

In the Search of Grassroots Frugality: Everyday Learning and Experiential Knowledge to Navigate Water Uncertainties in the Bundelkhand Region, India

ABSTRACT

Frugal innovation is a relatively new entrant in the ongoing debate on sustainable development in a resource-scarce world. Herein, it can be viewed as a development strategy for achieving sustainability or a new and alternative approach to innovation, particularly in relation to the poorer sections of societies. The present frugal innovation literature, however, has at least three shortcomings. First, frugal innovation is often conceived as an approach to alleviate poverty, with little attention paid to structural factors, such as race, caste, gender, and income disparities, though these are vital in producing and perpetuating inequalities. Also missing, as yet, is empirical evidence of *how* and *when* frugal innovation might help to combat poverty. Second, concepts like ‘co-creation’ and ‘polycentric innovation’ are increasingly emphasized in the frugal innovation literature, though knowledge creation and sharing processes at the grassroots level are seldom conceptualized and explored. Third, there is no consensus on what ‘frugality’ even means in the context of innovation. Scholars present it variously as an antecedent, a mindset, an outcome, and a process. These definitional and conceptualization challenges, and the limited engagement with structural factors, have opened the frugal innovation literature to a variety of valid criticisms.

Much of the criticism is associated with a particular ‘layer’ of the literature on frugal innovation; that from the business and management domain. This centres on the notion of ‘providing’ grassroots peoples with affordable ‘solutions’. It has been criticized as top-down and raising moral and legitimacy concerns, in particular, being appropriated by market forces mainly to commercialize and exploit resources at the grassroots level. A second layer of the literature centres on optimizing the utility of tacit and experiential knowledge at the grassroots level to ‘find’ solutions to everyday local problems. This bottom-up perspective provides relatively more opportunity to acknowledge the heterogeneity of practices and plurality of knowledge at the grassroots level.

The research presented in this thesis aligns with the second layer of the frugality and frugal innovation literature. Its aim is to situate various manifestations of frugality in their social context while emphasizing everyday grassroots realities. As such, acts of frugality are observed within the context of everyday local practices and institutions, particularly identity-based institutions such as caste, gender, and community networks, which themselves are shaped by socio-historical processes. Situating frugality in its social context enables us to better discern *what* is frugal and *who* embraces frugality in a particular local context. Taking inspiration from sociology and anthropology methodologies, this research zooms in on the intersectional relationship between ownership of resources, access to institutions, and lived experience (i.e., prior knowledge) to understand processes of acquiring a frugal mindset and manifestations of such a mindset in performative actions in the local context.

This research explores how local farmers in the water and food scarce *Bundelkhand* region of north-central India acquired, combined, and shared various knowledge forms (both codified and non-codified) to navigate their water requirements for irrigation purposes. Additionally, it delves into how processes of knowledge combining and sharing helped different social groups of local farmers to continue their agricultural operations. Bundelkhand is a semi-arid, drought-prone, and ecologically fragile region. The region is known for its ancient temples, which in addition to being of spiritual significance, offer examples of traditional water harvesting and management practices. Three rounds of ethnographic fieldwork were conducted in two districts of Bundelkhand to collect empirical data on local farmer's knowledge and learning dynamics related to rainwater harvesting practices. *Each* of the three rounds was conducted in a different season, with particular attention given to local farmers who appeared to be relatively more effective in navigating their water needs.

More than 200 participants were involved in the research, including local farmers, government officials, hydrologists, social and environmental activists, local journalists, local tool and machinery traders, and representatives of research organizations and local NGOs. Much of the data is in the form of life stories, everyday experiences, and local folklore. It was collected employing approaches inspired by participatory action research and transformative methodologies. The data analysis methods were inspired mainly by political economy approach. Along with the primary data collected through the ethnographic fieldwork, this

research also incorporates secondary data garnered from archival documents, reports of policy discussions, local media reports, and vernacular language literature and folklore.

This research presents three interrelated findings and two theoretical conjectures offering unique challenges and opportunities for future research on frugality. The first finding concerns the critical role of lived experience in everyday decision-making at the grassroots level. Farmers acquire such experience through socialization processes, especially observation, interaction, and participation in activities, primarily with other members of the same caste group. While experiential knowledge is often the only available and reliable evidence, translating it into tacit knowledge and combining it with other knowledge forms were found to require institutional support.

The second finding is that acquiring a frugal mindset and, even more importantly, its manifestation in problem-solving actions, are socially mediated processes in which informal and identity-based institutions play a crucial role. In Bundelkhand, farmers occupying relatively better positions in local informal and identity-based institutions were more likely to acquire a frugal mindset and embrace frugality in their everyday practices. The third finding is the understanding of frugality as an ability to appropriate knowledge from various sources and repurpose it in the local context. In Bundelkhand, frugality was found at the crossroads of the local context and ongoing processes of change supported, for example, by NGOs, government schemes, and expanding access to ICTs. These interactions had far-reaching implications for local practices.

Nevertheless, small and marginalized farmers' harsh material realities, which were produced and reproduced through socio-historical processes, hindered their ability to combine their lived experiences with suggested knowledge (e.g., technical fixes and training) and share it with diverse social groups. Thus, due to the stark inequalities, ongoing processes of change offered opportunities mainly to particular social groups to translate a frugal mindset into performative, problem-solving actions. In all, the three empirical chapters of this thesis consider different aspects of the classical structures-agency debate, focused, respectively, on individuals, structures, and their everyday interplay. The analysis and findings bring this debate closer to the emerging discourse on frugality and frugal innovation.

This research concludes that the intersectional relationship between lived experiences, ownership of resources, and access to institutions is at the core when situating frugality in its social context. Prior knowledge (e.g., agricultural training and formal education), relatively better access to institutions (e.g., having a privileged caste background), and resource ownership (e.g., landholdings and agriculture machinery) directly contributed to the manifestation of frugality in problem-solving actions among farmers in the fieldwork districts. By explicitly focusing on local farmers' everyday knowledge and learning dynamics, alongside the institutional positionings of the different social groups, this research identifies frugality as an integral part of the everyday interplay between the creative exercise of individual agency and structural constraints at the grassroots level.

While situating frugality in its social context, this research brings two theoretical conjectures into the frugal innovation discourse: 'threshold' and 'restricted autonomy'. Threshold is an intersectional conceptual category to identify the stage at which a frugal mindset and frugal approaches can begin to be translated into visible, performative, problem-solving actions. Different social groups and individuals may have different thresholds, based on their needs and the amount of institutional support they can secure. The translation of frugal mindsets into visible problem-solving actions is facilitated by resource ownership, prior knowledge, and access to institutions. Assurance of these factors gives local farmers confidence to embrace frugality through the creative exercise of individual agency. The farmers who had achieved the threshold in Bundelkhand often occupied a strategic position within their local community because of their behaviour or their identity, and they were often favourites of local development agencies, as they were known to have the capacity to deliver visible outcomes. In the local context of Bundelkhand, these farmers were known as 'progressive' farmers. However, this does not mean they had solved the problem of water scarcity. This research conceptualized their situation as one of 'restricted autonomy', in which a farmer could navigate the problem of resource scarcity at the household level but could not solve the problem due to structural constraints. The idea of restricted autonomy represents the limitations of individual actions in solving structural problems. This idea can be explored in future research examining whether frugality always remains a navigation process, or if it has potential to at least make a visible qualitative change to structural boundaries.