

## THE SOCIAL SCIENCE PERSPECTIVE

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### **Significance of Computational Social Sciences: Benefits and Tools**



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The world of social sciences and international affairs is consistently evolving and is filled with uncertainty. There are various types of issues that social sciences deal with, which cannot be answered by a one size fits all model. For instance, a fiscal policy initiative that might work in a developed country might backfire if not adjusted for in a developing country, besieged by unique issues. Even within a diversified, multi-lingual, and multicultural country like India, region specific focus is essential for policymaking, which requires rigorous data collection, mapping, and multimethod analysis. Researchers working on India and World are persistently analysing and investigating these dynamic issues, finding a trend in a geopolitical setup, assessing the risks and threats of new events, and contributing significantly to evidence-based policymaking. Their efforts are indeed honest and admirable, and innovative research methods and tools are essential to support them in their research endeavours.

In this light, it is essential for our students to learn and use some fundamental approaches of quantitative methodology. The article aims to identify some benefits of data backed mixed methods analysis and refer some tools that can be handy for interested scholars.

## **Benefits**

□ Solving Wicked Problems through Design Thinking: Design theorists Horst Rittel and

Melvin Webber introduced the term “wicked problems” in 1973 to address complex sociopolitical problems without an easy solution. Solutions to wicked problems are not true

or false, only good, or bad. They cannot be studied through trial and error as solutions are irreversible. For instance, problems in education policy and public health, is a wicked problem. It avoids straightforward articulation and is impossible to solve in a way that is simple or final.<sup>1</sup>

Design Thinking provides a non-linear solution-based approach to solving problems and is firmly based on generating a holistic and empathic understanding of the problems that people face. It is a way of thinking and operating as well as a collection of hands-on methods. This is exactly where the knowledge of descriptive statistics and pivot analysis comes in handy. In the stage two of design thinking, the researcher defines the stakeholders' needs and their problems. (S)he must have the clarity of research methodology and be able to identify the causal and outcome variables. It takes time to master this ability, hence, the social science students must be taught how to organise raw data, develop infographics, generate insights, and find a pattern to formulate the bigger picture from their college days itself.

□ Evidence Based Policy Making: India is a vibrant country and despite being besieged with problems, is growing rapidly. And evidence-based policymaking is a key contributor in that pursuit. It has two goals: to use the already known facts from program evaluation to make policy decisions and to build more knowledge to better inform future decisions. The approach prioritises rigorous research findings, data, analytics, and evaluation of new innovations. This approach builds evidence by employing a range of rigorous methodologies, monitors program delivery, and use impact evaluation to measure program effectiveness. For instance, the *NITI Aayog* published a baseline report on national multidimensional poverty index in November 2021 by employing the Alkire-Foster (AF) methodology, which is a general framework for measuring multidimensional poverty that identifies people as poor or not poor based on a dual-cutoff counting method. The report is based on 17 Social Development Goals (SDGs) of UN General Assembly. It is the responsibility of the academic field of social sciences to make our student adapt to the skills required to be stakeholders in these initiatives. Additionally, to contribute significantly to the society and make our research finding relevant in the changing scenario, we must provide solutions to wicked problems and indicate policy contributions through our papers as well. A structured approach of stating a research question, followed by theory,

<sup>1</sup>What's a wicked problem? | wicked problem. (n.d.). Retrieved November 29, 2021, from <https://www.stonybrook.edu/commcms/wicked-problem/about/What-is-a-wicked-problem.php>

hypotheses, measurable variables, a section on proposed methodology, and finally, the findings and analysis would make our respective research uniform, linear, and universally acceptable. The criticism against social scientists that we interpret and do not infer, will be addressed too.

□ Private Sector as stakeholders and Job Market: The private sector is a key stakeholder in both urban and economic development, being a major contributor to national income and the principal job creator and employer. The private sector provides around 90% of employment in the developing world (including formal and informal jobs), delivers critical

goods and services and contributes to tax revenues and the efficient flow of capital.<sup>2</sup> In my opinion, with the neoliberal approach of governance and wave(s) of privatisation, private sector companies are ought to become indispensable in Indian policy making initiatives through corporate social responsibility in the near future. However, capitalism, even if benevolent, is rooted in cost benefit calculation. And a cost-benefit analysis ought to make the stakeholders assess the impact of programs and measure their effectivity through numbers. Given this, mixed methodology with quantifiable causal analysis would assist the development sector and social science academia to work in collaboration with private sector towards mutually common interests.

### **Tools and Approaches**

Hardcore quantitative methodology often fails to explain the story behind numbers. Social scientists can address this gap since they understand the social dynamics better. I am a proponent of mixed methodology, that espouses causality through analysis of variance (ANOVA) tests and/or regression analysis and explains the story behind numerical findings through qualitative methods such as case study analysis and process tracing. While it is beyond the purview of this paper to explain this approach in detail, let me conclude by referring some tools that can be handy for these purposes. Of course, using these tools would need some training, but interested students and scholars can turn to internet for self-learning for basics.

□ MS Excel – A powerful tool to organise data, create basic and advanced infographics through pivot analysis. With the incorporation of Artificial Intelligence (AI) in excel, the operation is easier than before.

<sup>2</sup>*The role of the private sector.* (n.d.). GSDRC. Retrieved November 29, 2021, from <https://gsdrc.org/topic-guides/urban-governance/elements-of-effective-urban-governance/the-role-of-the-private-sector/>

□ NVivo for Text Analysis – If a researcher is conducting field interviews and interested in analyzing speeches for his/her research needs, NVivo is a solution for transcription and collaboration.

□ STATA – STATA aids in exploring, visualising, and modeling data to unearth the story behind it. A click and drag tool with basic coding, STATA assists researchers across the world interested in social science data analysis and beyond.

□ Tableau – Tableau helps to see and analyse data through its unique visual analytics platform called Dashboard. It deploys in the cloud and has integrated AI/ML capabilities, that assists users from not so technical backgrounds to use Tableau with certain basic training.

□ Microsoft PowerBI – Alike Tableau, PowerBI unifies data from many sources to create interactive, immersive dashboards and reports that provide actionable insights about the data being studied.

Social Science is a vibrant evolving field with its dedicated researchers, and social science graduates pursue a wide variety of careers. Knowledge of mixed methodology and fundamentals of computational social sciences is critical for their endeavours. The purpose of this piece was not to introduce the names of some statistical tools and software, rather to briefly put forward the benefits and approaches of computational social sciences to the readers.