

2-21-2022

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Xiaoming Yang

A. Erin Bass

University of Nebraska at Omaha, aebass@unomaha.edu

Erin G. Pleggenkuhle-Miles

University of Nebraska at Omaha, erinpmiles@unomaha.edu

Jianxin Ge

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Recommended Citation

Yang, X., Bass, A.E., Pleggenkuhle-Miles, E.G., & Ge, J. (2022). Value Co-creation in social ventures: A missing link in the effectual logic-performance relationship. *Journal of Social Entrepreneurship*. <https://doi.org/10.1080/19420676.2021.2004205>

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Value Co-creation in Social Ventures: A Missing Link in the Effectual Logic–Performance Relationship

Xiaoming Yang^a, Erin Bass^b, Erin G Pleggenkuhle-Miles^b and Jianxin Ge^c

^aDepartment of Marketing and Entrepreneurship, College of Business Administration, University of Nebraska-Omaha, Omaha, NE, USA;

^bDepartment of Management, College of Business Administration, University of Nebraska-Omaha, Omaha, NE, USA;

^cDepartment of Strategy, School of Business, Central University of Finance and Economics, Beijing, China

To cite this article: Xiaoming Yang, Erin Bass, Erin G Pleggenkuhle-Miles & Jianxin Ge (2022): Value Co-creation in Social Ventures: A Missing Link in the Effectual Logic–Performance Relationship, *Journal of Social Entrepreneurship*, DOI: [10.1080/19420676.2021.2004205](https://doi.org/10.1080/19420676.2021.2004205)

To link to this article: <https://doi.org/10.1080/19420676.2021.2004205>

ABSTRACT

We examine how effectual logic is related to value co-creation activities of social ventures and how value co-creation impacts the performance of these firms. We hypothesise that, in the face of uncertainty, social ventures with higher effectual logic are better able to identify and capitalise on opportunities for alternative forms of organising. We focus on value co-creation as an alternative form of organising and suggest that social ventures that co- create value with their stakeholders, such as donors, beneficiaries, and government agencies, will perform better. To test these hypotheses, we use structural equation model to analyse data collected from top executives of 172 social ventures in China. The results largely support the hypotheses, and the findings provide important implications for social innovation via value co-creation, especially in rapidly-growing economies.

KEYWORDS

Value co-creation; effectuation; rapidly- growing economies; social ventures; structural equation modelling

Introduction

Social ventures, defined as firms that address social issues while creating economic value (Kistruck and Beamish 2010; Mair, Robinson, and Hockerts 2006; Selsky and Parker 2010), are an increasingly important facet of business ecosystems in across all countries. Not surprisingly, social ventures play an important role in driving social innovation in contexts in which social issues are complexly intertwined (e.g. poor education and poverty) (Chell, Nicolopoulou, and Karataş-Özkan 2010). Despite the need for social ventures in economies experiencing rapid growth, such as Libya, India, and China (Iradian 2007), the expansion of this part of the business ecosystem is still relatively underinstitutionalized (Chakrabarty and Bass 2013; Schrammel 2014). Due to their progressive development, more unknowns related to the social, cultural, institutional, and political environments exist in rapidly-growing economies (Meyer et al. 2009; Child 1994). On the one hand, social ventures can help society solve social problems and share responsibilities with the government. On the other hand, given their nascence as a sector of the business ecosystem, many unknowns exist regarding the best way to address social issues and operate as viable businesses. This is likely due to the uncertainty of the environment in which they operate, governments with increasing control, and the lack of established peers with proven best practices of organising (Bhatt, Qureshi, and Riaz 2017).

To address this issue, social ventures may develop new forms of organising so that they can operate as viable business entities—creating both social and economic value—while at the same time working around a system of unknowns. For example, some social ventures intentionally choose to organise under a for-profit organisational form even though their primary goal is to create social value (Fukuyama 1995; Townsend and Hart 2008), especially when social ventures may be seen as a potential threat to the state's authority (Kang and Han 2008; Teets 2013). Other social ventures experiment with different ways of organising forms such as partnerships, alliances, and joint ventures (Di Domenico, Tracey, and Haugh 2009; Seelos and Mair 2007) to better collaborate with other stakeholders. Thus, in rapidly-growing economies, it may be increasingly important for social

ventures to make decisions in contexts of high uncertainty and find alternative approaches to organising to drive social innovation effectively.

Based on these tenets, we suggest effectual logic, 'a dynamic and interactive process of creating new artifacts in the world' (Sarasvathy 2008: p. 6), is critical for social ventures to identify alternative ways of organising to drive social innovation. Effectual logic occurs when entrepreneurs establish less specific goals and focus on maximising the resources and processes available at any given time to pursue opportunities as they develop and become less uncertain (Sarasvathy 2001). This type of logic benefits entrepreneurs and firms by emphasising strategic alliances and the pre-commitment of stakeholders rather than competition, leading entrepreneurs to leverage the opportunity in contingency (Sarasvathy 2008). Under effectual logic, entrepreneurs regard the future as a result of collaborative work by different stakeholders who are 'stitched together' (Dew, Sarasathy, et al. 2009). To this end, social ventures with higher effectual logic may be better able to navigate a context of unknowns and think outside the box to drive social innovation (Parris and McInnis-Bowers 2014; Servantie and Rispal 2018). Social ventures with effectual logic may be better able to develop relationships with others outside of their own networks and, as a result, develop unanticipated partnerships and find new ways of approaching existing problems (Dew, Sarasathy, et al. 2009). Thus, we suggest that value co-creation, or the joint creation of value between the firm and stakeholders (Prahalad and Ramaswamy 2004), may be one important outcome of effectual logic in social ventures, and suggest that it may help these firms drive social innovation in the rapidly-growing economies in which they operate. We use structural equation modelling to examine the relationships between effectual logic, value co-creation, and firm performance in 172 Chinese social ventures formed to address problems such as poverty, disability, and environment protection.

Our research contributes to the literature on social ventures in several ways. First, while effectual logic has been widely studied in entrepreneurship in general, to our knowledge, it has not been systematically applied to the study of social ventures. Our study demonstrates the relevance of examining effectual logic in

social ventures, given that many of these firms must navigate contexts with many economic and social unknowns and addresses a call made by Dacin, Dacin, and Tracey (2011) suggesting the promise of an effectual lens in the study of social entrepreneurship. Second, we introduce and operationalise the concept of value co-creation as an alternative form of organising for social ventures, adding to the taxonomy of organising firms. In doing so, we follow literature that indicates that social ventures differ from more traditional forms of entrepreneurship (Austin, Stevenson, and Wei-Skillern 2006) and highlight value co-creation as a value-creating form of organising for social ventures. Third, we also add to the literature that considers antecedents of social venture performance by suggesting that co-creation is instrumental to the growth of social ventures. Finally, by examining the moderating effect of co-creation on the relationship between effectual logic and firm performance, we speak to research that has found mixed results regarding this relationship. Overall, our findings contribute to the discussion of how different pieces of the social venture puzzle connect to economic and social value creation in social ventures.

Theory and hypothesis development

Social ventures

Social ventures address social problems through business principles (Kistruck and Beamish 2010; Mair, Robinson, and Hockerts 2006, Selsky and Parker 2010), operating with dual goals: to create both social and economic value in the contexts in which they operate (Haugh 2006; Mair, Robinson, and Hockerts 2006; Santos 2012; Steyaert and Katz 2004). Given the uniqueness of these enterprises, social ventures have gained significant interest from both practitioners and academics (i.e. Nicholls 2006; Hill, Kothari, and Shea 2010; Schirmer 2013; Volkmann, Tokarski, and Ernst 2012). For example, recent academic research in this area has explored how social ventures differ in the way they (a) balance their social mission with revenue generation, (2) mobilise their resources, (3) secure funding, and (4) measure performance, as well as the rationale for why social ventures emerge (i.e. in the face of social-market failure) (Austin,

Stevenson, and Wei-Skillern 2006). Other scholars have proposed that social ventures fall into three categories based on motivations, strategies, organisational form, and the type of social problem addressed (Zahra et al. 2009). Similarly, firms such as Narayana Health, SKS Microfinance, TOMS Shoes, and TOMS Coffee have received attention from practitioners regarding entrepreneurial innovation, especially in rapidly-growing economies (Mossman et al. 2017; Vila and Bharadwaj 2017). Despite the promise of social ventures for creating social and economic value, many social ventures experience unique challenges. Mission drift, or prioritising social value creation over economic value creation, or vice versa (Ebrahim, Battilana, and Mair 2014; Ramus and Vaccaro 2017), is an issue that many social ventures face. Additionally, especially within rapidly-growing economies, the collective behaviours of social ventures may pose a threat to the state's authority. Not surprisingly, many social ventures in rapidly-growing economies face stringent government controls related to their capacities to challenge the effectiveness of government programs (Kang and Han 2008; Teets 2013). Perhaps the greatest challenge for social ventures is that they often operate in markets rife with unknowns (Chakrabarty and Bass 2014). Especially in rapidly-growing economies, the combination of institutional voids paired with a lack of established peers with proven best practices of organising creates a context in which firms must innovate and find alternative ways of organising to drive social innovation. To this end, effectual logic may be a critical component for survival and innovation in social ventures.

Effectual logic in social ventures

One of the most significant shifts in understanding entrepreneurship stems from a break in the rational decision-making, or causal logic, towards a more effectual approach to entrepreneurial decision-making (Perry, Chandler, and Markova 2012). Causal logic is consistent with planned strategy approaches, whereby opportunities are discovered through purposeful search (Drucker 1998). Effectual logic is more consistent with emergent strategy (Chandler et al. 2011), whereby entrepreneurs start with a general aspiration and then move towards that aspiration

using the means (e.g. who they are, what and who they know) they have at their disposal (Perry, Chandler, and Markova 2012). Given our focus on decision-making, we describe these competing logics as cognitive processes or processes that simplify and guide decision-makers' perceptions of problems (Schwenk 1984). In this vein, causal logic describes the process of selecting between a set of means to achieve a specific outcome, and effectual logic describes the process of selecting between possible outcomes with a given set of means (Sarasvathy 2001). Much of the attention in this area is focussed on (1) comparing and contrasting causal and effectual logic and (2) further developing our understanding of effectual logic, especially for entrepreneurs faced with contexts ripe with uncertainty (Arend, Sarooghi, and Burkemper 2015; Reuber, Fischer, and Coviello 2016; Read, Song, and Smit 2009).

Effectual logic is a multidimensional construct and best viewed as a formative construct (Chandler et al. 2011), implying that causality flows from the lower-order indicators, and these indicators define the construct's characteristics. As such, we consider each of these lower-order indicators of effectual logic in social ventures.

Experimentation

Entrepreneurs using effectual logic are likely to experiment with different approaches in the market to control unpredictable futures (Sarasvathy 2001). In testing these different approaches, effectual thinkers essentially conduct experiments in the marketplace. Nicholls-Nixon, Cooper, and Woo (2000) describe this process as a series of trial and error that happens over a relatively short period of time. Social ventures in rapidly-growing economies are likely to experiment, given the many unknowns they face and the lack of role models. For these firms, they experiment quickly to find the best path forward.

Affordable loss

The condition of affordable loss is an important factor when considering the decision-making processes during new venture creation. An effectual thinker focuses on how much loss is affordable rather than on expected returns

(Sarasvathy 2001). This directly impacts the types of experiments the entrepreneur undertakes. For a social venture, the goal is to achieve both social and economic value creation. Thus, affordable loss helps the social venture focus not just on maximising its own returns but rather on addressing social issues that would be unattended if the firm did not exist.

Flexibility

Flexibility is considered an advantage that new ventures have over established firms (Chandler et al. 2011). As firms grow, the growth typically necessitates policies, procedures, and routines (March and Simon 1958). However, effectual thinkers maintain flexibility past the new venture, moving on from unsuccessful experiments towards other opportunities. Essentially, for those individuals and firms that adopt effectual logic, the need for prediction is less important (Sarasvathy 2001). Such flexibility allows the venture to exploit contingencies as unexpected events that help reshape outcomes. Given how social issues ebb and flow regarding acknowledgment and support, flexibility and adaptation to social change are paramount for social ventures.

Pre-commitments

Pre-commitments describe the logic that entrepreneurs establish early agreements and relationships with customers, suppliers, and other strategic partners to reduce uncertainty and spread responsibility to other stakeholders (Sarasvathy 2001; Fisher 2012). Pre-commitments is a dimension relevant for both causal and effectual logic but in different ways. For causal logic, pre-commitments are necessary so that the partnerships or relationships can enable the entrepreneur to achieve specific means—for example, services, sales, or contracts (Sarasvathy 2001). However, for effectual logic, pre-commitments help reduce uncertainty by providing resources, information, and support (Arend, Sarooghi, and Burkemper 2015). In this case, social ventures with effectual logic may be better able to reduce uncertainty through partnerships with others that help the social venture navigate unknowns to drive social innovation.

Effectual logic and value co-creation

For social ventures in rapidly-growing economies, much is unknown. They operate in contexts that are highly evolving. Thus, approaches to doing business are constantly being redefined to match the dynamism of the context. Relatedly, social issues are constantly changing in response to economic changes. Identifying the best ways to address social and economic issues in highly dynamic and unpredictable contexts is challenging for social ventures. Given that the end result is unknown, we suggest that effectual logic is critical for social ventures to create social and economic value in rapidly-growing economies.

As stated above, many social ventures are required to identify alternative forms of organising given the high uncertainty of many rapidly-growing economies and the lack of established peers. Given these conditions, the social venture that experiments, focuses on minimising losses, maximises flexibility, and searches for pre-commitments through partnerships may be better able to navigate the market's complexities and identify alternative forms of organising. In this vein, social ventures with effectual logic may turn to value co-creation as an effective form of organising.

Prahalad and Ramaswamy (2004, 8) suggest value co-creation is 'the joint creation of value' between the firm and a partner (maximising pre-commitments). In the context of social ventures, value co-creation describes 'the process in which multiple stakeholders jointly define and solve social problems by mutually selecting and constructing resources to generate both social and economic values' (Sun and Im 2015, 103). Value co-creation limits costs to both the firm and the consumer (minimising affordable loss) because 'a broader base of knowledge and perspectives is brought to bear in the creation process' (Lakhani and Panetta 2007, 107). We thus connect cognition to behaviour by suggesting that effectual logic is the antecedent to value co-creation in social ventures. Given this, we offer:

Hypothesis 1. A positive relationship exists between effectual logic and value co-creation in social ventures.

Value co-creation and social venture performance

The process of value creation is a key driver in the field of entrepreneurship (Alvarez and Barney 2007) and is relevant to social ventures in terms of both social and economic value creation. However, mixed results exist connecting cognitive processes such as effectual logic to firm performance. To this end, we suggest that value co-creation acts as an important mediator in the cognition–performance relationship.

Just as effectual logic is important for innovation in firms—from product innovations to innovations in organising—value co-creation has been found to assist in managing the uncertainties that enshroud ventures operating in uncertain contexts (Read and Sarasvathy 2012). Value co-creation can be viewed as a behavioural heuristic that effectual entrepreneurs learn and employ. We suggest that this behaviour serves as an important antecedent to the social venture’s ability to drive social innovation.

Sun and Im (2015) argue that new opportunities for social ventures could be co-created by multiple stakeholders, such as microfinance institutes, borrower communities, governments, and employees. This sentiment is echoed by Schirmer (2013) and Harima and Freudenberg (2020). Like most entrepreneurs, social ventures typically operate under conditions of resource scarcity (Di Domenico, Haugh, and Tracey 2010). Partnerships offer these firms the potential to generate social impact ‘far beyond what the individual contributors could achieve independently’ (Wei-Skillern et al. 2007, 191). To this end, value co-creation enables both the social venture and its partners—whether donors, beneficiaries, government agencies, or others—to create outcomes beyond what either entity could create on its own. Given that social ventures pursue social and economic objectives simultaneously, value co-creation could be a key behaviour that enables the firm to drive social innovation, despite operating with scarce resources and in contexts ripe with uncertainty. Following this logic, we propose:

Hypothesis 2. A positive relationship exists between value co-creation and performance in social ventures.

Hypothesis 3. Value co-creation mediates the relationship between

effectual logic and performance in social ventures.

Materials and method

Sample and data collection

To test our hypotheses, we focussed our empirical effort on data collection in China. China is an appropriate setting for this study given that it has experienced rapid growth over the past several decades and also faces many social issues. To collect the data for this study, we created a team of academic researchers, graduate assistants, and a market research company. A team approach allowed us to gain access to social ventures from across geographic regions. The data collection was conducted in two steps. In the first step, to ensure respondent quality and response validity, we distributed a pre-survey of 27 social ventures in Suzhou and Shanghai from July to August 2015. All the respondents were top executives, such as the general manager or the founder, who had familiarity with (1) the decision-making approach in the firm (effectual or otherwise) and (2) the activities that engaged partners (value co-creation or otherwise). The pre-survey was completed via face-to-face interviews or telephone interviews and allowed us to assess and revise our questions. Our final sample does not include those pre-survey respondents.

In the second step, we identified the potential respondents of social ventures via websites, news reports, and QQ and WeChat (two popular instant messaging apps used in China). We adopted the primary criterion for selecting the sample firms: whether the focal firm's main business objective is to solve social problems. After the first round of screening, 189 firms were selected as potential respondents. Next, we contacted the selected firms for face-to-face or telephone interviews based on their locations. If they were in the provincial cities such as Shanghai, Beijing, and Guangzhou, face-to-face interviews were conducted; otherwise, they were interviewed by telephone. The interviews consisted of survey questions. Seventeen of the surveys were invalid (missing responses). The final sample included 172 firms (90% response rate), representing every province in China except for the Xinjiang Vygur Autonomous Region and Tibet. Among those firms,

the priority business was to ‘help the disadvantaged group’ (45.9%), ‘community development’ (25%), ‘education’ (19.8%), ‘environment protection’ (18.6%), or ‘job offering’ (8.1%). Some firms selected multiple responses (i.e. prioritised more than one social issue). [Table 1](#) reports the demographics (i.e. founder’s gender, age, education level, managerial experience, entrepreneurial experiences, and the type of social problem addressed) of the social ventures in our sample.

Table 1. Demographic features of sample firms.

Statistical variables	Category	Frequency	Ratio (%)
Gender	Male	114	66.30
	Female	58	33.70
Age	20–29	31	18.02
	30–39	84	48.84
	40–49	50	29.07
	Above 50	7	4.07
Education	Junior school	11	6.40
	High school	41	23.84
	Bachelor	83	48.26
	Postgraduates	37	21.51
Previous managerial experiences	Yes	84	48.84
	No	88	51.16
Previous entrepreneurial experiences	Yes	16	9.30
	No	156	90.70
Social problems solved or solving	Environment protection	32	18.61
	Community development	43	25.00
	Helping disadvantaged group	79	45.93
	Education	34	19.77
	Job offerings	14	8.14
	Others	21	12.21

Measures

Effectuation

Following Chandler et al. (2011), we used the four dimensions of effectuation: (1) experimentation, (2) affordable loss, (3) flexibility, and (4) pre-commitments. We adopted a five-point Likert-type rating scale anchored by

'strongly disagree' and 'strongly agree', and each respondent was asked to 'consider the start-up phase of your venture and indicate the degree to which you agree or disagree with each of the following statements' (Chandler et al. 2011, pp 381). Adopting Chandler et al. (2011) validated scale, for experimentation, we asked five questions, such as 'We experimented with different business models.' The Cronbach's alpha for this measure was $\alpha = 0.72$. For the affordable loss dimension, participants responded to three statements such as 'We were careful not to commit more resources than we could afford to lose.' The Cronbach's alpha for this measure was $\alpha = 0.75$. Participants responded to four statements, such as 'We allowed the business to evolve as opportunities emerged' for the flexibility dimension, and the Cronbach's alpha for this measure was $\alpha = 0.81$. Finally, for the pre-commitments dimension, participants responded to two statements, such as 'We used pre-commitments from customers and suppliers as often as possible'. The Cronbach's alpha for this measure was $\alpha = 0.54$. The scale in its entirety is included in the [Appendix](#).

Value co-creation

Value co-creation is one of the key variables in our research. However, this variable was mainly studied in the context of commercial enterprises and has not been operationalised in social enterprises. This study modifies the scale based on the existing scales of value co-creation and verifies the reliability and validity of the scale using statistical methods ([Table 2](#)).

At present, the scale of value co-creation is diversified. For example, Yi and Gong (2013) captured value co-creation in two dimensions of customer behaviour: civic behaviour and participation behaviour. However, the scale is primarily used from the perspective of the customer rather than the enterprise. Some other researchers measure value co-creation with four dimensions: risk, channel, dialogue, and transparency (Albinsson, Perera, and Sautter 2016; Taghizadeh et al. 2016). However, in many relevant empirical studies, the measurement of co-creation behaviour mainly focussed on evaluating the value of co-creation. For example, Ma, Wang, and Zhao (2015) measured value co-creation

using items such as product development, strategic discussion, decision-making advice, and relationship maintenance behaviour. Zhang and Chen (2008) operationalised value co-creation using four items: market and sales, new product development, service, and temporary staff; Aarikka-Stenroos and Jaakkola (2012) argued that value co-creation behaviour includes five dimensions: requirement discovery, solution application, process, and resource organisation, product design and solution, and management of value conflict. Therefore, this paper measures the independent variables of value co-creation by measuring critical value co-creation behaviours.

Table 2. Question items for value co-creation.

1. We jointly made diagnosis of needs with partners/stakeholders
2. We jointly designed, produced or provided services with partners/stakeholders
3. We established joint team to address the issues in products or services
4. We have many face-to-face communications with our partners.
5. We share our resource with partners/stakeholders.
6. We organise procedures and resources together with our partners
7. We make decisions and share risks together with our partners when conflicts appear.

The scale used in our research was based on Ngo and O’Cass’s scale (2009), which is composed of five items: ‘we set up a joint team, to solve the issues of products and services’, ‘we diagnose problems of the demand side with customers’, ‘we design, produce, or offer services with customers’, ‘we organize processes and resources together with customers’, and ‘we have many face-to-face communications with customers.’ As the scale is designed to measure commercial enterprises and social enterprises having social benefit externalities, it is different from the scale designed purely for commercial enterprises. In addition, we made further revisions after referring to the literature of value co-creation in social enterprises and public sectors. For example, in the research on public sector citizens’ participation to promote social innovation, Voorberg, Bekkers, and Tummers (2015) proposed that, in the process of value co-creation, management opinions should be aligned and risks should be considered, which is in alignment with Aarikka-Stenroos and Jaakkola (2012) measurement of value co-creation behaviour. At the same time, they also

argued that the two parties offer resources to each other to boost the key behaviour of value development. Meanwhile, Pellicano et al. (2014) pointed out that, besides the similar value co-creation behaviour demonstrated by commercial enterprises, more consideration should be given to the sharing and acquiring of resources. Therefore, we put forward the two items of 'We share our resource with partners/stakeholders' and 'We make decisions and share risks together with our partners when conflicts appear.' In the end, the scale in our research includes seven items. To measure responses, we used a five-point Likert-type scale, anchored by 'strongly disagree' to 'strongly agree.'

The Cronbach's alpha coefficient of value co-creation was 0.76, which shows high scale reliability of the formal survey.

The result of confirmatory factor analysis also demonstrates its higher validity ($\chi^2/DF=2.289$, $GFI=0.957$, $RMSEA = 0.087$, $NFI = 0.937$, $TLI = 0.935$, and $CFI = 0.963$).

Performance

Performance was measured by having each respondent consider the firm's past four years when evaluating its growth in terms of employees, beneficiaries, sales revenue, scale, and donors compared with competitors or similar firms. Respondents responded to five statements related to firm performance using a five-point Likert scale anchored by 'Strongly Disagree' and 'Strongly Agree.' These items are included in the table in the [Appendix](#). The Cronbach's alpha was a $\frac{1}{4}0.76$ for the performance measure.

Control variables

To account for the effects of other factors on performance, we included firm-level control variables that have been shown to impact performance, such as the firm's size, age, and its slack resources. *Firm size* was operationalised as the natural log of the number of employees of the firm. *Firm age* was measured as the number of years since the firm had been founded. We also included *slack resources* as a control variable. Each of the four items for slack resources was measured on a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5

(Strongly Agree). These items are included in the table in the [Appendix](#). The Cronbach's alpha was a $\frac{1}{4}$ 0.70 for the slack resource measure.

To control for the effect of external factors on firm performance, we included *government support* as another control variable. We used a five-point Likert scale similar to slack resources anchored by 'strongly disagree' to 'strongly agree.' The five items are included in the table in the [Appendix](#). The Cronbach's alpha was a $\frac{1}{4}$ 0.92 for the measure of government support.

Results

Reliability and validity

Following the guidelines of Anderson and Gerbing (1988), we tested our hypotheses in two steps. First, we conducted a confirmatory factor analysis (CFA). The CFA model proved a good fit for the data. However, further inspection of the modification indices indicated a slight adjustment of the model, such that a dropped item C72L of *slack resources* ('Does your company possess extensive network to acquire different information and resources?'), improved the model fit ($\chi^2[109, n = 172] = 173.34, p < 0.001$; CFI = 0.95, TLI = 0.94, SRMR = 0.06, RMSEA = 0.06).

[Table 3](#) reports individual item loadings and the composite reliability of each scale. The smallest composite reliability is 0.76. Moreover, all but four of the factor loadings are greater than 0.70, which implies that, for each item, the variance of error accounts for no more than 50% of the variance of each item. The four exceptions have factor loadings of 0.60 (item 1 of performance), 0.54 (item 4 of effectuation), 0.68 (item 1 of slack resources), and 0.68 (item 3 of government support). However, the composite reliabilities of the corresponding scales are 0.83, 0.85, 0.79, and 0.76, respectively. These results suggest that these scales possess good convergent validity (Kline 2005).

[Table 4](#) shows the means, standard deviations, and correlations. The correlations between these latent constructs are low, indicating good convergent construct validity (Kline 2005). We also calculated the square root of the average variance extracted(AVE) for each construct, as shown in the diagonal elements of

Table 4. The square root of AVE is greater than the correlations in the corresponding rows and columns, indicating good discriminant validity of all the constructs (Fornell and Larcker 1981).

Table 3. Factor loadings and composite reliability for each scale.

Construct	Item	Standardized confirmatory factor analysis loading	Composite reliability
Performance	1	0.60	0.83
	2	0.90	
	3	0.88	
Value Co-creation	1	0.79	0.92
	2	0.85	
	3	0.91	
	4	0.86	
Effectual Logic	1	0.72	0.85
	2	0.75	
	3	0.81	
	4	0.54	
Slack Resources	1	0.68	0.79
	2	0.78	
	3	0.92	
Government Support	1	0.72	0.76
	2	0.76	
	3	0.68	

Model Fit Statistics: $\chi^2_{(109)} = 173.34$, CFI = 0.95, TLI = 0.94, RMSEA = 0.06, and SRMR = 0.06.

Table 4. Variable means, correlations, and AVEs.

Correlation matrix	Mean	S.D.	1	2	3	4	5	6	7
1. Performance	2.41	0.99	0.648						
2. Value co-creation	3.48	0.86	0.336	0.729					
3. Effectual logic	1.36	0.79	0.432	0.404	0.507				
4. Slack resources	3.25	0.76	0.457	0.226	0.370	0.584			
5. Government support	3.89	0.62	0.118	0.009	0.189	0.296	0.520		
6. Size	2.99	1.53	0.156	0.102	0.128	0.179	0.071	1.000	
7. Age	8.97	6.54	0.151	-0.003	0.195	0.204	0.457	0.562	1.000

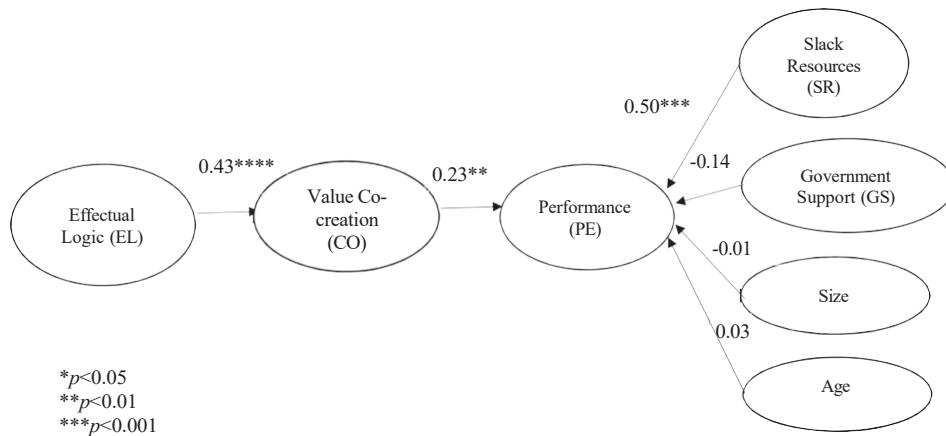


Figure 1. Results of structural equation modelling.

Table 5. Summary results of the structural model.

Description	Path	Estimate	<i>t</i> -Value
1. Effectual logic and value co-creation	EF-CO	0.43	5.79***
2. Value co-creation and performance	CO-PE	0.23	2.93**
3. Slack and performance	SL-PE	0.50	5.58***
4. Government support and performance	GS-PE	-0.14	-1.48
5. Size and performance	Size-PE	-0.01	-0.14
6. Age and performance	Age-PE	0.03	0.29

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

After estimating the CFA model, we evaluated the structural equation model (SEM) to test our hypotheses. Figure 1 and Table 5 present the results of our SEM model. As Figure 1 shows, the fit statistics indicate an acceptable fit of the structural model with the data ($\chi^2[138, n = 172] = 228.55, p < 0.001$; CFI = 0.94, TLI = 0.92, SRMR = 0.07, RMSEA = 0.06). The model illustrates that effectual logic is positively and significantly related to the value co-creation latent variable ($b = 0.43, p < 0.001$). Further, value co-creation is positively and significantly related to performance ($b = 0.23, p < 0.01$). We also noticed that the relationship between slack resources and performance is positive and significant, aligning with extant

research (Cyert and March 1963; Pfeffer and Salancik 1978). Government support and firm size have nonsignificant but negative relationships with performance. Firm age has a positive but nonsignificant relationship with performance.

Indirect and total effects of effectual logic

To test the significance of the indirect and total effects of effectual logic on performance, we built bias-corrected confidence intervals based on a bootstrapping mediation analysis with 5,000 replications (Efron and Tibshirani 1993). The indirect pathway between effectuation and performance is significant ($b = 0.08$, $p < 0.05$; CI = 0.20, 0.63, $p < 0.05$), which indicates that value co-creation works as a mediator between effectual logic and performance.

Discussion

In this paper, we theorised and tested a model of effectual logic, value co-creation, and performance in social ventures. We hypothesised that effectual logic would be positively related to value co-creation, an alternative form of organising for social ventures. We further argued that value co-creation would be positively related to the performance of social ventures. To test our hypothesis, we collected data from 172 social ventures representing nearly every province in China. The results of our data analysis via structural equational modelling provide support for our hypotheses.

This research suggests that effectual logic could be adopted by social ventures in an environment with unknowns and uncertainty. Such cognition could enable the social venture to find an alternative form of organising, value co-creation to drive social innovation. By engaging stakeholders such as beneficiaries, customers, employees, donors, governments, and investors, the social venture is better able to achieve its goal of creating both social and economic value. Thus, our study promotes a path for social innovation in social ventures—value co-creation is a key behaviour that helps social ventures achieve their goals despite operating in challenging contexts.

Theoretical implications

This study has several implications to the literature on social entrepreneurship. First, we demonstrate the utility of a theoretical perspective that has received significant attention in the entrepreneurship literature for social enterprises. By applying effectuation theory to the empirical research of social entrepreneurship, we follow recent theoretical and empirical examinations to suggest that cornerstones of entrepreneurship research—such as effectual logic—may ‘look’ different in rapidly-growing economies. Given that research has found that social ventures often operate in challenging contexts with both economic and social unknowns, we extend research on effectual logic by investigating entrepreneurial decision-making in contexts rife with unknowns and uncertainty (Wiltbank et al. 2006; Dew, Read, et al. 2009). The findings provide new theoretical insight by suggesting that effectual logic is especially important for social ventures operating in rapidly-growing economies, as it helps these firms focus on social innovation, followed by finding the means to innovate via value co-creation.

Second, we add to the literature on organising forms (Lan et al. 2014; Poon, Zhou, and Chan 2009; Yu 2011) to suggest co-creation as a relevant alternative form of organising for social enterprises. In addition to adding this taxonomy of organising forms, we operationalise the co-creation construct as a variable using survey questions in the context of social ventures. Our findings suggest that for social ventures, value co-creation may enable the firm to work around institutional voids such as lack of government support or established peers, to drive social innovation. As a new form of organising social ventures, this construct and variable could be incorporated in more empirical research of the strategy and management of social ventures in the future.

Third, we add to the literature on social ventures to reveal that co-creation is also instrumental to the growth, such as the number of employees, beneficiaries, sales revenue, and scale, of social ventures. While the performance of social ventures has been studied (Bloom and Smith 2010), we contribute to the empirical work focussed on the drivers of successful scaling for social entrepreneurial organisations. Specifically, we add co-creation as an antecedent of social venture

performance, augmenting the discussion of social venture performance antecedents (Mair & Noboa, 2006).

Finally, we also examine the moderating effect of co-creation which connected the effectual logic and performance. Our finding helps social entrepreneurship scholars better understand how each piece of the social venture puzzle contributes to economic and social value creation in social ventures.

Practical implications

Our research also carries important practical implications. First, our research provides significant insights to the managers of social ventures navigating in contexts with many economic and social unknowns. Effectual logic has been found to be a valuable way of decision-making when expert entrepreneurs pursue economic opportunities. However, for social entrepreneurs who operate their businesses in a different paradigm, is effectual logic still helpful for making decisions? In this research, we attempt to answer this question by surveying 172 social entrepreneurs about their perception of effectual logic and the performance of their social ventures. The result of the analysis indicates the function of effectual logic for social entrepreneurs. Our study shows that, in the face of uncertainty and unknowns, effectual logic can be helpful for social entrepreneurs to wade through an environment that differs from more developed economies in terms of culture, norms, institutions, and so forth.

Second, this study is instrumental in helping managers in social ventures develop alternative forms of organising so that they can operate as viable business entities and, at the same time, work around a system of unknowns. The organising form is always a concern of social entrepreneurs who face unique challenges related to growth, particularly in managing their stakeholders. The issue is even more prominent for social ventures in rapidly-growing economies since there are more unknowns associated with the social, cultural, institutional, and political environments. Some social ventures follow traditional organising forms such as rural enterprises (Poon, Zhou, and Chan 2009) and rural cooperatives (Lan et al. 2014) that have historically existed in China. Some social ventures experiment

with other forms of organising with their stakeholders, such as partnerships, alliances, and joint ventures (Di Domenico, Tracey, and Haugh 2009; Seelos and Mair 2007). In this research, we propose that, instead of solving social problems separately and independently, social entrepreneurs should encourage stakeholders such as beneficiaries, donors, government, and customers to define and solve social problems together. This value co-creation will help the social venture create both social and economic value and prevent the firm from falling into the trap of mission drift.

Third, our results suggest that there is also an ethical consideration that social ventures face related to stakeholder engagement for co-creation. By definition, social ventures seek to create both social and economic value, thus contributing to the common good, or the good for society as a whole (Argandoña, 1998). Social ventures must select partners also seeking to contribute to the common good so that both entities can co-create ethically. Suppose the social venture finds itself engaging with stakeholders that further their own benefit over the benefit of the society, or perhaps benefit the social venture's economic good over its social good. In that case, the social venture might need to end that engagement to prevent itself from falling into the trap of mission drift or even failing to survive. In sum, our study suggests that co-creation is an important antecedent of performance in social ventures and implies that social ventures have an ethical consideration of whom to co-create with to ensure this performance is achieved ethically.

Limitations and future research

Our research is not without limitations. First, based on the extant literature, we attempted to operationalise value co-creation as a single dimension construct and capture it from the enterprise perspective. However, it could be a multi-dimensional construct with more items under each dimension. With the development of value co-creation literature of social entrepreneurship, additional questions could be added under each umbrella. Meanwhile, other stakeholders, such as beneficiaries, donors, partners, could also be involved when evaluating

such a variable which is subjective by nature.

Second, we borrowed the scales of effectual logic from Chandler et al. (2011). Similar to their work, the measurement of the four dimensions of effectuation was acceptable except for pre-commitments. In their work, the pre-commitment dimension has only two items with low reliability ($\alpha = 0.62$). The loading of pre-commitment on the effectual logic construct was also low ($\alpha = 0.54$). A possible reason for this low loading could be because pre-commitments/alliances are used in both causation and effectuation processes by entrepreneurs (Chandler, DeTienne, and Mumford 2007). Thus, the questionable measurement of pre-commitment could impact the accuracy of our findings. Future research can approach effectual logic as a multidimensional construct and examine the effect of each dimension of effectual logic on value co-creation. Since previous research shows that pre-commitments could have double-loading on effectuation and causation (Chandler et al. 2007), the effect of pre-commitments on value co-creation might be different from other dimensions of effectual logic.

Third, the research is conducted in China. Although this economy has experienced very rapid growth over the past several decades that may be uncharacteristic of other economies, the findings of this study may not be generalisable to (1) developed countries or (2) other rapidly-growing economies. To verify the generalisation of our findings to social ventures in other rapidly-growing economies such as Libya and India, more research is needed in those countries.

Overall, this study finds support for the utility of effectual logic in social ventures, as well as the value of co-creation for social ventures, which not only answers the call of previous research, but also creates the need for further examination of these relationships across economies.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix

Scale items

Effectual Cognition (four dimensions based on Chandler et al. 2011)

1. Experimentation:

- We experimented with different products.
- We experimented with different business models.
- The product/service that we now provide is essentially the same as originally conceptualised.
- The product/service that we now provide is substantially different than we first imagined.
- We tried a number of different approaches until we found a business model that worked.

2. Affordable loss:

- We were careful not to commit more resources than we could afford to lose.
- We were careful not to risk more money than we were willing to lose with our initial idea.
- We were careful not to risk so much money that the company would be in real trouble financially if things didn't work out.

3. Flexibility:

- We allowed the business to evolve as opportunities emerged.
- We adapted what we were doing to the resources we had.
- We were flexible and took advantage of opportunities as they arose.
- We avoided courses of action that restricted our flexibility and adaptability.

4. Pre-commitments:

- We used a substantial number of agreements with customers, suppliers and other organisations and people to reduce the amount of uncertainty.
 - We used pre-commitments from customers and suppliers as often as possible.
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(continued)

Continued.

Effectual Cognition (four dimensions based on Chandler et al. 2011)

Performance

Please rank the development of your company during past four years for the below questions.

- Compared with our competitors or similar organisations, the number of employees in our company grows very fast.
- Compared with our competitors or similar organisations, the number of beneficiaries of our company grows very fast.
- Compared with our competitors or similar organisations, the number of sales revenue grows very fast.
- The scale of our company will continue to grow.
- The donation and sponsorship of our company will continue to grow.

Slack resources

- Does your company possess abundant capital to achieve your operational objective?
- Does your company possess abundant talents in the industry?
- Does your company possess extensive network to acquire different information and resources?
- Compared with competitors, how abundant are the three resources mentioned above your company possess?

Government support

- Government policies encourage cooperation and value sharing between our company and other social enterprises or companies.
 - Government developed clear and measurable social objectives.
 - Government allowed us to have sufficient time to import new products or services.
 - Government developed common measurement and performance reporting system, and collected benchmark (baseline) data for our reference.
 - Government subcontracted some social service businesses to us.
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