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Article

Diversity of information sources: An evaluation of global think tanks knowledge construct

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Abstract

In the realm of policy making, place and prestige of think tanks is acknowledged for their contribution in policy analysis and recommendations. Governments around the world consider the reports and recommendations of leading global think tanks when developing their policies. However, in spite of there being a comprehensive list of typologies and functions of think tanks, much less is known about these 'machineries of knowledge' and what enables them 'to know what they know, and the key sources of variation among them'. Drawing on the theory of epistemic knowledge, this study aims to provide insights about how knowledge is produced inside these machineries of knowledge by looking at source citations' pattern of reports produced by the top 50 global think tanks. For this purpose, a total of 365 research reports on one country, i.e. Pakistan, published between 2007 and 2016 were retrieved. A total of 17,801 references were extracted and analyzed. The study finds that there is great variation across think tanks in the use of diverse information sources and the use also varies considerably over time even for the same organization.

Key words: think tanks; information sources; policy making; epistemic knowledge.

1. Introduction

In modern times, interdependence and information influx has made the world increasingly difficult to comprehend for governments as well as for individual policy makers. Decision making is not possible without taking into consideration a variety of transnational, transgeographic actors such as global financial institutions, regional and international organization, global media, and other non-state actors including terrorist groups. However, the real problem for policymakers is often not the lack of information but its abundance. In the arena of politics, information could only be translated into power if it comes at the right time and in the right form. Moreover, a crisis demands decision makers not only take the right decision but also to seize the moment (McGann 2002).

However, the current practices and patterns of policy making indicate that in most circumstances, the decisions made in haste most often lead to unfavorable policy outcomes. Therefore, information that is timely, useful, comprehendible, accessible, and, more importantly reliable is indispensable for identifying good policy options. In other words, policy makers need information about the societies they govern, the effectiveness of the current policies, possible alternatives, and associated costs and consequences (Shiferaw 2015).

There are varieties of sources available to inform the knowledge and decision making of policy makers. These sources include national and international agencies, research centers, and individual scholars. However, policy makers around the world are increasingly looking toward a more specialized group of institutions generally known as think tanks to serve this purpose. These organizations seek to provide policy makers with policy-relevant information and analyses that in turn may enable them to make more informed decisions about domestic and international policy issues (McGann 2002).

In recent years, think tanks have been confronted with a number of external challenges. The gravest, perhaps, is related to concerns about funding, which threatens not only the independence and objectivity of think tanks but also their sustainability and credibility for serving as reliable sources of sound public policy advice.

Because think tanks cannot meet expenses from their own resources such as membership fees or sales of publications, philanthropy, corporate support, and government contracts become

essential for their survival (Stone 1996; McGann 2007). However, experts who have extensively studied think tanks argue that external funding can raise doubts about think tanks' credibility as a reliable source of research and policy recommendations (Lipton et al. 2014, 2016a,b; Silverstein, 2014; Transparify 2015). Medvetz (2012) argued that the intellectual independence of think tanks is hampered by their sponsors' demands, and even some of the most nonpartisan of think tanks could be party to external agendas.

Considering the immense importance given to the advice of these institutes in policy circles and the stakes involved, it is worth investigating the quality of their research by looking at information sources in reports produced by global think tanks. This is what we have attempted to do in this article. Specifically, we aim to contribute to a better understanding of the diversity of information sources of research conducted by leading global think tanks. To that end, we examined their citations pattern in the reports produced over one country, Pakistan. This study is the first of its kind and its insights are significant for both for policy formulation and recommendation bodies.

2. Measuring research quality: Methods and indicators

The quest for facts and its impartial reporting are crucial in conducting research. The validity and quality of research output depends on the diversity of the information sources consulted in reporting the data as evidence supporting the findings. This is not only a matter of the personal integrity of the researcher, but also vital for safeguarding the credibility that builds up the trust of the public in research ventures. The quality of research effort is believed to hinge on the diversity of sources which may be helpful in avoiding the unconscious biases accruing from selective citing of sources (Gans 1992; Graber 2006). Therefore, to ensure diversity and credibility, a researcher must use information from diverse sources to ensure representativeness and balance in the competing standpoints (Rosenstiel et al. 1998, 1999, 2000).

Following this literature, this study uses *source diversity* as measures of research quality. Source diversity is measured by the number of type of sources consulted in the research produced by global think tanks (Figure 1).

Considering the large number of think tanks operating around the world, purposive sample was used to select the top 50 global think tanks on the basis of representation from all regions. The initial list of selected think tanks included at least one think tank from each of the six continents (i.e. Asia, Africa, Europe, South and North America, and Australia). It enabled us to explore the regional research output as well as research strength of top think tanks on Pakistan.

All reports published by the top 50 global think tanks over Pakistan in the last 10 years (2007–16) served as the sample for this research. In the first step, a list of top 50 think tanks from the universe of over 6,500 think tanks operating around the world was retrieved from the Think Tanks and Civil Societies Program (TTCSP) at the Lauder Institute of the University of Pennsylvania (LIUP). LIUP annually administers a survey to over 7,500 scholars, public and private donors, policy makers, and journalists, asking them to rank more than 6,600 think tanks using 28 criteria (see Supplementary Appendix – D). Using results of the survey, LIUP publishes Global Go to Think Tank Index as part of the TTCSP (McGann 2016).

Further, we have also looked for any correlation between the level of diversity of sources with global ranking. For this purpose, the top 50 think tanks were selected from the latest ranking published in 2016. Because the most recent ranking is based on more comprehensive criteria, it is possible to correlate findings of this study to investigate whether the research quality (on defined parameters in this study) has any significant impact on the ranking of the top 50 international think tanks. Further, year by year correlation analyses were made between research quality of think tanks and ranks to seek whether any of the previous criteria has given significance to research quality (defined in this study) while ranking of think tanks. The Pearson correlation coefficient (rho) was used for correlation between number of reports, volume of report, average citations per page, total citations, and the diversity level. Further, Spearman's rank order correlations was used to find correlation between diversity level and rank of think tanks. The ranking was coded such as the lowest number to indicate highest rank and vice versa.

Among the sample of top 50 global think tanks, only 33 have produced referenced[1] reports relating to Pakistan. Thus, the final list consisted of 12 think tanks from North America (11 USA and 1 Canadian), 14 from Europe (5 German, 4 UK, 1 each from Sweden, Belgium, France, Denmark, and the Netherlands), 5 from Asia (2 Chinese; 1 each from South Korea, Japan, and Russia); 1 each from South America and Australia (See Supplementary Appendix A). There was one think tank from South Africa in the initial list of the top 50 think tanks, but it was omitted, along with 15 other think tanks (see Supplementary Appendix – B), because they did not produce any report relating to Pakistan in the sample period. Further, to accommodate the large amount of data in limited space, acronyms of think tanks are used (see Supplementary Appendix – C).

In the first stage of data collection, 10 years of reports of the top 50 global think tanks were retrieved. All the cited sources in the reports were entered into a database under main fields such as: think tanks, year of publication, and type of cited publications. Analysis

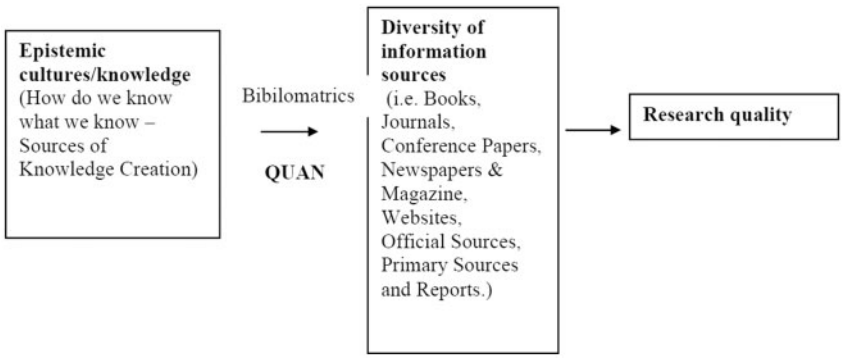

Figure 1. Conceptual model.

for each think tank, and their comparative analysis was drawn to assess the sources citation pattern and diversity level. Together with each document (research report), the references were processed. Redefining references as sources made it possible to analyze citation patterns and diversity indicators. Custom setting (where available) for search engines on each website of the selected think tanks were employed to obtain the desired data. The study employed online software to translate needed information from non-English websites. Information obtained from these reports included names of authors, title of reports, area/issue of publication, year of publication, number of reports of each think tank, number of pages of each reports, number of citations per article, citations per page, and type of citations.

Three hundred and sixty-five reports containing 17,801 references fulfilled the selection criteria (i.e. referenced reports on Pakistan). The information was compiled, recorded, tabulated and analyzed in order to reach a bibliometric conclusion through observations and measurement. Microsoft Excel was used to manage the data.

Each think thank was analyzed with regard to source pattern and resultant diversity level. This was followed by comparative analysis of think tanks using the same approach. The correlation of the level of diversity with their international ranking was measured in the final stage through Spearman's rank-order correlation coefficient.

For results pertaining to the diversity in cited references, references were divided into eight types which are the basic and the most widely consulted sources in research. These types are journals, books and monographs, conference papers, newspapers and magazines, websites, official sources, primary sources, and reports and thesis.

The diversity level of a single document was calculated using the following equation in which all references of the report were recorded against each of the above-mentioned source types and divided by the total number of type of sources (i.e. eight sources):

$$\text{Diversity}_1 = \text{Number of type of cited work/Total number of type}$$

The mean diversity level of each think tank was calculated using the following equation:

$$\text{Diversity}_m = \text{Diversity}_1 + \text{Diversity}_2 \ldots \text{Diversity}_n/\text{Total number of reports}$$

Because there is sample variability (number of reports) produced by each think tank during the sample period, it is important to explore any correlation between number of reports, number of pages, citations per page, and total citations with diversity level of each think tank. A statistically significant correlation could affect the findings and would be limited to this particular study. By contrast, statistically nonsignificant correlations would enable us to conclude that the sample size does not affect the finding of this study and could be generalized on larger population. Further, Spearman's rho correlation is used to explore the correlations between diversity level and year wise ranking of each think tank.

3. Results

3.1 Diversity of information sources of global think tanks' reports

Table 1 indicates that newspapers 4,889 (27.5%) and reports 4,050 (22.8%) were the preferred sources of information. With a count of 3,700 (20.8%), websites remained the third most cited source of information by think tanks. The highest number of newspaper 1,282 (26.2%) and reports 661 (16.3%) were cited by ICG, whereas, the largest number of websites 698 (18.9%) were referred to by CSIS in their research. Table 1 also indicates that citations from traditional sources such as books and journals remained very low, with 1,123 (6.3%) and 1,226 (6.9%) citations, respectively. Citations from conference papers remained at the lowest with only 77 (0.4%) citations. The majority of the think tanks relied on secondary sources, whereas only a few think tanks have used most of the primary sources that included: HRW 290 (33.4%), NIIR 61 (21.5%), ICG 589 (19.1%), CSIS 316 (12%) and AI 53 (10.4%).

Table 1 also illustrates that there is great variability in the total number of citations across think tanks. The highest number of citations 3,090 (17.4%) were made by ICG in its reports, while CMC remained at the bottom in terms of the number of citations with only 14 (0.07%) citations. In terms of the total reports produced by think tanks, CFR is on the top of the list with 78 publications during the sample period of the study, whereas CMC and KDI each have produced only one report out of 365 produced by the top 50 think tanks on Pakistan during the 10-year period.

The net volume of the total research published consisted of 8,418 pages, where WWIC has published the highest number of pages, 1,247, and CMC publishing merely 7 pages. The highest average number of citations per page was found at AEI with 7.3, whereas KDI had the lowest average with 0.3 citations per page.

Table 2 indicates that there is a significant inverse relationship between number of reports and the diversity level of think tanks, indicating that diversity level decreased with an increase in the number of reports produced by think tanks.

As indicated in Table 3, there is a statistically significant correlation between volume of report as well as total citations count and diversity level of think tanks, whereas an inverse relationship exists between citations per page and diversity level. Moreover, Table 1 illustrates that the diversity level has shown a great variance ranging from as low as 33.3% by IISS and a high of 81.3% by CIGI, and that 15 (45%) think tanks have below mean diversity i.e. 60%.

The findings of both these tables support each other and concludes that the more reports the less diverse, and the more pages the more diverse. In other words, it suggests that many short reports lack citations to substantiate the content in it. One possible explanation could be that, as stated earlier, policy makers are often besieged by more information than they could possible scan, and therefore they lack the time to read lengthy reports produced by think tanks. Furthermore, there are often situations in which policy makers move quickly and make decisions on issues that need immediate action. Therefore, most often think tanks produce policy briefs for decision-makers that are easy-to-read and short documents that include findings and recommendations from research reports. In that sense, policy briefs specifically serve another (policy) goal than more substantive reports (Table 4).

Because international rankings for the years 2007 and 2008 are not available, the correlations between diversity and ranking could not be computed. Furthermore, only those think tanks are included for analysis that have published reports in at least 2 years wherein they have secured rankings as well. Thus, GIISA, CIGI, FIIR, GCFR, and NIIR are excluded from the correlation analysis because a correlation coefficient could only be calculated for a minimum number

Table 1. Diversity of information sources of global think tanks' reports on Pakistan

Think Tank	NR	NP	CPP	JRNL	%	BK	%	CONF	%	N&M	%	WEB	%	OFL	%	PRM	%	REP	%	Total	Diversity
BI	24	540	1.9	99	9.8	178	17.7	9	0.9	130	12.9	210	20.9	129	12.8	28	2.8	224	22.2	1007	62.5
CH	3	115	1.7	16	8.0	14	7.0	0	0.0	74	37.0	44	22.0	14	7.0	0	0.0	38	19.0	200	66.7
CEIP	21	403	2.1	85	10.2	149	17.9	5	0.6	268	32.2	149	17.9	51	6.1	11	1.3	114	13.7	832	63.7
CSIS	28	805	3.2	165	6.5	113	4.4	5	0.2	604	23.6	698	27.3	171	6.7	316	12.4	485	19.0	2557	67.9
CFR	78	408	3.2	14	1.1	21	1.6	0	0.0	244	18.7	537	41.1	103	7.9	0	0.0	389	29.7	1308	45.4
IISS	6	17	2.8	0	0.0	0	0.0	0	0.0	14	29.8	17	36.2	10	21.3	0	0.0	6	12.8	47	33.3
RAND	4	464	2.0	105	11.3	150	16.2	1	0.1	239	25.8	136	14.7	61	6.6	0	0.0	236	25.4	928	78.1
WWIC	10	1247	0.7	103	11.5	89	10.0	9	1.0	98	11.0	170	19.0	133	14.9	12	1.3	280	31.3	894	77.5
AI	5	157	3.3	0	0.0	2	0.4	0	0.0	72	14.1	59	11.5	28	5.5	53	10.4	298	58.2	512	47.5
CI	2	28	4.4	8	6.5	15	12.2	0	0.0	27	22.0	35	28.5	8	6.5	0	0.0	30	24.4	123	75
HF	10	91	1.7	1	0.6	8	5.1	0	0.0	39	24.7	76	48.1	6	3.8	0	0.0	28	17.7	158	45
FGV	2	21	5.0	87	82.9	16	15.2	0	0.0	0	0.0	1	1.0	0	0.0	0	0.0	1	1.0	105	37.5
TI	2	215	0.9	6	3.1	1	0.5	0	0.0	28	14.4	87	44.8	32	16.5	0	0.0	40	20.6	194	56.3
FIIR	3	195	1.1	17	8.1	69	32.7	1	0.5	39	18.5	49	23.2	6	2.8	1	0.5	29	13.7	211	62.5
GIISA	6	150	3.6	62	11.5	36	6.7	2	0.4	162	30.0	86	15.9	31	5.7	5	0.9	156	28.9	540	75
CAP	30	238	2.6	7	1.1	6	1.0	0	0.0	261	42.2	214	34.6	69	11.1	0	0.0	62	10.0	619	42.5
SIPRI	2	42	3.0	9	7.1	26	20.6	0	0.0	29	23.0	38	30.2	6	4.8	1	0.8	17	13.5	126	81.3
CMC	1	7	2.0	0	0.0	1	7.1	0	0.0	4	28.6	4	28.6	0	0.0	0	0.0	5	35.7	14	50
KAF	8	138	1.3	10	5.6	27	15.0	1	0.6	94	52.2	15	8.3	10	5.6	0	0.0	23	12.8	180	50
FEF	10	458	0.6	13	4.9	66	24.6	22	8.2	20	7.5	35	13.1	40	14.9	16	6.0	56	20.9	268	46.3
ICG	28	704	4.4	25	0.8	78	2.5	2	0.1	1282	41.5	254	8.2	199	6.4	589	19.1	661	21.4	3090	76.4
AEI	27	143	7.3	5	0.5	11	1.1	0	0.0	595	57.4	290	28.0	33	3.2	24	2.3	79	7.6	1037	40.3
ADB	18	548	1.3	209	29.1	47	6.5	6	0.8	7	1.0	35	4.9	75	10.4	8	1.1	331	46.1	718	54.9
ECFR	2	18	4.2	2	2.7	5	6.7	0	0.0	14	18.7	28	37.3	5	6.7	4	5.3	17	22.7	75	75
IWEIR	2	60	1.0	5	8.1	3	4.8	0	0.0	14	22.6	16	25.8	6	9.7	0	0.0	18	29.0	62	68.8
DIIS	8	321	1.9	24	4.0	32	5.4	8	1.3	202	33.8	190	31.8	13	2.2	11	1.8	118	19.7	598	67.2
CIGI	2	37	3.1	3	2.7	10	8.8	1	0.9	30	26.5	23	20.4	11	9.7	0	0.0	35	31.0	113	81.3
CICIR	2	11	2.3	0	0.0	0	0.0	0	0.0	17	68.0	5	20.0	2	8.0	0	0.0	1	4.0	25	43.8
GCFR	2	12	1.5	0	0.0	3	16.7	0	0.0	8	44.4	0	0.0	0	0.0	0	0.0	7	38.9	18	37.5
AIIA	2	9	2.6	8	34.8	4	17.4	0	0.0	4	17.4	5	21.7	0	0.0	0	0.0	2	8.7	23	50
NIIR	9	171	1.7	10	3.5	30	10.6	1	0.4	47	16.5	45	15.8	20	7.0	61	21.5	70	24.6	284	66.7
HRW	7	427	2.0	18	2.1	12	1.4	0	0.0	223	25.7	144	16.6	22	2.5	290	33.4	160	18.4	869	78.6
KDI	1	218	0.3	7	10.6	4	6.1	4	6.1	0	0.0	5	7.6	12	18.2	0	0.0	34	51.5	66	75
Total	365	8418	2.1	1123	6.3	1226	6.9	77	0.4	4889	27.5	3700	20.8	1306	7.3	1430	8.0	4050	22.8	17801	60.0

BK = Books; CONF = Conference papers; CPP = Citations per Page; JRNL = Journals; N&M = Newspapers & Magazine; NP = Number of Pages; NR = Number of Reports; OFL = Official sources; PRS = Primary sources; REP = Reports; WEB = Websites.

Table 2. Correlation between number of reports and diversity

		No. of reports
Diversity	Pearson correlation	−0.185[a]
	Sig. (two-tailed)	0.044
	N	119

[a]Correlation is significant at the 0.05 level (two-tailed).

Table 3. Correlation between number of pages, citations per page, total citations and diversity

		No. of pages	Citations per page	Total citations
Diversity	Pearson correlation	0.241[b]	−0.155[b]	0.283[b]
	Sig. (two-tailed)	0.000	0.003	0.000
	N	363	363	363

[b]Correlation is significant at the 0.01 level (two-tailed).

of observation n = 2, where one could get significant correlation when n is increased to 6 (Bujang and Baharum, 2016).

One think tank, BI, has also been excluded because it is the only think tank that has secured the top position in all rankings. Furthermore, since two think tanks, CMC and KDI, have produced only one report each, correlations could not be computed for them and they are excluded as a result. Two additional think tanks, CICIR and AIIA, produced reports in only a single year, and therefore their correlations could also not be calculated. Analysis of the rest of think tanks is presented in Table 5.

The Table 5 shows the correlation coefficient between diversity and rank of think tanks. The figures indicate sources diversity has moderate positive, where in some cases inverse strong correlation with rank. However, none of the correlations has been denoted as significant. Moreover, it is important to highlight that the sample size has no effect on the significance of correlations, as WWIC and ICG has the greater number of sample (n = 8, rs = 0.272, p = 0.515) whereas IISS has a sample size of 3 (n = 3, rs = 866, P = 0.333).

Table 4. Diversity and ranking (Year and think tanks wise)

Think Tank	2009		2010		2011		2012		2013		2014		2015		2016	
	DV	*RK*	*DIV*	*RK*	*DIV*	*RK*	*DIV*	*RK*	*DIV*	*RK*	*DIV*	*RK*	*DIV*	*RK*	*DIV*	*RK*
CH			62.5	4th			68.8	2nd								
CEIP	81.3	3rd	33.3	3rd	62.5	3rd			75.0	3rd	50.0	3rd	75.0	3rd	67.5	5th
CSIS	67.7	9th	87.5	7th	66.4	5th	59.4	5th	68.8	4th	87.5	4th				
CFR	47.5	2nd	46.3	2nd	45.5	4th	25.0	6th	33.3	7th	75.0	8th			50.0	10th
IISS									25.0	9th	29.2	9th			43.8	13th
RAND			81.3	6th			75.0	9th			75.0	7th				
WWIC	100.0	14th	87.5	17th	75.0	15th	12.5	11th	75.0	10th	87.5	10th	75.0	9th	87.5	8th
AI							56.3	7th							62.5	22nd
CI	75.0	5th			75.0	14th										
HF							41.7	18th	50.0	17th			45.8	12th	37.5	12th
FGV											37.5	18th			37.5	9th
TI									37.5	12th	75.0	12th				
CAP					46.9	19th	25.0	30th	50.0	30th	37.5	25th			37.5	14th
SIPRI							87.5	4th	75.0	5th						
KAF							50.0	33rd	62.5	33rd			75.0	25th		
FEF									37.5	34th	31.3	30th	37.5	26th	68.8	17th
ICG	75.0	11th	81.3	11th	75.0	9th	78.1	14th	79.2	16th	79.2	21st	75.0	27th	87.5	26th
AEI			41.7	13th	50.0	17th	40.6	20th	42.5	24th	28.6	24th				
ADB							37.5	32nd	50.0	29th					45.8	29th
ECFR									87.5	19th	62.5	31st				
IWEIR							75.0	34th	62.5	32th						
DIIS							56.3	43rd	31.3	42nd			100.0	37th		
HRW	62.5	23rd	75.0	16th	87.5	22nd					87.5	47th	87.5	47th	87.5	32nd

DV: Diversity of information sources; RK: Ranking of think tank.

Table 5. Correlations between diversity and ranking

Think Tank	Spearman's rho		
	N	Correlation coefficient	Sig. (two-tailed)
CH	2	1.000[a]	.
CEIP	7	0	1
CSIS	6	−0.194	0.713
CFR	7	0.306	0.504
IISS	3	0.866	0.333
RAND	3	−0.866	0.333
WWIC	8	0.088	0.836
AI	2	1.000[a]	.
CI	2	.	.
HF	4	0.211	0.789
FGV	2	.	.
TI	2	.	.
CAP	5	0	1
SIPRI	2	−1.000[a]	.
KAF	3	−0.866	0.333
FEF	4	−0.632	0.368
ICG	8	0.272	0.515
AEI	5	−0.359	0.553
ADB	3	−0.866	0.333
ECFR	2	−1.000[a]	.
IWEIR	2	1.000[a]	.
DIIS	3	−0.5	0.667
HRW	6	0.549	0.259

[a]Correlation is significant at the 0.01 level (two-tailed).

Among the 28 criteria that are included in the survey to create the Global Go to Think Tank Index, at least 6 criteria (see Supplementary Appendix D) directly refer to the knowledge base that think tanks should rely on. However, it was not possible to establish any correlations between quality indicators, for example, between source diversity and international ranking of think tanks. This suggests that there are some other unexplained and more significant variables that affect the international ranking of think tanks. In other words, the other factors are given more weighting in the ranking criteria TTCSP.

4. Conclusion

The aim of this study was to assess the research quality of global think tanks. To that end, we analyzed the sources of information as evidence how think tanks back up their findings while giving recommendation to policy makers.

The existing evidence suggests that the use of diverse information sources could indicate the quality of research, the mean use of diverse sources of majority of the think tanks has great variations, in most cases they have used fewer type. The significant portion information sources contained citations from newspapers and websites, validating the fact that most of the time think tanks are more inclined toward providing timely information that is readily available and easily accessible. Further, this study could not find any correlation between the diversity level and international rank of think tanks.

However, keeping the objectives and sample of this study in mind, no generalization could be made that all think tanks are less concerned with quality of research. Certainly, there is variety among think tanks in that some are very good institutions and some good researchers working in them producing high quality analyses. However, one needs to have a closer look at the epistemic cultures that include their organizational structures, operational practices, ideological orientation, and political affiliation to make better judgments.

This study is the first of its kind and its insights are significant for both policy formulation and recommendation bodies. Its proposed methodology aims to help the think tank's audiences assess the heuristic analysis of knowledge construct of any think tank. It is to be underscored that this is a starting point in discussion and research on the research quality of think tanks, and how can it be improved further.

In the case of Pakistan, which is frequently analyzed by global think tanks due to its geo-strategic importance, it should be highlighted that though this study has provided some useful insights on how Pakistan has been treated by top think tanks, further research is needed. Future research may use the same or other case studies with similar or other parameters to judge the research strength and quality of think tanks.

Note

1. Report that has reference list containing the full details of each cited source.

Supplementary data

Supplementary data is available at *Research Evaluation Journal* online.

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