

Scientometric study of books authored by Nobel laureate Amartya Sen

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The paper presents the scientometric portrait of Bharat Ratna Amartya Sen, also a Nobel laureate in Economic Sciences, based on the books published by him. During the period 1960-2015, Sen produced 43 books either singly or collaboratively. Jean Dreze is Sen's most prominent collaborator. The highest number of books (27.92%) was published during 2000-2009. Although most of his books were published in English, a number of his books have been translated into several Indian and foreign languages. Most of his books (20.94%) are on social problems, followed by politics and government (13.95%) and financial economics (11.63%).

Keywords: Quantitative analysis; Authorship/editorship pattern; Publication productivity; Nobel laureate; Bharat Ratna; Amartya Sen; Economic sciences

Introduction

The term 'scientometrics', derived from the Russian term 'Naukometriya'¹ was first coined by two Russian scientists- Nalimov and Mulechenko in the year 1969². The terminology became common in the LIS parlance after Tibor Braun established *Scientometrics* in 1977³. According to Tague-Sutcliffe⁴, scientometrics is 'the study of the quantitative aspects of science as a discipline or economic activity. It is part of science and has application to science policy-making. It involves quantitative studies of scientific activities, including, among others, publications, and so overlaps bibliometrics to some extent'. Scientometrics is also related to the terms bio-bibliometrics⁵, scientometric portrait⁶, informetrics⁷, bibliographics on publication productivity⁸, microbibliometrics⁹ and information career¹⁰.

Nobel Prize, the world's most celebrated honour, was founded by Alfred Nobel, the inventor of dynamite. The prizes in chemistry, literature, peace, physics, and physiology or medicine were first awarded in 1901.

In 1968, in economic sciences, the Sveirges Riksbank (The Bank of Sweden) instituted the 'Bank of Sweden Prize in Economic Sciences in memory of Alfred Nobel'. After the institution of the prize, since

1969, 46 Nobel Prizes in economic sciences have been awarded, of which 23 Prizes have been given to single laureates, 17 Prizes have been shared by two laureates and 6 Prizes have been shared between three laureates¹¹.

Kalyane and Sen¹², Kademani, Kalyane and Kumar¹³, Angadi and others¹⁴, Sankar¹⁵ and Kademani and others¹⁶ have carried out scientometrics studies on the works of Nobel laureates. However, these studies were based on the journal articles of the laureates. Scientometric studies on books published by Nobel laureates are rare and hence this study on Nobel laureate and Bharat Ratna Professor Amartya Sen was undertaken.

Objective of the study

- To study the attributes of books published by Nobel laureate Amartya Sen.

Amartya Sen, a brief biographical sketch

Amartya Sen was born on 3rd November 1933 in Shantiniketan¹⁷. The noted Indian economist and philosopher was awarded the Nobel Memorial Prize in Economic Sciences in 1998 and Bharat Ratna in 1999 for his contributions to welfare economics. Sen is the 4th Nobel Prize winner from India. He was also awarded with honorary D. Litt. by the University of

Calcutta (1993); Desikottam by Visva-Bharati (1982); Charleston-EFG Maynard Keynes Prize (2015).

Sen received more than 90 honorary degrees from different universities and institutions around the world. Currently Amartya Sen is a Professor at the Thomas W. Lamont University and Professor of Economics and Philosophy at the Harvard University. He is also a Senior Fellow at the Harvard Society of Fellows; distinguished fellow of all Souls College, Oxford; an honorary fellow of Darwin College, Cambridge; and Fellow of Trinity College, Cambridge where he served as teacher from 1998 to 2004. He also served as Chancellor of Nalanda University (2012-2015)¹⁸.

Sen was the first non-American President of the American Economic Association (1994). Sen has served as: President of the Econometric Society (1984); President of the International Economic Association (1986-89); the Indian Economic Association (1989); the Development Studies Association and the Human Development and Capabilities Association. He chaired the International Advisory Board of Center for Human and Economic Development Studies at Peking University in China¹⁹.

Amartya Sen authored 43 books and published over 600 research papers in various national and international journals. He founded two trusts from the Nobel Prize money: 'Pratichi (India) Trust', which concentrates on illiteracy issues in the present time, and 'Pratichi (Bangladesh) Trust', which deals with gender inequality issues.

Methodology

The relevant data of the present study were collected from the complete and updated biographical

details of Amartya Sen from Harvard University website (http://cua.mit.edu/ketterle_group/ketterle.htm). He has written 43 books either singly or jointly with others during 1960-2015. Sen has authored 27 books on his own and 10 books with others. He also singly or jointly edited six books. The data pertaining to his books were analyzed using MS-Excel.

Results and discussion

Authorship and editorship pattern

Table 1 shows authorship and editorship pattern which reveals that Amartya Sen authored 37 books and edited 6 books, either singly or collaboratively. Out of 37 books, 27 (72.97%) are single authored, 7 (18.92%) two-authored and 3 (8.11%) three-authored. Among 6 edited books, one book was edited by him as the lone editor, another had three editors including Sen and four books had two editors.

Status of Sen as author and editor is shown in Table 2. Out of 10 collaborative books, Sen appeared as first author in 2 two-authored and 2 three-authored books; second author of 4 two-authored and 1 three-authored books and as third author of one book. It is also seen that Sen appeared as the first and second editor in 2 books and only as the third editor of one book.

Prominent collaborators

Amartya Sen worked with 7 co-authors and 5 co-editors during 1960-2015. Most frequent co-author/co-editor of Sen is Jean Dreze (Table 3). They collaborated to produce 6 books. He collaborated with six authors to produce one book each with each collaborator. Bernard Williams, Maratha Nussbaum, Kenneth J. Arrow and Kotaro Suzumura were Sen's coeditors.

Table 1—Authorship and editorship pattern of Amartya Sen's books

Authorship/Editorship	Number of Books	%age
Authorship		
Single-authored	27	72.97
Two-authored	7	18.92
Three-authored	3	8.11
Total	37	100.00
Editorship		
Single-editor	1	16.67
Two-editors	4	66.66
Three-editors	1	16.67
Total	6	100.00

Table 2—Status of Amartya Sen as author/editor

Authored/Edited books	First	Second	Third
Authored books			
Two-authored	2	4	-
Three-authored	2	1	1
Edited books			
Two-editor	2	2	-
Three-editor	-	-	1

Table 3—Prominent collaborators

Prominent collaborators	No. of books
Authors	
Jean Dreze	3
P. Dasgupta	1
S.A. Marglin	1
James E. Foster	1
Joseph E. Stiglitz	1
Gianni Rigamonti	1
Prasanta K. Pattanaik	1
Editors	
Jean Dreze	3
Bernard Williams	2
Maratha Nussbaum	1
Kenneth J. Arrow	1
Kotaro Suzumura	1

Distribution of books by publication year

Table 4 represents year-wise distribution of books. It is seen from the table that Sen's productive career started in 1960 with the publication of the book '*Choice of Techniques*', when he was 27 years of age. Most of his books were produced during 1999-2010.

Sen's productive life covers the time span of 56 years (1960-2016). At age of 83 years, Sen published his 43rd book: '*The country of first boy: and other essays*', Oxford University Press, New Delhi.

Table 4 shows that by the age of 65 during the year 1998, he published 23 books, i.e. 50% of books at the productive age of 27 years. It should be noted that in this year, Sen was awarded the Nobel Prize in Economic Sciences.

Block-wise productivity

From Table 5, it is observed that the 5th block is the peak period of his productive life with 12 (27.92%)

books published during the period 2000-09 at the age of 67-76. The next productive period is the 4th block of his productive life (1990-99) with the production of 10 (23.25%) books.

Translation

Table 6 gives the list of Sen's books translated in different languages. The highest number of 12 books have been translated in Italian, followed by Japanese (7), French (6) and Spanish (5). Four books each has been translated into German, Portuguese, and Korean; two books have been translated in Swedish, Turkish, Greek, Dutch, Albanian and Finish and three books in Chinese. Only 5 books have been translated into the Indian languages Bengali, Hindi and Malayalam.

Distribution of books according to publishers

From Table 7, it is seen that 22 publishers in India and abroad have published Sen's books. Clarendon Press published nine books followed by Oxford University Press (New Delhi) and Basil Blackwell with four books each and Cambridge University Press and Oxford University Press (Oxford) with three books each. Beside them, three publishers published two books and 14 publishers published one book.

The place of publication is an important 'bibliometric indicator' in scientometric analysis¹⁹. Sixteen of Sen's books were published by several publishers from Oxford, eight books from New York and 6 books from Cambridge. One book each was published from San Francisco, Harmondsworth, Rome, Washington D.C. and Milan. Two books were published from Amsterdam and four were published from New Delhi (Table 7).

Subject-wise distribution

Table 8 looks at the subject areas of Sen's books based on the subject classification of DDC (22nd ed.), 'Classify OCLC: an experimental classification web services' (<http://classify.oclc.org/classify2/>)²⁰ by the ISBN provided in the books. The study shows that 9 books belong to social problems and services followed by 6 books on politics and government and 5 on financial economics.

Key terms

Frequency of key terms obtained from 'Classify OCLC' is given in Table 9. Thirty three key terms

Table 4—Distribution of books according to publication year

Biological age (DOB: 1933)	Publication year	No. of publications	Percent	Cumulative total	Cumulative percent	Publishing career age
27	1960	1	2.33	1	2.33	1
37	1970	2	4.65	3	6.98	10
39	1972	1	2.33	4	9.31	12
40	1973	1	2.33	5	11.64	13
42	1975	1	2.33	6	13.97	5
47	1980	1	2.33	7	16.3	20
48	1981	1	2.33	8	18.63	21
49	1982	1	2.33	9	20.96	22
51	1984	1	2.33	10	23.29	24
52	1985	1	2.33	11	25.62	25
54	1987	2	4.65	13	30.27	27
55	1988	1	2.33	14	32.6	28
56	1989	1	2.33	15	34.93	29
57	1990	1	2.33	16	37.26	30
59	1992	1	2.33	17	39.59	32
60	1993	1	2.33	18	41.92	33
62	1995	1	2.33	19	44.25	35
63	1996	1	2.33	20	46.58	36
64	1997	1	2.33	21	48.91	37
65	1998	2	4.65	23	53.56	38
66	1999	2	4.65	25	58.21	39
67	2000	1	2.33	26	60.54	40
69	2002	2	4.65	28	65.19	42
71	2004	2	4.65	30	69.84	44
72	2005	2	4.65	32	74.49	45
73	2006	1	2.33	33	76.82	46
74	2007	1	2.33	34	79.15	47
75	2008	1	2.33	35	81.48	48
76	2009	2	4.65	37	86.13	49
77	2010	1	2.33	38	88.46	50
79	2011	2	4.65	40	93.11	52
80	2012	1	2.33	41	95.44	53
82	2014	1	2.33	42	97.76	55
83	2015	1	2.33	43	100.0	56

Table 5—Block-wise productivity

Block	Block period	No. of books	Percent	Cumulative total	Publishing Career age (Year: 1960)	Biological age (DOB: 1933)
I	1960-69	1	2.33	1	1-9	27-36
II	1970-79	5	11.62	6	10-19	37-46
III	1980-89	9	20.93	15	20-28	47-56
IV	1990-99	10	23.25	25	30-39	57-66
V	2000-09	12	27.92	37	40-49	67-76
VI	2010-16	6	13.95	43	50-56	77-83

were obtained for 43 books by Amartya Sen. 'Welfare economics' appeared in as many as 14 titles followed by 'developing economics' (11 titles), 'developing

countries' (9 titles), 'industrial management' (8 titles) and so on. In the key terms, three place names, viz India, South Africa and Asia have also appeared.

Table 6—Translation of Amartya Sen's books in various languages

Languages	No. of books
Foreign languages	
Italian	12
Japanese	7
French	6
Spanish	5
German	4
Portuguese	4
Korean	4
Chinese	3
Swedish	2
Turkish	2
Greek	2
Dutch	2
Albanian	2
Finnish	2
Yugoslav	1
Hungarian	1
Slovenian	1
Polish	1
Shanghai	1
Vietnamese	1
Indonesian	1
Thai	1
Hebrew	1
Arabic	1
Indian languages	
Bengali	2
Hindi	2
Malayalam	1

Table 7—Publisher-wise distribution of books

Sl. no.	Publisher	No. of books	LYP	FYP	Place
1	Clarendon Press	9	1973	1995	Oxford
2	Oxford Univ. Press	4	1997	2015	New Delhi
3	Basil Blackwell	4	1960	1987	Oxford
4	Cambridge Univ. Press	3	1982	2008	Cambridge
5	Oxford Univ. Press	3	1997	2004	Oxford
6	North-Holland	2	1985	2011	Amsterdam
7	Palgrave Macmillan	2	2008	2009	New York
8	Harvard Univ. Press	2	2002	2009	Cambridge
9	Penguin Books	1	1960	1960	Harmondsworth
10	Holden Day	1	1970	1970	San Francisco
11	Univ. of Utah Press	1	1980	1980	London
12	Elsevier Sc. Publishing	1	1988	1988	New York
13	St. Martin's Press	1	1996	1996	New York
14	Editori Laterza	1	1997	1997	Rome
15	Feltrinethi	1	1998	1998	Milan
16	Alfred Knoff	1	1999	1999	New York
17	Routledge	1	2004	2004	New York
18	Farrer, Straus and Giroux	1	2005	2005	New York
19	W.W. Norton	1	2006	2006	New York
20	The New Republic	1	2007	2007	Washington D.C.
21	New Press Distributors	1	2010	2010	New York
22	Open Book Publishers	1	2011	2011	Cambridge

Table 8—Subject-wise distribution of books

DDC No.	Subject	No. of books	%age
128	Mankind (anthropology)	1	2.32
171	Ethical systems	2	4.65
174	Occupational ethics	2	4.65
301	Sociology	3	6.97
303	Social processes	4	9.33
305	Groups of specific people	1	2.32
320	Politics and government	6	13.95
323	Civil and political rights	1	2.32
330	Economics	3	6.97
331	Labor economics	2	4.65
332	Financial economics	5	11.63
339	Macroeconomics	2	4.65
363	Social problems and services	9	20.94
954	Indian history	2	4.65

Table 9—Frequency of key terms

Key terms	No. of books	Key terms	No. of books
Welfare economics	14	Public welfare	3
Developing economics	11	Social justice	3
Development countries	9	Starvation	2
Industrial management	8	Rational choice	2
Basic needs	6	Labor productivity	2
Economic ethics	6	Investments	2
Social policy	5	Labor supply	2
Poverty	4	Economic history	1
Economic policy	4	Resource allocation	1
Food supply	4	Social choice	1
Equality	3	Social conflict	1
Famines	3	Wealth	1
Social values	3	Industries	1
Liberty	1	Civilization	1
Cost and standard of living	1	Asia	1
Quality of life	1	India	1
Economic development	1	South Africa	1

Conclusion

From publication of his first book '*Choice of techniques*' in 1960 at the age of 27, Amartya Sen had an active publication career amidst his many responsibilities as Chairman, President, Adviser etc. of many national and international economic associations and organizations. In this study only the books published by Amartya Sen has been considered. Analysis of all his publications including over 200 articles would reveal his complete bibliometric portrait.

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