ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jul1806

# Indian Statisticians and their Role in Shaping Indian Knowledge System

Sreeja V. N.[1]; Maya S. S.[2]; Deepa V. G.[1]; Krishnapriya C. R.[1]

[1] Department of Mathematics, Sree Krishna College, Guruvayur - 680104, Kerala, India.
[2] Department of Statistics, Maharaja's College, Ernakulam - 682011, Kerala, India.

Publication Date: 2025/08/06

**Abstract: Extensive growth of statistical theory and practice in India has been greatly influenced by several eminent academics. In addition to P.C. Mahalanobis' predominant presence, Indian statisticians have had a lasting impact. Our goal is to draw attention to the ways that the activities of important statisticians have shaped the field's development both nationally and internationally.**

***Keywords:*** *Indian Statisticians, Indian Knowledge System, ISI and its Impact, National Statistics Day.*

**How to Cite:** Sreeja V. N.; Maya S. S.; Deepa V. G.; Krishnapriya C. R. (2025) Indian Statisticians and their Role in Shaping Indian Knowledge System. *International Journal of Innovative Science and Research Technology*, 10(7), 2982-2986. https://doi.org/10.38124/ijisrt/25jul1806

## I. INTRODUCTION

Ian Hacking's comment from the History and Philosophy Science Seminar (Godambe, 1976) makes it clear that the kings and emperors mentioned in the ancient Indian epic, the Mahabharata, were credited with statistical understanding and probabilistic concepts. The British became more prevalent in India in the 18th century as traders, business people, missionaries, plantation owners, and others due to the instability of the administrations of the succeeding Moghul kings. With the expertise, Mahalanobis was the kind of trailblazer that society and science needed to develop. For further reading one can refer Godambe, V.P. (1976), Ghosh (1999), Lahiri. D.B. (1973), Mahalanobis, P.C. & Lahiri, D.B. (1961) and T. J Rao and Bikas K Sinha (2011).

The NIC (National Income Committee), which was founded in 1949, and the Standing Committee of the Statisticians both believed that enriching the quality of statistical data was very important. The primary purpose of the CSO (Central Statistical Organisation) was to interrelate the statistical work carried out by different government organisations and ministries. The Department of Statistics, comprising the CSO and NSSO (National Sample Survey Office), was moved to Ministry of Planning and Program Implementation in February 1973 in order to establish a more coordinated approach among the planning, statistical, and survey agencies.

## II. PROMINENT INDIAN STATISTICIANS

- *Prof. P C Mahalnobis*

In 1893, Prasanta Chandra Mahalanobis was born in Calcutta, into a well-known Bengali Brahmin family that valued education. He was a standout student at Presidency College, graduating 1912 physics degree with honours. But by chance, he ended himself at King's College, Cambridge, where his career in statistics would really take off. He graduated from the University of Cambridge with the Mathematics Tripos Part 1 in 1914 and the Physics Tripos Part 2 in 1915. In 1915, Karl Pearson launched the magazine Biometrica, which gave him his start in statistics. He was referred as the "Father of Statistics" in India. June 29, 1983, the date of his birth, is now observed as India's National Statistics Day. He is considered to be a revolutionary statistician as well as scientist. He had a background in physics; however, he found it more interesting in using mathematics to solve real-world problems and became interested in statistics.

He had a significant role in launching the (NSS) National Sample Survey and the CSO and in building well known research institutes, which has not ceased to influence India's statistics environment even in the present days. Another area of his study was anthropometry, which deals with the study of human physical variations, and the statistical tool for categorising and spotting patterns viz., Mahalanobis distance. The ISI (Indian Statistical Institute) was founded by him in 1931, in Calcutta, with a specific focus to statistics education and research in the country. ISI also set up, in 1950, an International Statistical Education Centre (ISEC) in Calcutta. The CSO and NSS, are two vital tools for gathering

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jul1806

and evaluating vast amounts of data and for making well-informed decisions. He also started *Sankhya,* the first statistical journal in India in 1933. The Prime Minister, Sri Jawaharlal Nehru nominated him to the Planning Commission of India in 1955, where he contributed immensely in formulating India's industrialisation and economic growth strategy in the Second Five-Year Plan (1956–61); this is still considered to be a defining feature of India's economic planning history. Mahalanobis realised the importance of QC (Quality Control) in Indian industry in 1940s, and C.R. Rao was involved in the QC movement in India later. In 1929, in line with the Royal Commission of Agriculture's proposal, ICAR (Indian Council of Agricultural Research) established, which is a modest Statistics branch.

Republic of India's second highest civilian honour, Padma Vibhushan, was awarded in 1968, in recognition of his achievements in science and service of the nation. Among the numerous honours bestowed by Prof. Prashant Chandra Maalonbis Other honours to his credit include Durga Prasad Khaytan Memorial Gold Medal from the Asiatic Society in 1968, the Srinivasa Ramanajanagan Swarn Medal in1968, the Weldon Medel in 1944 from Oxford University and in 2006 the Gold Medal from Chekoslook Academy of Sciences.

- *Prof. Raj Chandra Bose*

Raj Chandra Bose born on June 19, 1901 in Hoshangabad, India, Bose persisted in his studies at the Rajabazar Science College, University of Calcutta, earning first-class grades in the Masters exams in Pure and Applied Mathematics during 1925 to 1927. Professor Syamadas Mukhopadhyaya of Calcutta, who specialises in geometry, supervised his research. In December 1932, when P. C. Mahalanobis, the director of the newly established ISI in 1931, offered Bose a part-time position, his journey took a different turn.

He was employed at Asutosh College in Calcutta as a lecturer. He obtained a part-time position at ISI Kolkata in 1932. He began conducting statistical studies there. He initially worked with Professors P C Mahalanobis and Professor S N Roy on multivariate analysis. He started working at ISI full-time in 1935, and in 1940, he joined in Calcutta University. He got a D. Litt. in 1947 for his works in Multivate Analysis and Experimental Design. In 1947 he went to US as a visiting professor at Columbia University and the University of North Carolina and in 1949 he joined the University of North Carolina as Professor of Statistics. He also made important findings on Coding Theory and Graeco-Latin square designs. He was died on 31 October 1987 in Colorado.

- *Prof. Somarendra Nath Roy*

Samarendra Nath Roy born on 11 December 1906 at Calcutta. He obtained B. Sc. Honours degree from Mathematics from Presidency College under Calcutta University in 1928 and the MSc in Applied Mathematics from Rajabazar Science College under Calcutta University in 1931. He became a Research Associate at the University of Calcutta's Rajabazar Science College's Department of Applied Mathematics in 1931. He was among the first pupils of P. C. Mahalanobis, who started some of the first statistical publications.

He was renowned for his groundbreaking work in multivariate analysis, particularly in the areas of Bartlett decomposition, rectangular coordinates, and Jacobians of complex transformations for a variety of distributions. During 1949–50, he was appointed as Head, Department of Statistics, Calcutta University. He, was later a full-time professor at the North Carolina University. He contributed to the field of multivariate analysis significantly. Prof. Roy died on 23 July 1964 and an International Conference on "Multivariate Statistical Methods in the 21st Century: The Legacy of Prof. S.N. Roy" was held at Kolkata during December 2006, for commemorating his Birth Centenary.

- *Prof. V S Huzurbazar*

Vasant Shankar Huzurbazar, born on 15 September 1919 in Maharashtra and taken B.Sc. from Mumbai University and M.Sc. Statistics from Banaras Hindu University during 1940–1941. He got Ph.D. in statistics from Cambridge University in 1950 under the guidance of Prof. Harold Jeffreys.

Huzurbazar was employed by the Gauhati University, Lucknow University and Bombay government's Bureau of Economics and Statistics. He was the first head in the department of Statistics, University of Pune during1953 to 1976. He was also a visiting professor at the University of Manitoba during 1976 to 1979 and was serving as a professor at Denver University in Colorado during 1979 to 1991. In 1962, he completed two years at Iowa State University as a visiting professor. His major area of contribution was statistical inference.

He was awarded in 1974, for his achievements in the field of statistics, the Padma Bhushan from India Government. The professor was elected as a Fellow in 1983 of the American Statistical Association. In 1991, he passed away on 15$^{th}$ of November.

- *Prof. K C Sreedharan Pillai*

Prof K C Sreedharan Pillai did his undergraduate program in 1941 and completed postgraduate program in 1945 from the University of Travancore, Trivandrum. He had taught at the Kerala University and later moved to United States. He secured PhD in statistics from North Carolina University in 1954.

Prof. Pillai was a prominent figure, in the area of multivariate statistical analysis. He was well known for inputs to probability distribution and multivariate analysis. He served for a long time at the University of the Philippines as a visiting professor, he also founded Statistical Centre over there. He has a several honours to his credit and was a mathematics and statistics professor at Purdue University in 1962.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jul1806

➢ *Prof. C R. Rao*

Born on 10th September 1920 into a Telugu Hindu family, Prof. Calyampudi Radhakrishna Rao lived till 22 August 2023. He finished his education in the modern-day Andhra Pradesh states of Gudur, Nuzvid, Nandigama, and Visakhapatnam. In 1943, Prof. Rao received an MA Statistics from Calcutta University and MSc Mathematics from Andhra University. Under R. A. Fisher, in 1948, he completed a PhD from King's College, Cambridge. In 1965, he received DSc degree from Cambridge University. In addition to being the most renowned statistician to emerge from the Indian subcontinent, Prof. Rao "influenced the growth of ISI more than anyone else except Mahalanobis" (Ghosh et al., 1999). Later, C. R. Rao coordinated the research and teaching operations and was appointed as Director of ISI, the renowned academic and research School.

He was a renowned statistician and mathematician from India who made important advances in statistics, especially in fields like experimental design, multivariate analysis, and statistical inference. A large portion of contemporary statistical theory and practice was founded on his work. He was not confined to the field of statistics but had dealt with other disciplines, including economics, geology, national planning, demography, anthropology, medicine, genetics and biometry, in addition to statistics. 19 countries recognised his achievements and Prof. Rao was awarded thirty eight honorary doctorates from different universities in addition to the multiple honours and medals for his contributions. He has also received the “United States National Medal of Science, Padma Bhushan, and the Padma Vibhushan”. In 2023, he was awarded the International Prize in Statistics, often considered as the "Nobel Prize in Statistics".

➢ *Prof. M N Das*

Dr. Manindra Nath Das born in Bangladhesh on 1st February, 1923. He got his Statistics Masters degree from Calcutta University in 1945. Later, he got the Ph.D from the same university in 1965.

He joined the IASRI (Indian Agricultural Statistics Research Institute) in 1946 and began his teaching profession. After spending three decades there, he joined the Central Water Commission as Director of Statistics and retired in 1981. He made path breaking contributions in different areas of Statistics, mainly in the area of Design and analysis of experiments. Prof. Das made a significant early contribution to the field of reinforced incomplete block designs. Subsequent research revealed that these designs were crucial for control-test comparison studies. Circular designs, a novel class of patterns presented by Dr. Das in 1960, are closely connected to the well-researched cyclic designs. Dr. Das also made a significant contribution by creating a somewhat uniform technique for creating confused designs for asymmetrical factorial tests. A number of significant and often cited publications on asymmetrical factorial designs were later published in response to this work. Additionally, he wrote or co-wrote a number of publications that have been favourably reviewed by academics.

Dr. Das received many honours. He was elected as President of the Statistics Section of the Indian Science Congress in 1980. He was awarded the Professor P V Sukhatme National Award from Ministry of Statistics and Programme Implementation, Government of India. He also acknowledged the Sankhyiki Bhusan Award from the Indian Society of Agricultural Statistics. He was the founder president of the Society of Statistics, Computer and Applications, Vice President of the Indian Society of Agricultural Statistics. He died on 09 January 2012.

➢ *Prof. Debabrata Basu*

Debabrata Basu born in Bengal. He was an Indian statistician who made noteworthy contributions to the foundations of statistics. He lived from 5 July 1924 until 24 March 2001.

He created simple demonstrations to address the complicated concepts of statistics as part of his involvement with Florida State University and the Indian Statistical Institute. Basu, who was born to a father who was a mathematician and specialised in number theory, attended Dacca University in Bangladesh to study mathematics. He enrolled at the ISI as a research researcher under the guidance of C.R. Rao after choosing to study statistics as part of the undergraduate honours program. Abraham Wald, who established a decision theoretic basis for statistics comprising Bayesian statistics, had a significant impact on his work. Basu's theorem established the independence of an ancillary statistic and a complete sufficient statistic in statistical theory.

➢ *Prof. B R Bhat*

Beliyar Ramdas Bhat has obtained his Mathematics M A degree from Madras University, Statistics M A degree from Karnataka University and Ph.D Statistics from California University under the guidance of Prof. David Blackwell.

For over twenty years, he worked as the head of the statistics department and a professor at Karnatak University in Dharwad. Since 1954, he has been a postgraduate instructor at the ISI, Bangalore University, Karnataka University, and University of Hyderabad. He held visiting professorial positions at Michigan State University, California University, Georgia University, Poona University, and University of Western Australia. He teaches statistics at the University of Botswana in Gaborone at the moment. He produced works on modern probability theory and made numerous contributions to the discipline.

Prof. Bhat was elected member of South African Statistical Association and Institute of Mathematical Statistics. He was Secretary, Editor and President of Indian Society for Probability and Statistics. He was also President of the Section of Statistics of the Indian Science Congress Association.

➢ *Prof. Kantilal Mardia*

Kantilal Vardichand "Kanti" Mardia, an Indian statistician, was born in 1935 into a Jain family in Sirohi, Rajasthan. He has started exchange programs between Leeds and other institutions across the world, including the ISI,

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jul1806

Calcutta and the University of Granada in Spain, in an effort to improve statistics standards globally.

He developed multivariate normality-based measurements of multivariate skewness and kurtosis. He specialised in multivariate analysis, directional statistics, statistical bioinformatics, geostatistics and statistical shape analysis.

- *Prof. K R Parthasarathy*

In 1936, Kalyanapuram Rangachari Parthasarathy was born on 25 June at Madras. After completing undergraduate degree in Mathematics from Ramakrishna Mission Vivekananda College, Madras, he did his Ph. D. in 1962 from ISI, Kolkata under the supervision of Prof. C R Rao.

In ISI, Kolkata, he worked on theoretical probability. During the years 1962 and 1963, at USSR Academy of Sciences, he served as a lecturer and worked with Andrey Kolmogorov in the Steklov Mathematical Institute. In that time, the fundamentals of probability theory were focussed by him. In UK he worked as a statistics professor at Sheffield University during 1964 to 1968, in Manchester University during 1968 to 1970, and in the University of Nottingham. Their groundbreaking work in quantum stochastic calculus and other fields were done during this time.

In India as well, he worked in Bombay University and in the Indian IIT, Delhi. From 1976, he worked in the newly established ISI, Delhi Centre, for 20 years. He worked as an emeritus professor at the institute till the early 2020s. He contributed in the area of Probability. He was awarded with the Shanti Swarup Bhatnagar Prize for Science and Technology in Mathematical Science in 1977 and TWAS (The World Academy of Sciences) Prize for Mathematics in 1996. In 2023 he was died on 14 June.

- *Prof. Jayanta Kumar Ghosh*

J. K. Ghosh was born in the Bengal on 23 May 1937. Prof. Ghosh secured a B.S. degree from the Presidency College, and subsequently postgraduation and Ph.D. from the University of Calcutta. His research was under the guidance of H. K. Nandi. He started his research in sequential analysis from University of Calcutta's statistics department. He contributed in the fields of statistical inference and Bayesian analysis.

He received several accolades –Japanese Society for Promotion of Sciences Fellowship, Shanti Swarup Bhatnagar Prize for Science and Technology, Mahalanobi's Gold Medal of Indian Science Congress Association, P V. Sukhatme Prize for Statistics, International Indian Statistical Association Lifetime Achievement Award in the years 1978, 1981, 1998, 2000 and 2010 respectively. The Government of India also recognised his contributions and awarded Padma Shree in 2014. On 30 September 2017 he died.

- *Prof. B L S Prakasa Rao*

Bhagavatula Lakshmi Surya Rao was born in Andhra Pradesh on 1942 October 6. He completed B A Honours in Mathematics from Andhra University and M.Stat from Indian ISI Kolkata. In 1966, he was awarded Ph.D in Statistics under the guidance of Prof. Herman Rubin from Michigan State University.

He started his career at the Indian IIT, Kanpur. From 1992 to 1995, he served as the Director of the ISI, Kolkata and was recognised as a Distinguished Scientist. He was also visiting professor in many universities such as Purdue University, California University, University of Iowa, the University of Illinois, Wisconsin University. He authored multiple works on statistical inference, and this is considered as one of his main contributions. Various positions held by him include Dr. Homi J. Bhabha Chair Professorship at the University of Hyderabad from 2008 to 2012, the Ramanujan Chair Professorship from 2012 to 2017 at C R Rao Advanced Institute of Mathematics, Statistics and Computer Science (C R Rao AIMSCS), Hyderabad, INSA Senior Scientist at the CR Rao AIMSCS (2018 to 2023) etc. At present, he is working as an Emeritus Professor of the Indian Statistical Institute, and an INSA Honorary Scientist at the C R Rao AIMSCS Hyderabad.

He was honoured by the Michigan State University's Outstanding Alumni award in 1996, in 1982, award for Science and Technology in Mathematical Sciences by the Government of India, Shanti Swarup Bhatnagar Prize, and the National Award in honour of P V Sukhatme in 2008 by India Government. In 2022, he received the C R Rao Lifetime Achievement Award from the Indian Society for Probability and Statistics. He was elected as a Fellow of the Indian National Science Academy (1984), Indian Academy of Sciences (1992), Institute of Mathematical Statistics (1983), and National Academy of Sciences (1993).

## III. CONCLUSION

India has a long history of gathering and applying different types of statistics. During the British era, the system was strengthened. However, it is noteworthy how much progress was made in statistics between, say, 1930 and 1960. The emergence of the right guy at the appropriate time was perhaps the most significant factor. P.C. Mahalanobis's leadership positions, proactive information sharing, and the lasting significance of his statistical contributions were the main reasons for his widespread recognition. He had a worldwide reputation in the field of statistics. His outstanding repute as the "Plan Man of India" continues to the present times.

The Indian Statistical Institute emerged as a centre of statistical excellence in the world. While Mahalanobis's pioneering effort in large-scale surveys and development of institutional framework set a strong base, the profound theoretical advances made by individuals like C. R. Rao, S. N. Roy, and R. C. Bose took it to greater heights. Further advancements were made later in the fields of applied statistics, statistical inference, and multivariate analysis later. In short, the efforts helped India to reach the forefront of statistical research worldwide, and continue to make its presence visible. The visionaries also ensured that statistical thought occupied a governing role as well, in the areas of

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jul1806

science, technology, and planning in the nation. The global knowledge system has always been greatly influenced by them and is a continuous to motivation to the statisticians worldwide.

## REFERENCES

[1]. Godambe, V.P. (1976). A historical perspective Evolution of the recent developments in the theory of sampling from actual populations, Jour. Ind. Soc. Agr. Stat., 28, 1-12.
[2]. J.K. Ghosh, P. Maiti, T.J. Rao, and B.K. Sinha, Evolution of Statistics in India, International Statistical Review (1999), 67, 1, 13-34.
[3]. Lahiri. D.B. (1973). Prasanta Chandra Mahalanobis and Large scale sample surveys. Sunkhyu, 35, (suppl.) 27-44.
[4]. Mahalanobis, P.C. & Lahiri, D.B. (1961). Analysis of errors in censuses and surveys with special reference to experience in India. Bull. Int. Stut. Inst. 38 (2). 401-433 (reprinted in Sunkhyu, Ser. A, 23,325-358).
[5]. T. J Rao and Bikas K Sinha (2011). A Brief History of Statistics and its Development in the Indian Subcontinent, International Journal of Statistical Sciences, Vol 11, 1-15.