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Effectuation and Co-creation in Social Enterprises: Examining the Relationship in the Context of Uncertainty

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Effectuation and Co-creation in Social Enterprises: Examining the Relationship in the Context of Uncertainty

Abstract

This study **attempts to adjudicate the correlation of** effectuation and co-creation in the context of social enterprises in India. The environments in which social entrepreneurs operate are highly uncertain, given the **lack of institutional support** in their operations. Although scholars have attempted to **define** approaches and strategies for scaling social enterprises, we propose in this study the relevance of effectuation logic **and its subsequent effect on co-creation in building social enterprises**, whereas it is observed that other linear factors like **government support and slack resources** are moderated by non-linear variable like **uncertainty**. To achieve this, we consider **government support and slack resources** as environmental and firm-level factors affecting the performance of social enterprises. We hypothesize that **government support and slack resources** positively correlate with effectuation logic under the influence of uncertainty. Empirical data were collected from 181 social enterprises throughout India and **the results are analyzed towards the objectives of** our hypotheses.

Keywords: Effectuation, Co-creation, Social Enterprises, Uncertainty, Government Support, Slack Resources.

1. Introduction

Social enterprises are viewed as organizations that use entrepreneurial ways to improve social conditions (Saebi et al., 2019). There is growing recognition of the potential of entrepreneurship in addressing social problems while creating economic value across the world (Austin et al., 2006; Zahra et al., 2014). Increased scholarly attention towards social enterprises in the past decade (Nicholls, 2006), led to substantial research on defining the boundaries of the field (Choi & Majumdar, 2014; Dacin et al., 2011; Rivera-Santos et al., 2015), addressing how social inno-

vations are related to social enterprises (Cornet & Barpanda, 2020), and challenges that arise with the idea of social enterprises as hybrid organizations (Lee & Jay, 2015; Mongelli et al., 2019). Despite these efforts, the emerging sector is still considered relatively immature due to the heterogeneity in approaches and rapidly changing contexts.

Social enterprises in the Indian context are characterized by diversified business models, underlying institutional and market influences (Agrawal & Khare, 2019). Emerging countries tend to have weak institutional arrangements due to the undermined competition and institutional voids (Defourny & Nyssens, 2017; Meyer et al., 2009). In developing countries like India, the social enterprise holds a promising future, considering an increasing GDP growth rate but the developmental challenges hindering its progress (Bhattacharyya, 2021). Thus, social entrepreneurs encounter several opportunities while having to face threats when scaling their enterprise, leading to a highly uncertain environment.

The study of entrepreneurial decision-making in contexts with high uncertainty has been considered a core aspect of entrepreneurship research (Rapp & Olbrich, 2021). Sarasvathy (2001, 2008) work on this entrepreneurial process progressed our understanding of two distinct approaches, namely, causation and effectuation. While causal logic is a planned strategy approach, associated mostly with opportunity recognition, effectuation is considered an emergent strategy and is positively associated with uncertainty (Chandler et al., 2011). Effectuation is widely accepted and researched decision-making logic and is very relevant to social enterprises as well (Bhowmick, 2011). They can embrace effectuation and effectual logic when approaching problems under the conditions of uncertainty, which differs from managerial thinking patterns (Duening et al., 2012). Explanation of effective, effectual outcomes and the underlying processes will guide the entrepreneurs, investors and policymakers to address key challenges in the pre-emergence stage (Weerakoon et al., 2019). Even though few scholars have studied the utility of effectuation theory in the context of the social enterprises, it is still considered as overlooked field and has not

received much required attention (Akemu et al., 2016; Weerakoon et al., 2019; Yusuf & Sloan, 2015). The effectuation variable is exploratory in nature and social enterprises adopts this in subtle manner but it's widely unrecognized in social enterprises theories. This paper considers that as a research gap and envisages to build social enterprises model around this variable.

Therefore, in this article, we try to address the following question: how can effectual logic help social entrepreneurs to navigate through uncertain contexts. We address this question by highlighting the significance of value co-creation as a tool to interact with their stakeholders. Through stakeholder engagement, involvement and dialogue, value can be co-created jointly by the firm and consumer (Sun & Im, 2015). Prahalad & Ramaswamy (2004) argue that these high-quality interactions between the customer and the firm to co-create unique experiences play a vital role in unlocking new sources of competitive advantage. Co-creation in social enterprises, however, cannot be limited to the mutual pursuit of economic value by the stakeholders but also to creating social value (Ostertag et al., 2021). The challenges that arise due to the uncertainty in the environment they operate has institutional voids exist in developing countries make it increasingly important for social ventures to find alternative organizing approaches such as co-creation to sustain.

Based on the views mentioned above, we suggest that by adopting effectuation as a decision-making logic, social enterprises can better navigate through uncertainty and co-creation as a subsequent action which positively correlates with effectuation. As effectual logic emphasizes on pre-commitment and strategic alliances with stakeholders, social ventures who adopt effectuation will only be better able to maintain networks and develop partnerships despite unknown contexts (Dew et al., 2009).

To account for the other factors that affect the performance and scalability of the firm, upon literature search, we identified government support and slack resources as external and firm-level factors, respectively. In emerging economies, social enterprise has to rely on support from the government in their growth stage (Charoensukmongkol, 2016). Recent development mitigated this gap further despite the traditional divide between sharing social responsibilities by business and government or civil societies. The right kind of government regulation can either encourage or make it impossible to pursue shared value (Porter & Kramer, 2011).

The slack resource **perhaps** operationalized to measure the performance of the firm **from the dimension of finance**. Organizational slack in this context would be the consequence of firm performing well, **as it points towards optimization of resources** (Melo, 2012). Slack resources for any enterprise provide the opportunity to invest or undertake initiatives that may not pay off immediately in the short run and hence considered a potential source of competitive advantage. Across the literature, slack resources are identified as a critical variable for firm performance, even if its **influential nature** has not always shown positive (Stan et al., 2014).

To conduct this study, we relied on Saravasthy's (2001) effectuation theory. Building on this, we used ordinary linear regression to test the relationship between factors affecting firm performance (government support and slack resources), uncertainty, effectuation and co-creation. We contribute to research literature on social entrepreneurship by studying the promise of effectuation and co-creation in scaling social enterprises. These concepts have been studied less in the context of social entrepreneurship. It is important to study the systematic application of these concepts on social enterprises, as they differ significantly from the traditional forms of entrepreneurship. The study also highlights the potential implications of uncertain environments in developing countries such as India.

2. Theory and Hypothesis Development

Social Enterprises

Social enterprises are commonly referred to as hybrid organizations due to their dual mission of being financially sustainable and creating social value (Doherty et al., 2014) in an innovative and entrepreneurial way (Chell et al., 2010; Dacin et al., 2011; Mair et al., 2006). As they are depicted to be motivated by a social vision, many researchers consider them as change agents (Dees, 1998). Establishing social enterprises is a pragmatic solution to address social problems and it is supported by liberal and socialist approaches (Kibler et al., 2018; Maalaoui et al., 2020). Based on Defourny & Nyssens, 2017, the typology of social enterprise models in India can be classified into five types, namely, the entrepreneurial non-profit model (foundations, NGOs, associations etc.), cooperative social enterprise model, the social business model, the social change model, and the public-sector social enterprise model (Agrawal & Khare, 2019). The social and economic missions these enterprises undertake, their governance model, allocation and usage of resources differentiates each type of social enterprise from the other.

Many researchers have argued that in order to scale the social impact of any social enterprise, the firm must be capable of engaging with stakeholders, drawing government support, and creating economic value, at least enough to sustain itself (Bacq & Eddleston, 2018). Although social entrepreneurs aim to grow their enterprises, many fail to scale the impact to their potential (Ćwiklicki, 2019). The marketing theories and tools do have great relevance, even to social enterprises, but the markets in which they operate are highly uncertain (Newbert, 2012). In order to navigate these uncertain environments, social entrepreneurs can adopt marketing practices grounded in effectuation theory (Read et al., 2009).

Effectuation in Social Enterprises

The effectual logic approach to strategic decision-making is one of the significant milestones in the advancement of entrepreneurship theory (Perry et al., 2012). Traditionally accepted paradigm

of causation is a rational decision-making logic that involves a set goal for which alternative means are generated. Any constraints from environmental factors have to be overcome to achieve the predetermined goal and maximize the returns. In contrast to this is effectuation, which is an emergent or non-predictive strategy (Wiltbank et al., 2006), which involves making a decision based on a given set of means and a given set of effects. Constraints may arise due to imposed limitations on means along with environmental factors. A criterion for selecting the goals in effectuation is based on a predetermined level of affordable loss (Read & Sarasvathy, 2005; Sarasvathy, 2001, 2008). Since 2001, many researchers have studied the concepts by comparing them, testing and proving their relevance using empirical and case studies across sectors (Alzamora-Ruiz et al., 2021; Cui et al., 2019; Duening et al., 2012; Rapp & Olbrich, 2021). Few attempted to further develop the concept of effectuation by understanding its nature in the context of uncertainty (Arend et al., 2015; Read et al., 2016; Yu et al., 2018).

Chandler et al. (2011) has taken the research on effectuation to the next level by trying to develop validated measure for these processes. Based on the work of Sarasvathy and the four principles she has identified while building effectuation theory, Chandler and colleagues have constructed more precise dimensions, thus re-conceptualizing it. Our study has adopted the measures re-conceptualized by Chandler et al. and applied the same in the context of social entrepreneurship. We briefly discuss these four dimensions before moving further.

The first dimension is *experimentation*. It is outlined as a series of trial-and-error attempts across all dimensions of the strategy to identify the best way forward, but only for a short period of time. Entrepreneurs are likely to experiment as the market is unpredictable, and they have no control over it (Chandler et al., 2011). The second dimension is *affordable loss*. Effectual logic requires the entrepreneur to predetermine the amount of risk or loss the firm can afford, rather than focusing on expected returns (Sarasvathy, 2001). Affordable loss is considered an important criterion when it comes to making decisions, as experimentation would cost the firm resources.

In the case of social enterprises, the affordable loss has to be weighed against both the social and economic returns of the firm. The third dimension is *flexibility*, implying that entrepreneurs need to remain flexible while experimenting so that when required, they can move easily from one possibility to another. The final and fourth dimension is *pre-commitments*. This requires entrepreneurs to establish strategic alliances instead of viewing them as competition. As the entrepreneurs cannot control the future, establishing alliances and getting pre-commitments which help the firm reduce risks associated with uncertainty as it spreads the responsibility across other stakeholders (Chandler et al., 2011). All the above-mentioned dimensions fit perfectly in the case of social enterprises and imply even more relevance in the context of social entrepreneurs in developing countries.

Government Support as an environmental factor affecting effectuation in social enterprises

Effectuation logic commends a crucial role in driving social enterprises as it is witnessed from the works of Chandler *et al* & Sarasvathy and on the other dimension, the effectuation should be correlated with environmental factors as the latter is influenced by government support. The common factors in effectual logic are falls under the purview of non-predictive, predetermined, experimentation, affordable loss, flexibility, pre commitments which can be influenced by any environment the firm operate. In literature aspects, the nature of effectuation logic is moderated by the institutional support by government as it creates the environmental factors in which the social enterprises should function.

Extant research on social enterprises suggests that the existence of institutional voids such as government failure often act as an important predictor of social entrepreneurship (McMullen, 2011; Nicholls, 2006). Government regulation can foster or work against economic and social value creation (Porter & Kramer, 2011). Social enterprises help provide services to the public where governments cannot reach. Even though they share responsibility with the government to

bring social change, few sectors where social enterprises operate have heavy government intervention while the few sectors might face the other extreme, with no government intervention at all. Given the situation, government institutions and policy interventions can help social entrepreneurs manage certain risks. Hence, social entrepreneurs have a greater incentive to engage with the government than not (Plutshack et al., 2019; Santos, 2009). Government support can also mean that the social enterprise is gaining legitimacy (Meyskens et al., 2010), which is believed to help sustain social enterprise (Zahra et al., 2014).

When government support is high, social ventures can easily gain the legitimacy and resources needed in the market. They can try different approaches to tackle the issues in their daily operations. Meanwhile, the government policy is more tolerant for them test their business model. If they failed with their experiment in the market, they can still afford to iterate and start again. It is also easier for them to attract different stakeholders to work together.

In contrast, where government support is low, social ventures are constrained by limited resource constraints to find alternative solutions. They are also not willing to take any risks if the environment is full of uncertainty. Meanwhile, when the legal environment is not friendly, it leaves little space for the social ventures to implement more flexible strategies in their daily operations. Not to mention that the ambiguity of government policy could also hinder the willingness of other stakeholders to commit their resources in the social ventures. Based on this, we propose:

Hypothesis 1 – A positive relationship exists between government support and effectuation in social ventures.

Slack resources as a firm-level internal environmental factor affecting effectuation

The literal meaning of slack resource is a “potentially usable resource” (Melo, 2012). Hence, slack can be defined as actual or potential resources which empower firms to quickly adapt to external as well as internal pressures (Stan et al., 2014; Tan & Peng, 2003). Social entrepreneurs

can use slack resources as a buffer during market uncertainties or as a source for experimentation. Slack resources can facilitate strategic behaviour as it allows firms to experiment with new approaches and strategies, allowing greater flexibility (Shahzad et al., 2016).

Having slack resources can allow social entrepreneurs to be more flexible in experimenting and tapping onto new opportunities, giving the firm a competitive advantage. The presence or absence of slack resources can help the entrepreneurs to make strategic decisions and it also has an impact on effectuation aspect of social firm. Effectuation logic find ways to experiment things with the available means and it has strong correlation with the nature of slack resources. Based on this, we propose:

Hypothesis 2 – A positive relationship exists between slack resources and effectuation in social ventures.

Uncertainty in social enterprises

Uncertainty refers to the extent to which one cannot predict the future. It has been at the core of research on entrepreneurial action (Kuechle et al., 2016). Causation and effectuation are two fundamental strategic decision-making logics that seasoned entrepreneurs use to cope with uncertainty (Wiltbank et al., 2006). Emerging economies such as India involve higher environmental uncertainty and hence requires businesses to focus on leveraging the resources at hand (Yu et al., 2018). Given the level of uncertainty, using effectuation can positively affect firm performance. When there is high environmental uncertainty, inevitably this can lead to variations between expected results and the actual outcome, thus, more risk (McKelvie et al., 2011).

The relationship between uncertainty and effectuation has been investigated in the context of regular entrepreneurship and it is positively correlated. The dimensions of effectual logic tries to mitigate the risks involved in the uncertainty and it brings results based on the calculated risks.

Hence, we derive there is a strong positive correlation exists between these two variables as the risk is averted by the factors of effectuation. Hence:

Hypothesis 3 – A positive relationship exists between uncertainty and effectuation.

As we mentioned in hypothesis 1, government support is positively related to effectuation in social ventures. However, such a relationship is also highly contextual. For example, uncertainty exit around the social venture could exert a moderating effect on such a relationship. We argued that a positive relationship exists between uncertainty and effectuation. When uncertainty is high, as social ventures receive more government support, they are more likely leverage the support and adopt effectual logic to navigate the uncertain environment. For example, if the government policy is tolerant for the ventures to test their business idea, they will be willing to try different approaches and their willingness will be even stronger if the market is more uncertain. Thus, we argue that:

Hypothesis 4 – Uncertainty positively moderates the relationship between government support and effectuation.

As we argued in hypothesis 4, slack resources is positively related to effectuation. Such a positive relationship could also be strengthened or weakened by the contextual factors such as uncertainty. The aggregate of slack resources to be maintained by an enterprise is often considered a strategic decision. However, uncertainty makes predictive strategies obsolete. Hence, the enterprises require to focus on leveraging the resources at hand and exploit the contingencies (Yu et al., 2018). Research shows too much of slack resource may lead to inefficiencies in the performance and too less causes constraints in decision making. However, The effect of uncertain environmental conditions is little known and less researched area (Bradley et al., 2011). The scant empirical research shows curvilinear relationship between slack resources and effectuation and it

varies with the environmental conditions (George, 2005; Tan & Peng, 2003). In this research, similar to the moderating effect of uncertainty in hypothesis 4, we also argue that:

Hypothesis 5 – Uncertainty positively moderates the relationship between slack resources and effectuation.

Co-creation as collaborative development in Social Enterprises

Researchers who have taken an opportunity-centric view of entrepreneurship recognize the process of co-creation as a key driver (Alvarez & Barney, 2007, 2013). Co-creation is not considered merely as creating value in cooperation for other parties (Haase, 2021). Co-creation refers to the effective and concrete interactions with multiple stakeholders such as beneficiaries, donors, government, etc. This could lead to the co-creation of value, thus opening new opportunities for social entrepreneurs (Harima & Freudenberg, 2020; Sun & Im, 2015). Every stakeholder involved has the opportunity to be mutually benefitted in co-creation, particularly when there is resource scarcity. Social entrepreneurs have the role of ensuring the co-creation of economic value happens while pursuing their social mission.

Effectuation encourages co-creation in the form of pre-commitments. These strategic partners reduce uncertainty and minimize the affordable loss (Fisher, 2012). Establishing that co-creation is a subsequent effect to adoption of effectuation logic, we propose:

Hypothesis 6 – A positive relationship exists between effectuation and co-creation.

Despite the positive correlation, the level of environmental uncertainty determines the relationship between effectuation and co-creation. Despite the centrality of stakeholders in the effectuation theory, uncertainty effects the commitment and contribution of stakeholders in co-creating processes (Mumford & Zettinig, 2022). When the uncertainty is high, the stakeholders need to commit more time and resource to navigate through such an environment. As a result, the effec-

tual logic they adopt will leads to more co-creative behaviors. Thus, the positive effect of effectual logic on co-creation behaviors will be magnified in an uncertain environment. Based on this, we suggest:

Hypothesis 7 – Uncertainty positively moderates the relationship between effectuation and co-creation.

3. Research Methodology

To test the above mentioned hypotheses, we collected empirical data from social enterprises spread across the nation of India. Social enterprises under different organizing forms like for-profit and NGOs in India have undergone rapid changes in the last few decades and witnessed an upsurge as the country is among the fastest developing nations in the Asia-Pacific region. The government of India has undertaken an initiative to bring all voluntary organizations (VO) / NGOs under one single window platform called NGO Darpan. This portal created a repository of information about VOs/NGOs across all states in India. Using this portal and other social media platforms, we have identified a balanced sample of potential social ventures for collecting data. A team of research scholars and faculties have contacted these potential social ventures via email or mobile number or social media pages. The respondents include higher officials like founders and executive directors involved in the organization's policy and decision-making processes. Upon requesting their participation, the survey form has been circulated to them. A pilot study was conducted with 30 respondents to ensure response validity and quality of the data. Based on the responses received through the pilot study, the questionnaire is revised for the final survey. The survey is administered to 217 target respondents. Upon excluding the missing responses, with a response rate of 83%, the final sample includes 181 social enterprises. The final sample doesn't have the responses received from the pilot study.

The below table provides the demographic details of the survey.

(Insert Table 1 here)

Government Support

The measurement of government support is adapted from the items used by Porter & Kramer (2011). It is operationalized by five questions and each of them is measured using five-point Likert scale. The Likert scale is a widely used tool in social science research as it captures the opinion of the respondents for the given variable and makes it easy to quantify the variables for analysis. Survey questions under this variable tried to measure the extent of support social entrepreneurs received from the government in terms of policies that encouraged cooperation among stakeholders and provisions for strengthening performance. Upon testing the measure's reliability, the Cronbach's alpha measure is 0.89.

Effectuation

We adopted four dimensions of effectuation from Chandler et al. (2011), namely experimentation, affordable loss, flexibility, and pre-commitments. Each dimension was measured with a set of separate formulated questions. The experimentation dimension included questions on different approaches and business models adopted by the enterprise since its inception. The affordable loss dimension was tested by questioning the extent to which the participants were willing to risk losing their resources. The flexibility dimension was measured based on how adaptable the business was in taking advantage of opportunities as they emerged over time. Pre-commitment to customers and suppliers were questioned in order to measure the fourth dimension. The Cronbach's alpha value for each dimension is 0.87, 0.79, 0.72, and 0.79 respectively.

Slack Resources

Slack resource as a variable is chosen as a firm-level control factor that affects the performance of the enterprise. The abundance of organizational slack is tested with questions regarding capi-

tal, talent and network. The questions like “Does your company possess abundant capital to achieve your operational objective” were asked along with similar questions on network and talent abundance. In line with the literature, we tried to evaluate the measure against the existing competition by asking the participants to respond by comparing against their competitors. The Cronbach’s alpha of the measurement is 0.84.

Uncertainty

This variable has multiple facets, and the dimension it covers includes the entire spectrum of the value chain in a business. We tried to measure uncertainty by understanding how dynamic factors such as direct competition, customers, technology up-gradation and government control, etc. are in the business environment. Uncertainty in the internal environment of the business is understood by considering factors such as operational costs and the economic situation of the enterprise. In total, our scale included eight items, and we asked the participants to respond using a five-point Likert scale extending from “strongly disagree” to “strongly agree”. The Cronbach’s alpha value for this measurement is 0.91.

Co-creation

Co-creation is widely researched in the field of entrepreneurship but has not been studied enough in the context of social enterprises. Scales used to measure co-creation have been modified to suit the purpose of social enterprises. Co-creation is a major criterion for the study, and hence we included seven items in the questionnaire to measure this variable. Co-creation is calculated based on the studies conducted by Ngo & O’Cass, 2009 and Pellicano et al., 2014. The Cronbach’s alpha of co-creation is 0.83.

4. Results and Discussion

This research modeled on effectuation theory and analyzed co-creation in social enterprises with other variables such as government support, slack resources, and uncertainty. The study was conducted with an objective to shed more light on the importance of effectuation as a strategic decision – making logic for social enterprises. In addition to this, we indicate co-creation as a subsequent effect and critical enabler for scaling social enterprise in contexts with high uncertainty. Hypotheses are framed based on the influences of one variable over the other. The role of uncertainty is considered to be an important aspect in this model as it plays a moderating role and impacts the influence of other variables. The results of the data analysis support most of the hypotheses derived.

Table 1 shows the summary descriptions of the variables such as construct means, standard deviations, and correlations. The table shows that the correlations between any pair of variables are all reasonable. We also examined the variance inflation factor (VIF) when conducting the regression analysis procedures. The VIFs of all the variables are below 10, which is the suggested cut-off point, showing that multicollinearity is not significant problem in the data (Hair et al. 2010).

4.1. Hypothesis tests

Hypothesis 1 proposed that government support is positively associated with effectuation in social ventures. Results regarding this hypothesis are shown in Model 2 of Table 2. As you can see, our first hypothesis is supported ($\beta = 0.21, p < 0.05$). Hypothesis 2 predicts that slack resources is positive related to effectuation in social ventures. However, it is not supported by the results.

Hypothesis 3 predicts that a positive relationship exists between uncertainty and effectuation. In the first baseline model and model 1, we can see that uncertainty is positive related to effectuation: ($\beta = 0.42, p < 0.001$) and ($\beta = 0.30, p < 0.01$). This result is in align with previous research and hypothesis 5 is supported.

Hypothesis 4 suggested a moderation effect of uncertainty on the relationship between government support and effectuation. The results of Model 3 in Table 2 don't provide support of such a moderation effect. Hypothesis 5 suggested a moderation effect of uncertainty on the relationship between slack resources and effectuation. Consistent with our prediction, the relationship between slack resources and effectuation trust is stronger when the uncertainty is higher for social ventures (Refer to Fig. 2).

Hypothesis 6 proposes that effectuation is positively associated with co-creation. As Model 5 shows, our hypothesis is supported ($\beta = 0.30, p < 0.01$).

In hypothesis 7, we argue that the relationship between effectuation and co-creation is positively moderated by uncertainty. This hypothesis is also supported by our result (0.19, $p < 0.01$) (Refer to Figure 3).

4.2. Moderating role of uncertainty

Role of government support (GS) in influencing effectuation turned out to be positive in our statistical analysis and it shows social entrepreneurs often rely on their skill, network and knowledge to run their social ventures. The negative correlation between slack resources (SR) towards effectuation indicates that social ventures are not depending on surplus resources and it is started as voluntary action to create something better in the future irrespective of the forthcoming results (Shepherd et al., 2020). Frugal innovations drive the social ventures and the social entrepreneur depends on the resource they have in hand.

Uncertainty is the most powerful variable as it influences the entire model. There is a positive correlation between government support and uncertainty and this indicates the support of government for social ventures is not commendable, whereas it creates the space for social entrepre-

neurship to follow the logic of effectuation. Availability of resources is positively correlated with slack resources towards effectuation and it substantiates that social entrepreneur taking advantage of available resources in building the enterprises and apply the effectuation for co-creating the firm. Uncertainty moderates positively government support, slack resources, effectuation and co-creation. The multifaceted nature of the uncertainty is influencing the evolution of co-creation in this model (Li et al., 2021).

Co-creation is the very important aspects of social enterprise, and it is the central theme of this study. In the statistical analysis, the co-creation is influenced by all the above-mentioned variables and its strength is decided by the enterprises which encounters uncertainty in its progress.

4.3. *Post-hoc test*

Previous literature shows that co-creation can help firms to achieve higher overall performance, such as profitability and growth (Yang et al, 2022). Since we have the measurement of performance, we conducted a post-hoc analysis by looking at how co-creation may affect social ventures' performance. We regressed co-creation on the performance variable, which is measure by five dimensions including growth of employees, growth of beneficiaries, growth of sales, amount of donations and financial aids, and scale compared with competitors. As you can see in Model 5 of Table 3, co-creation is positively related to the performance of social ventures ($\beta = 0.12, p < 0.1$). We find the result is consistent with our research did in another context in which co-creation is also positively related to the performance of social ventures.

(Insert Tables 2 and 3 here)

(Insert Figures 2 and 3 here)

5. Theoretical and Practical Implications

Our study is an advancement in the social entrepreneurship and effectuation literature stream. Effectuation has been widely studied in the field of entrepreneurship but has been very less studied in the emerging field of social entrepreneurship. Thus, our study expands the boundaries of entrepreneurship theory building on this meagre research and indicates the significance of effectuation and co-creation for social enterprises. Further studies can explore the application of effectual logic and co-creation process at different stages of firm development to better understand entrepreneurial actions. Theoretically, we identify uncertainty as a moderating variable and significantly impact on the relationship between effectuation and other variables such as government support and co-creation behavior.

Practical implications of the research can be seen at an enterprise level. The study provides insights to social entrepreneurs who are operating in uncertain environments. Both effectuation and co-creation could help them scale up their firm performance. Our research highlights that co-creation can become the strongest tool for social entrepreneurs to encounter uncertainty.

6. Limitations and Future Research

Our research has the following limitations. First, the current research constraints itself to understand the relationship between the effectual logic and co-creation in firm performance under uncertainty. We only considered single variable representing external factors (government support) and firm-level internal factor (slack resources) to capture firm performance. In order to get an even deeper understanding of the results, particularly in the context of social enterprises, researchers can add more constructs to it. We studied the variables only at the meso-level (organizations viewpoint). When studying a multi-dimensional concept such as social entrepreneurship and co-creation, the study can further be modified to meet the requirements.

The second limitation is the generalizability of the study's results. As the research is conducted in India, the results can only be generalized to this country. Each nation's ecosystem arises under a unique set of circumstances and conditions; hence there will be diversity in the results. The study can be conducted in other developing countries as well to generalize the findings.

The third limitation is the operationalization of co-creation. In this research, based on the extant literature, we operationalize co-creation as a single dimension construct. However, it could be a multi-dimension construct under its umbrella. Meanwhile, the meaning and measurement of each dimension could also be different in the context of social entrepreneurship and additional questions could be added under each dimension. More research could be done to examine the concept of co-creation in social enterprises exclusively in future.

Conclusion

The concepts of effectuation and co-creation of value have been under-researched in the context of social enterprises. This study suggests that social enterprises operating in high uncertainty could adopt effectuation and derive value through co-creation. Social entrepreneurs under effectuation logic can benefit more through co-creation by establishing strategic partnerships with its stakeholders and exploiting opportunities in contingency. Despite its economic change and increased importance for fostering social enterprises in a developing country such as India, the ecosystem is still relatively immature. Hence, by leveraging the knowledge and support from all the ecosystem stakeholders such as competitors, beneficiaries, financial institutions and government, social entrepreneurs can realize dual goals of economic and social value even in an uncertain environment.

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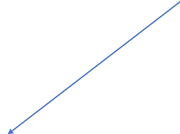
Government Support

Slack Resource

Uncertainty

Effectuation

Co-creation



H6