

Does socio-economic environment shape motivation to innovate?

A Study of 'Grassroot Innovators' in India

by

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Abstract

Objective:

Innovation in general and grass root innovation in particular has received wide attention among academics and policy makers in India in recent years. In a rather oversimplified manner, grassroot innovations are regarded as an effective tool to achieve sustainable form of technological change at a societal level. However, grassroot innovations have two distinguishing features. First, they are often carried out by individuals making the tools of conventional firm level analyses redundant to explain their behaviour. Secondly, these innovations do not, often, take place under the auspices of formal organizations like firms or research institutes. As a result, it also becomes difficult to make much use of the recent research in organization theories, which although pay attention to individual innovators but confine its domain of analysis within formal organizations. It, therefore, remains a challenging task to analyse the motivating factors behind innovations carried out by individuals outside the auspices of formal organizations. The current paper makes an attempt to draw a canvas of socio-economic environment for these innovators and analyse how such factors shape their motivation to innovate.

Background:

Despite an early attempt by Schumpeter, analysis of individual motivation behind innovations remains a neglected issue until recent years (Cohen and Sauer mann, 2007). With new disciplines like social-psychology and management studies taking interest in innovation research it has come to the fore that there is individual innovativeness is guided by a complex interplay of various kinds of motivations other than, much emphasized, pecuniary incentives (Deci and Ryan, 1985). Predominantly, the entire set of motivations has often been categorised into two groups, namely *intrinsic* or *extrinsic* motivations (Morgan et al. 1993). Extrinsically motivated behaviours are actions resulting in the achievement of *externally administered* rewards, in the forms of pay, material possessions, prestige, and/or positive evaluations from others. Intrinsically motivated behaviour, on the other hand, is supposed to

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be derived out of the innate psychological needs, including needs for competence and autonomy (Deci and Ryan, 1985). Cohen and Sauermann (2007) also mentioned a third kind of motivational factor in this category i.e. *social incentive* and suggested that all the three can play a crucial role in outcome of any activity.

The Self Determination Theories (SDT) is particularly noteworthy in this regard. Under SDT there are two sub theories—Cognitive Evaluation Theory (CET, 1985) and Organismic Integration Theory (OIT, 2000) — proposed by E. Deci and M. Ryan to understand the complex dynamics of motivations. In a nutshell, these theories suggest that people engage in activities primarily to satisfy some desired outcomes (Ryan and Deci 2000). Accordingly, depending on their desired outcomes, they can be placed on a continuum of motivation. Individuals in this continuum can be categorised into various groups depending on the extent to which the locus of control of their behaviour and desired outcomes are motivated by extrinsic or intrinsic motivations.

It may be emphasised that intrinsic motivation is shaped (augmented or undermined) by a complex interaction of environmental and personal level factors. Among personal level factors, personality characters such as aspirations, curiosity and self-direction are important component for the successful introduction of *new ideas*. But these personality characteristics are affected by social positions, and social context (Gartell 1997). Formal policies, by defining the innovative culture, also influence such decision making processes (Ende and Dolfmsma 2005). Stephen and Levin (1993) argued that creativity is not merely a mental ability or reflects in terms of IQ, but factors like independence (of judgment) and autonomy, self confidence and control also shapes one's creativity, which can be affected by one's environment and also reflects locus of control of individual behaviour.

The early research demonstrated that environments which emphasise more on factors like extrinsic rewards, regulation (threats, deadlines, directives) can undermine or crowd-out intrinsic motivation (Deci, 1971; Frey 1997, Deci & Cascio 1972, Amabile et al 1976). Interestingly, environment which augments competition may also at times crowd out intrinsic motivation (Reeve & Deci, 1996, Kreps 1997). In the context of innovation and R&D, Cohen and Sauermann (2007) also suggest that non pecuniary incentives or intrinsic motivation plays very important role in defining innovative behaviour of both individual as well as firm level innovators.

It is, therefore, clear that an environment, which promotes autonomy and self-confidence among individuals, help locus of control of their behaviour to lie within

themselves, which, in turn, augments intrinsic motivations. However, it may be re-emphasized at this juncture that these studies have been conducted mostly on researchers working within formal research organizations or firms. Every individual, within such organizations, has, more or less, defined objective, job profile, timeline, as well as formal process to conduct the particular job. We argue that in such (organizational) set ups; environment can be perceived with more clarity compared to the case of grass root innovators, whose environment is shaped by a more complex interplay of various social, economic and political factors and their interactions with psychological predispositions. Our task, therefore, is to identify appropriate environmental parameters for our grassroots innovators which have bearing on their intrinsic motivations by influencing those abovementioned aspects of personal level characters.

Methodology and Sample

Our sample consists of 88 innovators, who have been granted various awards by the National Innovation Foundation (NIF) for their innovations in the year 2001. The said NIF document gives their biographies and other details of their innovative activities, underlying motivations and their attitude towards proprietary protection of innovations. Based on such detail we have constructed a motivation index having three categories. According to our own measurements, 48.28% are found to be intrinsically motivated, 10.34% are motivated by purely extrinsic motivations, and 41.38% lie in the middle, whose motivations are partly intrinsic and partly extrinsic in nature.¹

We identified five factors, which in our view represent the environment for an individual innovator. These factors are education, age, income level, caste (Indian social hierarchy) and residential area (rural or urban). We argue that all these factors crucially shape the autonomy, self confidence of an individual and thereby determine the locus of control of their behaviour. We use ordered logit estimations to estimate our models.

Our results indicate that the nature of environmental influence depends on residential areas. In urban areas high income seems to promote autonomy and self confidence and thereby augment intrinsic motivations. In rural areas, on the other hand, age and education seems to provide more opportunity to control the environment, and augment the level of intrinsic motivation. Interestingly, upper caste people, although having more control over the environment, do not score any higher in the index of intrinsic motivation compared to people

¹ Please note that the details of this construction are the subject of a different paper.

belonging to lower castes. We argue that the main reasons for such behaviour reflect some interesting aspects of Indian societal dynamics.

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