Dialogues and Discussions

Navigating the challenges of data visualisation, collection and analysis for pioneering large-scale surveys

IN CONVERSATION WITH:
K.A. Siddiqui

Anupma Mehta | August 8, 2023

Our next interview in the series features Mr K.A. Siddiqui, who is a Senior Adviser at NCAER. With a background in Input-Output Modelling, he is a veteran in the use of data collection methodologies and has been a part of several large-scale primary studies at NCAER. The range of diverse studies he has worked on broadly encompasses the Tourism Satellite Account, Social Accounting Matrix, the informal economy, and labour market analysis. During his tenure of over four decades at NCAER, he has held various positions, including Economist, Associate Fellow, Consultant, Fellow, and Senior Fellow before assuming his current role as Senior Adviser.

In this interview with the Head of Publications and Senior Editor at NCAER, Anupma Mehta (AM), K.A. Siddiqui (KAS) talks about his experience as a data and survey specialist, and the challenges of conducting studies involving massive sample sizes and households comprising widely different demographic and geographic contours.

AM: A major part of your professional life has been concentrated at NCAER in diverse roles and capacities, starting as Research Assistant as far back as the 1980s. Can you describe how you came to be a part of NCAER and how the institution has helped shape your career over the years? Also, what is the special bond you share with NCAER that has motivated you to continue working here for more than four decades, and counting?

KAS: I joined NCAER as a young researcher after completion of my post-graduation in Economics from Jamia Millia Islamia University. It was the era when typewriters were used for word processing, a cyclostyling machine was used for printing, and calculators were used for computing and data analysis. In the mid-1980s, NCAER got its first computer with four terminals and one dot matrix line printer. We were the first generation who started using computers at NCAER. Thereafter, in the early 1990s, we got the first desktop at NCAER with no hard disk, and only two floppy drives. One of them was used to load the programme (using Wordstar, Lotus123, and Harvard Graphics, among others), and the second was used to save the output. Such unique experiences and opportunities have cemented my bond with NCAER, motivating me to continue working on multiple projects spanning various sectors across different States and Union Territories. The diverse studies I have undertaken at NCAER have also enhanced my learning and honed my skills in both secondary research and field surveys. In this way, my career has been inextricably intertwined with NCAER's growth over the years.

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AM: Throughout your tenure at NCAER, you have been an integral part of numerous flagship studies, such as the *Business Expectations Survey*; *Trade Liberalization and India's Informal Economy; Panchayati Raj Devolution Index; Tourism Satellite Account; Cluster Mapping Study of the Gems and Jewellery Sector in India*; and the recent study on *India and the Coronavirus Pandemic: Economic Losses for Households Engaged in Tourism and Policies for Recovery*, among others. Please share some experiences in executing such diverse and unique studies.

KAS: You are right, I am very fortunate that I got the opportunity to work on many flagship projects in NCAER. Let me first talk about the *Business Expectations Survey* (BES), which I helped launch with Dr Anushree Sinha way back in 1991. The BES, a perception survey of the business community about the economy, continues even today. When this project was started, we sent the questionnaires to the respondent companies by post and also sought the answers by post itself, but only one response was received. Hence, we decided to start collecting data from 50 firms by making physical visits to their facilities. The survey has grown over the last three decades, with the number of firms interviewed going up to 500 currently.

Moving to the project on *Trade Liberalisation and India's Informal Economy*, this entailed creation of India's first Social Accounting Matrix (SAM), in which the matrix was divided into formal and informal categories. Since there is no data which can give us the break-up of the formal and informal shares of every sector, we had to map the National Accounts data with NSSO data, which was a very tedious task, and balancing it in SAM was even more arduous.

The *Panchayati Raj Devolution Index* was also created for the first time by NCAER and I had the opportunity to work on this project with Dr Shashanka Bhide, NCAER's former Research Director and presently Honorary Senior Adviser. The objective of this project was to create an index which would measure the extent to which Panchayati Raj Institutions have been empowered by various States. The biggest challenge in doing this work was the lack of data. Although we sent the questionnaires to the States, it was a difficult task to get them to fill up the questionnaires and provide the data. So, we had to approach the Central Ministry for assistance in getting the States to share the data with us.

Another challenging study was on the *Gems and Jewellery (G & J) Sector*, undertaken by NCAER on request from the Gems and Jewellery Export Promotion Council (GJEPC) to evaluate the key characteristics of India's G & J industry, its competitiveness, and its employment potential. The study team for this project undertook comprehensive workforce mapping of the G & J clusters and an analysis of the skills and technology gaps in the sector, which posed another challenge as sectoral data is not easily available in the country.

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AM: Preparation of the Handloom Census has been one of the most significant projects undertaken by NCAER because of its scale in terms of the number of people to be interviewed and locations to be visited. As the team lead for this project, could you briefly define the roadmap you charted for the project and how it enabled the project sponsor to categorise the multiple types of handloom workers and artisans employed in the handloom industry across India?

KAS: Before coming to the Handloom Census, let me give you a brief background of my work in NCAER. As mentioned earlier, my career in NCAER spans nearly 40 years. During the initial period of my tenure here, that is, 1982-2009, I was mostly involved in secondary database studies. In 2009, I migrated to primary data collection. In 2005, the then Prime Minister Dr Manmohan Singh constituted the high-level Sachar Committee, and Dr Abusaleh Shariff, then Chief Economist at NCAER, was appointed as a Member-Secretary of this committee. He extended to me an offer to join the committee because of my sound background in data handling at NCAER, as the Committee was mandated with the task of

collecting and analysing data from different Ministries and departments to prepare a report on the Socio-economic and Educational Status of the Muslim community in India.

I took a lien of one year from NCAER to join the Sachar Committee, where I gained invaluable experience of handling large data sets.

When I returned to NCAER, after completing my assignment at the Sachar Committee, in view of my experience in large data handling gained there, my name was suggested by the then Director General of NCAER, Mr Suman Bery, to work on the Handloom Census, a project sponsored by the Development Commissioner, Handlooms, under the Ministry of Textiles, and granted to NCAER in 2009. The Handloom Census was huge in terms of scale, entailing data collection from a sample of 25 lakh households. It was hitherto the largest project for NCAER in terms of both the number of respondents and financial value. It also proved to be one of the most onerous and yet exciting assignments I ever undertook at NCAER.

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The primary challenge in this project was that it was the first pioneering census conducted by a non-government agency in India. While each and every individual working on handlooms in the country had to be covered, there was no means of identifying the locations of the target audience. We wrote to the States to help us in procuring this data but only some of them provided us this information. So, we had to resort to snowballing and cultivation of local sources to identify more targets.

Another challenge was to make photo identity cards for every adult weaver, and thereafter link the weavers' photographs with the associated databases. It was then that for the first time, we used technology for collecting data and preparing the identity cards. The tool we used was the Personal Data Assistant (PDA), a precursor of the tablet, which eventually evolved into the Computer-Assisted Personal Interviews (CAPI) form of data collection.

There were thus many firsts in the Handloom Census, and it turned out to be one of the most memorable projects of my career.

AM: You have also been instrumental in developing a user-friendly and intuitive dashboard for incorporating data from NCAER's pioneering study, the National Survey of Households on Income and Expenditure (NSHIE), which has been a precursor for several other NCAER projects. Please describe the unique features of this dashboard and how it has helped various project teams in streamlining data collection and analysis during the fieldwork for their studies.

KAS: The dashboard concept emerged from my work on the Handloom Census, as it had been prepared by Nielsen for the report on this study. I learnt how to prepare and use the dashboard during my interaction with the technology team at Nielsen. When I took another lien of two years to work at Nielsen, I applied this technological innovation for their projects too, besides undertaking other research activities there.

Before joining Nielsen, I had been involved in the listing for another large-scale project at NCAER, NSHIE, a study undertaken in 2009-10. When I returned to NCAER from Nielsen, the primary data collection and analysis for NSHIE had been completed, and preparation of the project report was under process. My colleagues, Dr Anil Sharma and Mr Prabir Ghosh were leading the project. I implemented my knowledge of the dashboard concept for the NSHIE study, and created a user-friendly dashboard for the project with the help of another colleague, Mr Asrar Alam. The dashboard technique for data analysis and presentation was subsequently also used for the Handloom Cluster Monitoring and Evaluation project in 2016-18, which was led by me. As part of the project, we had to monitor the performance of 254 clusters, for which we had to submit quarterly monitoring reports. It was a massive challenge to monitor the clusters and chart their financial and physical progress while also preparing a report on any deficiencies in implementation of the scheme, cluster-wise, State-wise, and nation-wise. The dashboard concept proved to be a major advantage in this task, as it enabled us to carry out the cluster monitoring and data analysis at the click of a mouse.

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AM: Your professional forte and the focus of a large part of your work at NCAER, particularly during the last 15 years, has been on primary data collection through field surveys for large-scale studies. However, all such fieldwork came to a complete standstill due to the lockdowns during the Coronavirus pandemic. The research teams in the institution dealt with this unprecedented challenge by switching to online modes through telephonic interviews and other such methods of collecting data. What, in your opinion, are the takeaways from this unique experience of remote data collection, as compared to the traditional in-person surveys? Going forward, will such virtual surveys become the norm in an increasingly globalised and complex research environment?

KAS: While we could not carry out many field surveys during COVID, my colleague and fellow investigator for the project, Mr Prabir Ghosh and I undertook another project titled, *Healthcare-seeking Pathways in Uttar Pradesh and Odisha, India*, on the health and financial consequences of the pandemic for households, for which we collected data virtually through remote data collection methods. The project was carried out in collaboration with Nossal Institute for Global Health at the University of Melbourne, Australia. The main advantages of remote surveys are that they are ostensibly cost-saving and time-saving. However, they also suffer from a few limitations.

Remote surveys cannot completely replace field surveys in research studies, as both have their utility. NCAER is, therefore, currently carrying out both in-person surveys as well as telephonic interviews based on the scope of work for its different projects.

In a physical interview, the interviewer is able to gather a lot of additional information over and above the questions listed in the questionnaire by observing the body language, family dynamics, and overall environment in the target household. Telephonic interviews can be successful for small and straightforward surveys whereas field surveys are a more viable option for some of the large and complex socio-economic studies conducted by NCAER.

In addition, the questionnaires for large-scale surveys are usually very comprehensive, and filling up the roster for the questionnaires alone takes a lot of time. All this is difficult to achieve in an online survey, especially in a country like India, with large illiteracy levels and low digital literacy among its population.

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Views are personal.