSR provides important empirical development evidence to governments, policymakers, local authorities, non-governmental organisations (NGOs) and other relevant stakeholders. In retrospect, this sort of evidence has been fundamental to the formulation and realisation of national and global development agendas. Reflecting on this, Shah (2020) recently wrote, "…without the humanities and social sciences, hard science and technology can do little to resolve complex societal challenges. Wise governments will find ways to incorporate that insight".

2.2 | Networking and collaboration: important tools in research diffusion

Research collaboration is crucial not only for the production of multidisciplinary research, which enriches the evidence being produced, but also for the dissemination to ensure wider outreach of research results, meaningful community engagement and policy uptake. The concept of "global village" within which the current knowledge economy operates underscores the need for researchers regardless of institutions of affiliation to collaborate and network with others within and outside their own institutions (Olmos-Peñuela, Molas-Gallart, and Castro-Martínez, 2014; Jongbloed, Enders, and Salerno, 2008). Sesan and Siyanbola (2021) note that in the absence of functional institutional evidence-to-policy structures in Nigeria, individual champions take personal initiatives to facilitate exchange between the producers and potential users of evidence. These efforts will yield better results when these "champions" collaborate.

The role and importance of collaborations in research has gained increasing attention and has been the subject of discussion in the past few decades. Collaboration is now regarded as the rule and not the exception (Katz and Hicks, 1995; Wray, 2006; Bammer, 2008; Lewis, Ross, and Holden, 2012). In fact, it is now known to be an increasingly valuable asset in education, research, teaching and learning (Lawal et al., 2014). Effective research collaborations among researchers have enhanced co-publication of research findings, data sharing, attraction of funding from some donors, and help address complex research issues (Hagstrom, 1965; Katz and Hicks, 1995; Koku, Nazer, and Wellman, 2001; Huang, 2014). Furthermore, researchers network for learning and productivity in research, reduction in research cost, intellectual companionship, and provision of media for communication of research findings (Huang, 2014). In addition, collaborative research is now encouraged because it draws diverse expertise and promotes creativity and innovation, leading ultimately to scientific breakthroughs. In the opinion of Tight (2014), building collaborations and networks in higher education could foster institutional as well as knowledge and research theme management.

Collaboration among local researchers is as important, and should be well encouraged, as international collaborations. While international collaboration helps promote innovations in knowledge production and dissemination, the absence of collaborations among local actors will lead to a situation where research questions are imported and irrelevant to local realities. This has been identified as one of the problems among Nigerian producers of knowledge (Egbetokun et al., 2020; Ngozi et al., 2016).

2.3 | Ineffective research uptake: issues of dissemination and communication

Globally, there exists a wide gap between research, policy and practice, and critical to this is research communication and uptake. While initial investment and efforts in undertaking a research are necessary and worthwhile, the ultimate uptake and utility of the findings substantiate the process, adding value and meanings to the initial endeavours. Hitherto, premiums have been placed on acquiring skills for research production, but beyond this, researchers require skills, tools and resources necessary to rightfully deploy research findings and make them feasible—beyond academic purposes—to end users. Most researchers in higher education institutions (HEIs) mainly disseminate their research findings within academic circles through academic events and channels and for academic purposes (Shaxson, 2010). While the use of these channels is valid for career advancement, more needs to be done to enhance the visibility of not only the researcher, but also of the research. This will consequently enhance networking and collaboration among researchers and other stakeholders (INGSA, 2020). These stakeholders, which are important potential end users of research, include donor agencies, policy makers, governments, user/community groups, as well as the private sector (PS) organisations and individuals. Obviously, as the concerns of these stakeholders differ contextually, so must the transmission of research findings to them. Research outputs need to be addressed in appropriate ways to meet their differing information needs, in order to enhance uptake.

2.4 | Actors, platforms and products of dissemination

The increasing realisation of the importance of effective dissemination of results to the entire research process has led to innovations in terms of actors that perform the functions as well as the media and products used for the dissemination. Whereas traditionally, dissemination was majorly the responsibility of academics and researchers themselves, several other actors now actively engage in disseminating research results. Katz and Hicks (1995) conclude that scientific collaboration involving both public and private sectors is intrinsic to the modern scientific culture. Other media beyond the traditional are also used, including social media for disseminating SSR results.

In conclusion, maximum utility of SSR with ultimate impact on economic development requires a proper mix of effective and innovative research communication skills, tools as well as proper channels without which research effort and resources might be ultimately wasted. Lack of dissemination and poor dissemination skills have been identified as a significant barrier to research uptake (Oliver et al., 2014). These issues in relation to SSR in Nigeria are the crux of this paper. We examine the nature of diffusion of SSR in Nigeria along these three objective/questions:

1. Who are the actors that perform the function of disseminating SSR in Nigeria, and what networks do they use?
2. What research communication practices exist among these actors and in the SSR system in Nigeria at large?
3. What research communication products are used in disseminating SSR results to facilitate uptake in Nigeria?

Therefore, this study provides a rich evidence base for understanding the main characteristics of the SSR environment in Nigeria today in respect to research diffusion – that is, the space between production of high-quality SSR and its uptake in the policy environment.

3 | CONTEXT, DATA AND METHODOLOGY

3.1 | The empirical context

With a projected[2] population of over 186 million in 2015 (NBS, 2017), Nigeria is the most populous country in Africa and the seventh in the world by the United Nations' estimates (UNDP, 2016). It is also one of the largest economies in Africa in terms of gross domestic product (GDP). In terms of SSR production, secondary data suggest that Nigeria is among the top producers of research in Africa, though a minor contributor to global research. Data from the 2010 and 2014 African Innovation Outlook show that Nigeria is the third largest producer of research in Scopus across all disciplines with 13,333 peer-reviewed articles between 2005 and 2009 (after South Africa [32,372] and Egypt [22,955]). In terms of SSR, Nigeria ranks as the second largest producer in Africa, producing more than three times the volume of that from Egypt but under a quarter of that from South Africa. Between 2015 and 2017, Scimago data attribute over 4,000 published documents in the social sciences to Nigeria. These figures do not include the mass of SSR that is not indexed in international databases (SSR results published in local journals, grey and non-academic literature). However, this level of SSR production does not match the level of socioeconomic development in Nigeria.

Nigeria's socioeconomic development indicators, on the other hand, are quite poor. According to the UNDP's Human Development Report (2019), Nigeria had in 2018 a Human Development Index (HDI)[3] value of 0.534, which put the country in the lowest category, the low human development category, positioning it at the 158th place out of 189 countries and territories. In comparison, South Africa and Egypt had HDI values of 0.705 and 0.700, 113th and 116th positions, respectively, both

in the high HDI category. For the same reference period (2018), Nigeria had a gross national income (GNI) per capita of USD 5,086, which is much higher than the average for sub-Saharan Africa (SSA) of 3,443, almost double the average for low-HDI countries of 2,581, and well comparable with figures for many countries in the medium-HDI category. Despite this, 53.3% of Nigerian population lived below the poverty line of $1.90 a day in 2018, according to UNDP (2019), compared with 18.9% and 1.3% in south Africa and Egypt, respectively.

This hints at a wide gap between the SSR being produced and its ultimate development utility. The fact that the nation's socioeconomic indicators have remained poor despite the huge SSR produced raises a critical question about what happens beyond the research being done. It also underscores the need to examine the diffusion of the research results, which forms the link between production and uptake of SSR.

3.2 | Sampling and data collection

As part of the research process, we undertook a stakeholder mapping exercise to identify all stakeholders with any level of interest in SSR in Nigeria. By interest, we mean activities connected to the production, diffusion and use/uptake of SSR. The key research actors are categorised into four, viz.:

- Higher education institutions—comprising federal, state and private universities[4]
- Government and funding agencies (GFAs)—comprising foreign donors, local donors, regulators, national agencies, national ministries and RIs
- Private sector—comprising for-profit think tanks and consultancies as well as businesses that hire researchers
- Civil society organisations—comprising NGOs, opinion leaders, non-profit think tanks and the media

Think tanks are an important actor category that is active in the production and dissemination of SSR in Nigeria. However, the framework of the study does not consider think tanks as a separate category. They are rather embedded within the PS and CSO categories, that is, for-profit think tanks and consultancies under the PS category and not-for-profit think tanks under the CSO category. This approach has a number of reasons: (1) Because think tanks are loosely defined such that many of the selected research-based organisations such as RIs and even some universities can fit into the think tank category as well, it was theoretically more fitting to include think tanks under other major categories. (2) In our context, think tanks are usually much smaller than other research-based organisations, employing in many cases very few researchers on temporary employment basis. (3) Think tanks are diverse in functionality and business outlook. There are for-profit and not-for-profit ones. As a result, our framework includes think tanks only as part of major PS and CSO categories. Many of the institutions included in our final sample under the PS and CSO categories (see Table 2) are think tanks.

Nigeria is a large country, and so the number of actors in each of the four stakeholder categories is understandably large and diverse along several dimensions. However, as is typical of many developing countries with poorly mapped systems, there are no reliable sampling frames for some of the actor categories, particularly the CSO. We therefore compiled a list of all institutions in each actor category and used our first-hand knowledge of the research landscape to exclude those that are clearly not associated with SSR.[5] Altogether, our stakeholder mapping identified 1,825 organisations involved in SSR in Nigeria (Table 1).

Following the Doing Research Assessment Methodology (GDN, 2017), we adopted a mixed-methods design including key informant interviews, a desk review, bibliometric analysis, and surveys. The desktop component of the research involved a review of relevant academic literature including journals, books, reports, working papers, and grey literature. Bibliometric data on four disciplinary areas related to SSR—business, management and accounting; economics, econometrics and finance;

TABLE 1 Number of organisations in the social science research system in Nigeria

Actor category		Total
Higher education institutions		170
Private sector		65
Civil society		1,515
Government and funding agencies	Ministries, departments and agencies (MDAs) and donors	33
	Research institutes	5
	Houses of Assembly	37
TOTAL		**1,825**

Source: Authors' compilation.

KEY DEFINITIONS FOR THE SAMPLING

A **researcher** is a professional engaged in the conception or creation of new knowledge through research, improving or developing concepts, theories, models, techniques, instrumentation, software or operational methods (OECD, 2015). This definition is based neither on formal qualifications nor on levels of education, but on the actual activity of doing research and producing knowledge.

A **research administrator** is an individual in leadership position in organisations listed as HEIs, PS or CSOs that employ researchers

A **policymaker** is an individual working in organisations listed as "government or funding agency".

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psychology; and social sciences—were retrieved from Scimago, an online bibliographic database of academic publications. This was complemented with data from African Journals Online (AJOL), a database of journals published in Africa.

Three surveys were implemented simultaneously during June and July 2019, one each on a representative sample of researchers, administrators and policymakers as defined in Box 1. The samples cut across the different actor categories; for instance, a researcher could be employed in a university, RI or CSO. The surveys were self-administered. Survey instruments were hand delivered to each respondent and later retrieved by a trained enumerator who was also on hand to provide any necessary clarifications.

In selecting a sample of the 1,825 organisations mapped, we created a matrix that categorised the organisations in the sampling frames into homogenous subgroups based on three criteria: institution's category (HEI, RI, PS, CSO), geographic location (North-East, North-West, North-Central, South-East, South-West, South-South), and size (small, medium, large). We were unable to obtain the actual number of researchers employed by each organisation, so we defined their size as an estimate—small (S), medium (M) or large (L)—based on informed estimates. Based on this, we randomly selected a representative set of institutions by proportional probability so that the contribution of each subgroup to the final sample is proportional to its share in the sampling frame. In all, we selected a total of 130 institutions.

At the level of individuals, researchers were selected mainly from the universities and RIs, where we randomly selected 10 researchers in each institution across department, gender (male/female) and qualification (PhDs and non-PhDs). From each PS and CSO (which include for-profit and not-for-profit think tanks, respectively), we selected one researcher because these organisations are typically

much smaller than universities or research institutions and also typically hire few or no social science researchers. Research administrators, that is, research supervisors or heads of social science-related departments, were selected from the same institution/organisation where researchers were selected. As policymakers, we randomly selected two respondents in executive or decision-making position from each of the 33 GFA institutions. Additionally, we included a sample of legislators, particularly because of their important roles in formulating policies. We sampled from committees whose activities are clearly related to social sciences in the National Assembly and the Houses of Assembly in six states—one from each geopolitical zone of the country. In all, 585 researchers, 145 administrators and 75 policymakers were surveyed, making a total of 805 individuals from the 130 organisations. We were able to use completed questionnaires from 684 respondents across 117 institutions, including 506 researchers, 117 administrators and 61 policymakers. This yields a response rate of 90% at the institution level and 85% at the individual level.

In addition to strict anonymity, informed consent was emphasised in both the quantitative and qualitative aspects of this study. Every participant gave their consent before questionnaires were administered or interviews were conducted. Essentially, they were informed about what participation in the study entails. Every questionnaire carried a mandate letter that clearly and comprehensively explains the purpose of the study and the role of the implementing agency.

3.3 | Data analysis

As the focus of this exploratory study is to describe the SSR system in Nigeria, with specific attention to the actors who play active roles in the dissemination of SSR results, the analysis of the data is descriptive.

3.4 | Profile of respondents

The distribution of respondents by their affiliation is contained in Table 2. The majority of the researchers and administrators are from universities, reflecting the relative size and dominance of the Nigerian university system in the country's SSR landscape. All the respondents were Nigerian, with the exception of four policymakers affiliated with international donor organisations. Less than a third of all respondents were female. Given that our sampling was randomised, this skewed distribution suggests that women are underrepresented in Nigeria's SSR. Across all categories, the respondents were generally highly qualified, with above 80% of them having a post-graduate qualification.

4 | RESULTS AND DISCUSSION

In this section, we discuss our results on the process of SSR diffusion in Nigeria. The discussion is organised around the aims of this paper:

1. Actors and networks—diversity of actors, collaboration and networking that exist in the system to foster debate based on scientific evidence
2. Research communication practices—activities and structures that support the wide communication of research
3. Research communication products—research products aimed at a wider audience than the academic circles

TABLE 2 Profile of respondents

Actor category		Researchers	Administrators	Policymakers	Total
Universities		384	80	–	**464**
Private sector		8	5	2	**15**
Civil society organisations		24	20	–	**44**
Government and funding agencies	Ministries, departments and agencies (MDAs) and donors	3	2	15	**20**
	Research institutes	31	6	–	**37**
	Houses of Assembly	–	–	43	**43**
Uncategorised[*]		56	4	1	**61**
TOTAL		**506**	**117**	**61**	**684**
Nationality					
Nigerian		475	115	56	646
Foreigner		–	–	4	4
Missing		31	2	1	34
TOTAL		**506**	**117**	**61**	**684**
Gender					
Male		346	83	42	471
Female		136	32	19	187
Missing		24	2	–	26
TOTAL		**506**	**117**	**61**	**684**
Highest qualification					
Bachelor		26	26	23	75
Master		181	20	25	226
PhD		257	60	7	324
Post-doctoral		12	7	1	20
Missing		30	4	5	39
TOTAL		**506**	**117**	**61**	**684**

*Respondents who did not provide their institutional affiliation.

4.1 | Actors and networks

Social science research production, diffusion and uptake involves a diverse set of actors including universities, RIs, NGOs, international donors, legislators, etc. Each one of these actors does not necessarily perform all functions but plays at least an important role in the SSR system. For instance, while universities majorly perform research, GFAs provide resources for SSR. Consequently, interactions are expected to be commonplace within and across the actor categories. Data from the survey of researchers show that collaboration is pervasive among different SSR stakeholders in Nigeria but is dominated by the university system. Most of the researchers (average of 85%) claimed to collaborate with actors from other sectors both locally and internationally (Table 3). In absolute terms, most of the collaboration takes place among actors within the national university system, as 88% of 269 researchers indicated that they collaborated with other university researchers.

We collected information on a specific aspect of these collaborations, that is, the co-production of research. This provides a proxy for the extent to which a diverse set of actors are active in the SSR system. The results in Table 4 summarise the self-reported number of co-authors that each sampled

TABLE 3 Researchers' collaboration with other actors in the social science research system

Sector of collaborators[*]	Percent
National non-profit (n = 128)	97.7
Government (n = 123)	93.4
International agencies (n = 110)	84.6
National universities (n = 269)	88.1
International universities (n = 110)	85.5
International non-profit (n = 69)	85.5
For-profit private sector (n = 51)	86.3

*multiple choice; percentage refers to share of respondents (n) that select each item.

TABLE 4 Social science researchers' co-authorship (number of distinct co-authors) in the last 3 years

Affiliation of co-authors	Number of responses	Mean	Standard error	Median	Total number of co-authors
Same institution	329	3.11	0.16	2	1023
Own Master students	164	2.21	0.15	2	363
Own PhD students	110	2.30	0.14	2	253
Another national research institution	143	2.17	0.16	2	310
Government, central or local administration	60	1.59	0.14	1	96
Civil society organisation	48	2.54	0.35	2	122
Foreign donor agency or private foundation	42	2.01	0.24	1	84
Foreign research institution in the region	43	2.38	0.28	2	99
Foreign research institution beyond the region	68	2.29	0.33	2	156
Another discipline	168	2.66	0.30	2	447
Total number of distinct co-authors	386	7.65			2953

researcher has worked with over the 3 years prior to the survey. Two things come out from these results. First, the SSR landscape in Nigeria is diverse; a wide range of actors are actively involved. This is particularly interesting because the rate and direction of research diffusion is heavily influenced by the diversity of actors involved in the research system. Thus, it is instructive that Nigerian researchers co-produce research not only within their home institutions but also across institutional and disciplinary boundaries.

This leads on to the second issue highlighted by the results, which is the strong tendency for the research community to be inert. For instance, a senior staff of the National Universities Commission (NUC) noted in an interview that university academics "operate as orphans in their silos and bunkers". The survey results in Table 4 show that although social science researchers do collaborate with other professionals, most of their interactions (proxied here by co-authorship) are situated within the academic circle, involving either post-graduate students or faculty. In total, 329 researchers

TABLE 5   Researchers' perception of the quality of research communication skills and training in Nigeria

Research communication skills	Number of responses	Mean[*]	Standard error	Median[*]
Presentation skills	361	4.22	0.06	4
Facilitation skills	354	4.13	0.06	4
Research writing	358	4.12	0.06	4
Event organisation	336	4.05	0.07	4

*Six-point scale: 1 (very dissatisfied)—2 (somewhat dissatisfied)—3 (moderately dissatisfied)—4 (moderately satisfied)—5 (somewhat satisfied)—6 (satisfied).

reported having co-authored at least one research output with over a thousand co-authors from their home institution. In comparison, co-authorship with professionals outside the academic circle, such as NGO or donors, is of a smaller magnitude. Co-authorship with government actors is considerably low, primarily because even when researchers collaborate with government (as reported in Table 3), such collaborations may not necessarily result in publications.

The policy community agrees on the need for researchers to become skilled in research communication as a way to enhance diffusion and uptake of research results (INGSA, 2020). Largely as a result of academic tradition and promotion requirements, researchers mainly disseminate their research findings within academic circles, for academic purposes (Shaxson, 2010).[6] However, other stakeholders within the research system operate outside academic circles and cannot effectively assimilate conventional academic output. Thus, the acquisition of relevant skills that allow researchers to communicate beyond the academic community is crucial. We assessed the availability of opportunities for developing such skills within the Nigerian SSR system by asking researchers whether they have participated in any training event on research communication in the last 3 years. We also asked for the researchers' perception on the quality of these training events. Beyond the frequency, the quality of research communication training consists in the extent to which they provide the necessary skills for researchers in the areas of research writing, presentation, facilitation and organisation of communication events. Over half (58%) of 425 researchers reported that they have participated in at least one research communication training event in the last 3 years. Of these, 60% have attended no more than two events. On average, the respondents were satisfied with the quality and relevance of the training they have participated in. On a six-point scale ranging from 1 (very dissatisfied) to 6 (satisfied), the median satisfaction rating for all the skills areas is 4 (Table 5). Taken together, these results suggest that the opportunities for building capacity in SSR communication and advocacy in Nigeria is limited, but the available ones tend to be of good quality, at least from the perspective of the researchers who have participated in them.

Against this background, it is of interest to examine whether non-research actors find SSR and policy discussions in Nigeria accessible. Our notion of accessibility here refers to the extent to which non-researchers can understand and participate in research discussions. This notion is crucial to SSR diffusion because it helps to ensure that research agenda and policy outcomes are inclusive. Our survey asked researchers' perception on the accessibility of research discussions to a range of actors, including policymakers, minority groups and individual citizens. We also asked policymakers to rate the accessibility of research-related policy discussions to the same range of actors. The ratings, done on a six-point scale ranging from 1 (very inaccessible) to 6 (very accessible), are summarised in Table 6.

As perceived by researchers (Panel A of Table 6), on average, research discussion is most accessible to researchers and least accessible to minority groups and individuals. In general, the typical researcher perceives that all groups of actors can understand and participate in SSR discussions in Nigeria, at least to a moderate extent. On their part, policymakers perceive that policy conversations related to research subjects are most accessible to policymakers and researchers, and are least accessible to individuals (Panel B of Table 6). The results in Table 6 raise two important hints about the nature of the SSR and

TABLE 6 Accessibility of social science research and research-related policy discussions to different groups of stakeholders in Nigeria

A. Researchers' perception of accessibility of research discussions to stakeholders

Groups of stakeholders	Number of responses	Mean*	Standard error	Median*
University affiliates of all academic levels	432	4.05	0.05	4
Non-university researchers	407	3.76	0.05	4
Women	401	3.71	0.06	4
Private sector	398	3.69	0.06	4
Community groups and associations	406	3.64	0.06	4
Policymakers	410	3.63	0.06	4
Individual community members	400	3.61	0.06	4
Minority groups	388	3.48	0.06	4

B. Policymakers' perception of accessibility of policy discussions to stakeholders

Groups of stakeholders	Number of responses	Mean*	Standard error	Median*
Policymakers	55	4.96	0.16	5
University affiliates of all academic levels	53	4.72	0.16	5
Community groups and associations	53	4.66	0.16	4
Women	51	4.51	0.16	4
Private sector	52	4.38	0.18	4
Non-university researchers	51	4.22	0.18	4
Minority groups	52	4.17	0.19	4
Individual community members	53	3.77	0.19	4

*Six-point scale: 1 (very inaccessible)—2 (somewhat inaccessible)—3 (moderately inaccessible)—4 (moderately accessible)—5 (somewhat accessible)—6 (very accessible).

policy discussion space in Nigeria. First, both researchers and policymakers perceive that discussions are largely inaccessible to individuals. This may be a reflection of poor public understanding of the relevant issues, or of limited opportunities for individual citizens to actively engage in SSR and policy discussions.

Second, the average ratings provided by the researchers are generally lower than those of the policymakers, though the median ratings are strikingly similar. This reveals an inherent difference in the approach to discussions within the Nigerian research and policy communities. Compared with the research community, discussions in the policy community are generally more public and non-technical. For instance, a frontline staff of a State House of Assembly noted in an interview that policymakers often hold public hearings to discuss issues including those that are relevant to SSR. According to the interviewee, such public events are open to external participants, including individuals:

TABLE 7   Number of African social sciences journals in the Scimago database

Fields	Number of journals
Business, management and accounting	3
Economics, econometrics and finance	5
Psychology	1
Social sciences	28
Total	**37**
Estimated number of social science researchers in Nigeria	6,389 – 31,943
Ratio per researcher	0.001 - 0.006

Source: Data from Scimago, December 2019.

> "The house is also open to NGOs and the media, in public and investigative hearings aimed at garnering public opinions and inputs before fine-tuning or concluding on policy issues. And sometimes [these actors] make powerful points, which are sometimes carried [forward by the legislators]."

4.2 | Research communication practices

The focus of our assessment here is on the activities and structures that support the wide communication of research. Notably, these include the domestic opportunities for research communication and the exposure of research producers to an international network that offers a platform for research diffusion. The availability of outlets within a country where researchers can publish their research results is an important proxy for research communication opportunities within the country. The global research communication landscape is generally open to contributions from all countries, but local communication outlets provide the best opportunity for disseminating locally relevant research.

In Table 7, we report the number of social science journals listed in Scimago that are published in Africa. There are only 37 such journals—which translates to between one and six journals for every 1000 social science researchers in Nigeria. However, Scimago does not list many journals published in African countries. In this sense, AJOL is more comprehensive. At the time of this study[7], AJOL hosts 524 journals (including 262 open access journals) across several disciplinary areas, of which 222 are published in Nigeria. Sixty-five percent (341) of the 524 AJOL journals are in the areas of social sciences and humanities (Table 8). We were unable to identify which of these social sciences journals are published in Nigeria from the online database because AJOL's listing of journals by country and by category could not be readily cross-referenced at the time of this study. However, if we assume proportional probability, then the maximum number of social science journals published in Nigeria would be around 144, that is, 65% of 222. This number is clearly too low for a country of the size of Nigeria. At the time of this study, the country had 150 universities with about 62,000 academic staff. If even just 10% of these were in the social sciences, a total of 144 local journals would translate to only two journals for every 100 social science researchers.

The availability of a large number of local journals suggests a strong opportunity base for the dissemination of locally relevant research. Creating this sort of opportunity base relies heavily on coordinated efforts from institutions responsible for managing, supervising or regulating the research system. In South Africa, for instance, the Department of Higher Education and Training (DHET) maintains an accreditation system for local journals. Researchers are incentivised to publish in these journals by way of financial rewards (per publication in an accredited journal) to their home institution based on an annual research evaluation. Universities, in turn, pass down a share of these rewards

TABLE 8   Social sciences journals in the African Journals Online (AJOL) database

AJOL categories	Number of journals
African studies	56
Art and architecture	18
Economics and development	48
Education	35
Finance and management	16
History	3
Humanities	56
Language and literature	20
Philosophy	7
Political science and law	18
Psychology and psychiatry	16
Religion	6
Sociology and anthropology	42
Total	**341**

Source: Data from African Journals Online website (www.ajol.info).

to individual researchers. It has been argued that this type of reward system could have undesirable outcomes such as publication slicing (where researchers unnecessarily split their research into multiple publications), an increased demand for predatory and low-quality outlets with high acceptance rates and a gap between published research and local realities (Neff, 2018).[8] However, the South African journal accreditation system adheres to strict guidelines and the government supports the university system against unethical research practices—for example, university academics are given free access (usually through their university library) to anti-plagiarism software. Many universities also engage in regular research ethics training.

The kind of elaborate structure available in South Africa is almost completely absent in Nigeria. No database or accreditation system for local journals exists, for instance. Thus, while a large number of journals are published in the country across many university departments, overall quality tends to be low and visibility is poor as a consequence of that. We gathered from a set of interviews with administrators in the university system that the NUC had just started (at the time of this study) a process of compiling all academic journals in the country and evaluating their quality along certain criteria in line with international standards. In the recent past, the NUC also made an attempt to coordinate the use of antiplagiarism software in the country. As one of the interviewees told us, the agency made every university in the country to contribute a share of the subscription costs, but after the first subscription expired, no effort was made to renew. Consequently, each university is now left to fend for itself in that regard, leaving many universities exposed. These challenges weaken the base of opportunities for communicating research that is locally relevant but has limited international appeal and therefore cannot easily get into an international journal. An important implication of the structural disparity between South Africa and Nigeria is that South African SSR is comparatively more visible. For instance, 34 out of the 37 journals counted in Table 7 are published in South Africa. We return to the issue of visibility in Section 4.3.

International exposure of a country's research system is beneficial for many reasons. Apart from granting researchers access to more diverse resources and skills, it also provides an opportunity for research communication. We assessed the international exposure of Nigerian SSR by looking at international collaboration in terms of publications, research projects and professional networks. Using data from Scimago, Table 9 reports a count of all documents (citable and non-citable) with authors

T A B L E 9   International collaboration in social science research in Nigeria, 2015–2017

Field	Number of documents	Number with international collaboration	Percent with international collaboration
Psychology	234	104	44.4
Economics, econometrics and finance	609	251	41.2
Business, management and accounting	776	300	38.7
Social sciences	2466	718	29.1
Total	**4085**	**1373**	**33.6**

Source: Data from Scimago.

based in more than one country, at least one of which is Nigeria. The figures show that international collaboration is common within the social sciences, especially in psychology and economics, econometrics and finance. This is consistent with the result in Table 3 where up to 85% of the surveyed researchers reported that they collaborate with researchers from foreign organisations including universities and non-profit organisations. Specifically, Table 9 shows that on aggregate, one out of every three social science publications by a Nigerian author between 2015 and 2017 was co-produced with a foreign author. Our survey data show a similar pattern: a fifth of all surveyed researchers have engaged in international co-authorships, ranging from 1 to 22 publications per researcher, with an average between two and three publications. All of these publications are in English because that is the official language in the country. At the time of this study, we did not find any journals in any of the local languages. This does not necessarily mean that publications in local languages do not exist; it only indicates that conventional outlets such as journals and research articles rely on English as the means of communication. Indeed, advocacy materials and some grey literature are produced in local languages, but we are unable to provide estimates of their magnitude due to absence of reliable data.

As a further assessment of international exposure, we asked administrators to indicate the number of international research projects in which their institutions have been involved over the 3 years prior to the survey. Only 72 of the 117 surveyed administrators answered this question. Out of this, only 20 gave distinct numbers of international projects, ranging between 1 and 51. In total, 155 international projects were reported by these twenty respondents, with an average of 7.75 projects (standard deviation of 11.86) per institution. Most of the other 52 respondents gave indistinct numbers such as "above 51", "they are multiple", "many", "I cannot tell", "I don't know" or "I am not aware". The low rate of administrators' response here as well as their apparent lack of information reflects the fact that most international projects and collaborations are either informal or occur at the individual level. Consequently, administrators are often unaware because researchers are not required to officially report individual collaboration activities and there are no systematic databases of such collaborations across most institutions. We asked the researchers a slightly varied question, that is, to indicate a range for the number of international research projects that they have been involved in over the 3 years preceding the survey. Out of 295 researchers that responded to this question, only 1% reported that they had not participated in any international research projects, while 85% reported between one and two international collaborative projects. The remaining 14% reported at least three projects.

The pervasiveness of international collaborations in the Nigerian SSR diffusion space is explained by two major structural factors. First, many Nigerian researchers study abroad and bring their foreign network resources with them when they return. Second, some international donor agencies in developed countries have funding programmes that impose the condition of collaborating with researchers from developing countries upon their own citizen researchers. An example of such funding
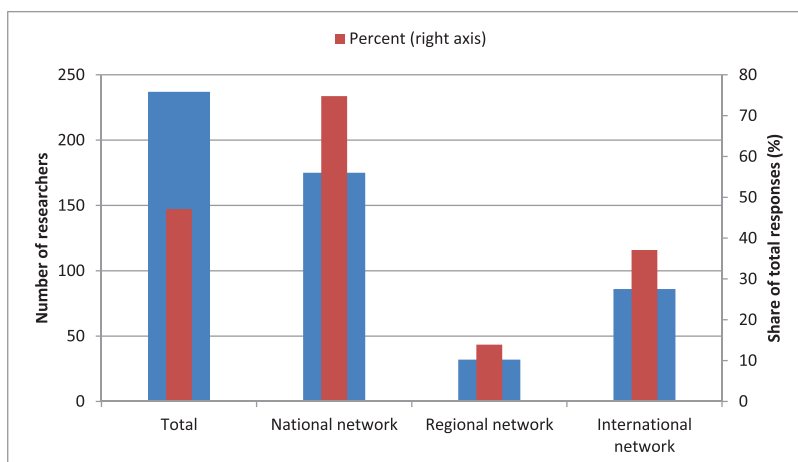
FIGURE 1 Researchers' membership in thematic research networks and professional affiliations at the regional and international levels [Colour figure can be viewed at wileyonlinelibrary.com]

programmes is the Global Engagement Networks Grant within the Grand Challenges Research Fund (GCRF) programme of the UK Research and Innovation funding programme. Yet, the level of international exposure of Nigeria's SSR system does not seem to match its size. We found in our survey that nearly half of all researchers were members of a professional research network. However, membership of a local network is considerably more common both in absolute and percentage terms. In combination, only about half of the researchers are involved in a regional or international network compared with over 70% involved in a national network (Figure 1). Indeed, a research professor that was interviewed argued that the number of researchers exposed to international collaborations, training and conferences is too small to have an impact on the country's national development research system, including SSR.

4.3 | Research communication products

In this section, we turn to a discussion of the means employed by the actors within the Nigerian SSR system for diffusing research. As a starting point, we assess the production of less conventional products such as policy briefs and technical reports. These types of publications are generally considered more accessible to non-research audiences (INGSA, 2020). In a survey of 50 Nigerian legislators (Sanni et al, 2016), nearly 60% hinted that they consider scientific information too technical, and over 70% considered that scientific information was not readily accessible in terms of both availability and clarity. For this reason, the rate of production of accessible outputs is a good way to assess research diffusion. In Table 10,11 we report the summary of researchers' self-reported number of publications in the 3 years preceding our survey. We see that an average of only two policy briefs per researcher was produced by only 85 researchers compared with an average of eight research articles per researcher produced by 242 researchers.

In addition to publications, research is often communicated through conferences and debates. Typically, even if individual researchers serve as members of organising committees, research conferences are organised at the behest of institutions or organisations. To assess the prevalence of institution-based conferences in Nigeria as a form of research communication product, we asked the administrators to indicate the number of conferences organised by their institutions in the past 3 years. The responses are summarised in Table 11. In total, 276 scientific conferences were organised in the past 3 years for any category of audience (national, regional or beyond the region). Public debate involving researchers,

TABLE 10 Summary statistics of self-reported publications in the social sciences

Publication type	Number of responses	Minimum	Maximum	Mean	Median	Standard error
Total number of peer-reviewed scientific article published in journal and conference proceedings	242	1	45	8.04	6	0.57
Non-peer-reviewed scientific article published	88	1	50	4.49	2	0.66
Publicly available working paper	128	1	30	3.89	2	0.42
Book as the sole author						
Book as (one of) the editor(s)	128	1	8	1.75	1	0.10
Chapter in book	230	1	30	3.72	2	0.26
Report (technical, from a project, a consultancy)	117	1	60	2.87	2	0.27
Policy brief (a short paper on policy implications of research)	85	1	15	2.00	1	0.21

TABLE 11 Summary statistics of number of scientific conferences and public debates organised by Nigerian institutions in Nigeria in the last 3 years

Scientific conferences organised	Number of responses	Mean	Standard error	Median	Total number of events
For national audience	94	2.90	0.18	4	273
For regional audience	82	2.71	0.17	4	222
For international audience outside the region	84	2.87	0.18	4	241
Public debate involving researchers, political and civil society	88	3.27	0.35	4	
Total					**276**
Number of administrators surveyed	114				
Number of institutions	70				
Number of events per institution	3.94				

political and civil society also occurred at a similar rate, though the range goes from 1 to 30. This translates to a simple average of less than three events per institution, although the typical (median) institution hosted four events. In other words, each institution hosted an annual average of around one conference or debate per annum over the last 3 years. These figures are consistent with our first-hand experience in the Nigerian SSR system.
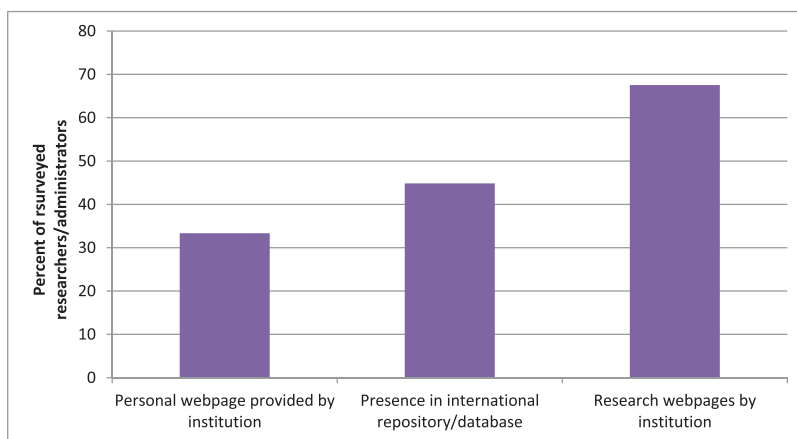
FIGURE 2 Online research visibility of Nigerian researchers and institutions [Colour figure can be viewed at wileyonlinelibrary.com]

Taken together, the above numbers suggest that social science researchers in Nigeria do not communicate their research results extensively to policymakers and the general public. This is consistent with earlier observations made by INGSA (2020) and Mba and Ekechukwu (2019). Clearly, this raises the need for considerable investments in capacity building for effective research communication in Nigeria, especially for researchers. It also highlights the fact that the low uptake of research evidence for policy in developing countries like Nigeria is not purely a demand-side but also a supply-side problem, that is, producers of research need to be able to communicate effectively.

Previous research suggests that policymakers and other research users tend to rely on the Internet as a source of research information. For instance, Sanni et al (2016) reported that the Internet was one of the topmost important sources of information for Nigerian legislators, second only to expert opinion. Thus, online visibility of SSR will significantly facilitate its uptake. As a first step, it is important to note that there are numerous obscure publications in Nigeria. Poor quality is a first but not the only driver of this obscurity. Online visibility of research is poor in the Nigerian SSR system. Most of the local scientific journals do not operate online; thus, most of the SSR outputs that they publish are not visible (Ezema et al., 2019). We further assessed online visibility of Nigerian SSR research in our survey by asking researchers a set of questions that assessed their research visibility.[9] The results (Figure 2) suggest limited Internet visibility of SSR and the researchers. Only a third of all the surveyed researchers are affiliated with institutions that provide webpages where researchers can highlight themselves and their research. Fewer than half of the researchers are registered as authors in internationally visible databases or repositories. Though about two thirds of all the surveyed administrators claimed that their institutions provide websites where research products are made available, we know from experience that such websites, where they exist, are typically not properly managed and updated.

While one may place the burden of providing a webpage for each researcher and of ensuring the existence of an up-to-date website upon the institution, it is the responsibility of individual researchers to enlist themselves in international repositories and databases. These repositories and databases abound today across all disciplines, which makes it surprising that fewer than half of the researchers that we surveyed claim to be listed in any. These days, any researcher in any discipline can create a free Google Scholar profile, albeit with a verifiable institutional email address which many researchers may not possess. Notwithstanding, several alternatives like ResearchGate, Academia.edu, ORCID, etc. exist to enhance the visibility of researchers and their work. In this sense, it can be argued that the problem with research visibility is not fully associated with infrastructure or research quality; the combination of awareness and capacity also play a major role.

TABLE 12   Researchers' media interventions based on research results in the past 3 years

Types of intervention	Number of responses	Mean	Standard Error	Median	Total number of interventions
Articles in general public press newspapers	70	3.77	0.72	4	264
Intervention on the Internet/blog posts	77	5.09	1.13	4	392
Intervention on the radio	115	9.70	4.35	4	1116
Intervention on the TV	84	4.86	0.77	4	408

INGSA (2020) specifically suggests that researchers need to feature more regularly on media programs to communicate their research findings and should present research in a simplified and easy-to-understand format via several communication channels, including public seminars or roundtables on contemporary issues. Our survey results show that Nigerian research producers perform poorly in this regard. In general, the proportion of researchers who have had any media intervention at all is small, ranging between 13% for print media to 22% for radio channels. The average number of interventions ranges from less than four within a 3-year period—averaging about one intervention per year—for print media to less than 10 within the same period—averaging about three interventions per year—for radio channels. In general, radio interventions are higher in frequency—almost triple that of print media, double of TV interventions, and almost double of Internet interventions (Table 12). This is perhaps due to the costs of media interventions, which are lower for radio than for newspapers or the TV. It may also be because radio channels have wider coverage especially in local languages, compared with the Internet, TV or newspapers. Taken together, the above results suggest that there is still a big gap in the Nigerian SSR system as far as effective communication of research beyond academic publications is concerned.

5 | CONCLUSION

This paper set out to describe the SSR diffusion system in Nigeria along three important dimensions: actors and networks; research communication practice; and research communication products. Diverse actors, both within and outside traditional academic circles, are actively involved in the diffusion of SSR results in Nigeria. These actors typically collaborate to co-produce research dissemination products or to organise events. Although we found evidence of collaboration across actor categories, most of the collaboration takes place among researchers. This lop-sidedness has given rise to a huge communication gap between researchers and policymakers. Researchers generally "talk to themselves" through technical publications, which policymakers find less useful than policy briefs and consultancy reports. To change this situation, there is a need to build the capacity of research producers in research communication.

There are several opportunities in the Nigerian SSR system to achieve this. For instance, the country has a large and well-organised university system. The NUC, which regulates this system, is well positioned to initiate a capacity-building effort. Moreover, some academics have already acquired capacity for science advocacy, as evidenced by a certain level of interactions with policymakers. Identifying such academics and empowering them to train others will have some positive results. In addition, research donors may help in redirecting existing SSR competence in the country towards effective research diffusion. For instance, it may be helpful to require clear dissemination plans as part of research grant applications.

We found that visibility of research, especially online, is poor in Nigeria. Most local journals are obscure, as a result of low-quality and poor dissemination platforms. In this regard, government and

other critical stakeholders in the Nigerian SSR landscape need to fashion out policies that will promote adoption of international quality standards in local journals. There is also an urgent demand for an accreditation and bibliographic system for local journals. This will not only enhance visibility, it will also create a strong platform for quality control. Ultimately, a network of strong local SSR journals will spur the emergence of high-quality research that is relevant to local needs.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in Mendeley data at https://data.mendeley.com/datasets/g2wstgcgwc/1.

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NOTES

[1] In our context, a number of the research institutes can also be referred to as think tanks.

[2] Projections based on the 2006 national census.

[3] Human Development Index: A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See Technical note 1 at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the HDI is calculated.

[4] HEIs are composed mainly of universities, polytechnics, monotechnics and colleges of education, but research in the tertiary education sector in Nigeria is preponderantly dominated by the universities. Research in the non-university actors, especially the polytechnics, is of low quality, not basic research and mostly technological, not social scientific.

[5] As an example, the Federal Ministry of Science and Technology manages a dozen research institutes, but most of these do not engage or hire researchers in social sciences (e.g. the National Agency for Science and Engineering Infrastructure).

[6] See also http://theconversation.com/academics-can-change-the-world-if-they-stop-talking-only-to-their-peers-55713.

[7] The bibliographic part of this study was last updated in December 2019 to maintain consistency with the survey data.

[8] A more detailed discussion can be found in https://theconversation.com/academics-can-change-the-world-if-they-stop-talking-only-to-their-peers-55713 and https://www.universityworldnews.com/post.php?story=20130712145949477, both accessed on 29 February 2020

[9] Aggregate data such as number of downloads, number of social media likes or shares and number of new mentions of SSR would be ideal. We contacted Altmetrics (an online research data aggregator) as part of our attempt to gather relevant data on Nigeria. We were informed in an email exchange by a Customer Support Manager that Altmetrics does not track the number of views nor the number of downloads. Country-level searches are not possible either on Altmetrics data.

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