

PLANNING EFFECTUAL GROWTH: A STUDY OF EFFECTUATION AND CAUSATION IN NASCENT FIRMS

Jeroen Kraaijenbrink, University of Twente, NIKOS, The Netherlands

Tiago Ratinho, University of Twente, NIKOS, The Netherlands

Aard Groen, University of Twente, NIKOS, The Netherlands

ABSTRACT

Two main contrasting approaches are typically used in entrepreneurship literature to explain how new ventures strategize: causal/planned strategies and effectual/emergent strategies. In this study, we explore the use of causal and effectual strategies within micro and small firms. Our results show that bigger companies typically used more planned strategies while simultaneously relying on effectual mechanisms. We observe that companies operating in known markets, anchoring their business ideas on experience and having a strong growth intention grow bigger. This suggests that causal and effectual mechanism can co-exist and lead to growth. Theoretical and practical implications of these findings are discussed.

INTRODUCTION

Entrepreneurship scholars have made significant efforts to explain how and why new firms originate, survive, and grow (Davidsson, 2004; Gartner, 1985; Schumpeter, 1934). Two main contrasting approaches have emerged. Entrepreneurship can be seen as *causal*, that is, a rationally planned, risk-taking and linear process of opportunity recognition and exploitation (e.g., Bhawe, 1994; Bird, 1988; Jenkins & Johnson, 1997; Shane & Venkataraman, 2000). In this view, entrepreneurs rely on prediction as source of information and develop their ventures based on a specific set goal. Alternatively, adaptive models of the entrepreneurial process were developed. Such approaches consider entrepreneurship as a means-driven, risk-averse, and circular process involving improvisation, bricolage, and effectuation (e.g., Baker & Nelson, 2005; Sarasvathy, 2001). Among these, effectuation is gaining popularity (Sarasvathy, 2001, 2008).

The debate about effectuation and causation goes beyond opposing these views. For instance, planning activities are widely regarded as useful under certain conditions and within given environments (Gruber, 2007; Honig & Karlsson, 2004). Also, Wiltbank and colleagues (2009) argue that mechanisms belonging to both apparently antagonist strategies can co-exist. However, effectual or causal strategies are seldom related to firm performance.

ADD STH ABOUT ENTREPRENEURIAL STRATEGY AND GROWTH

This study explores the strategies employed by nascent firms and relates that to subsequent growth. We seek to understand whether there are differences between the usage of effectual and causal strategies and relate that to firm performance. We will show which strategies lead to superior performance.

LITERATURE REVIEW AND HYPOTHESES

The role of planning in business has been debated at least since the 1960s in the field of strategic management. The fierce debate between Henry Mintzberg and Igor Ansoff illustrates this very well (Ansoff, 1991, 1994; Mintzberg, 1990, 1991). While Ansoff and other proponents see a crucial role for planning in strategy, Mintzberg and others argue that planning is futile and that firms should adopt a more emergent learning approach. A similar debate appeared in the entrepreneurship literature of the last decade. One of the first attempts coming from the field of strategic management to theorize entrepreneurship described the phenomenon as a planned process of opportunity exploration and exploitation (Shane & Venkataraman, 2000). Yet, there is increasing attention to entrepreneurship as an emergent learning process involving bricolage (Baker & Nelson, 2005), improvisation and effectuation (Sarasvathy, 2001).

Effectuation literature breaks up the planning-emergence dichotomy into finer grained distinctions (Sarasvathy, 2001, 2008). Rather than a simple one-dimensional distinction between two approaches, Sarasvathy's work on effectuation brings forward five separate dimensions on which the two approaches can be differentiated.

Effectuation vs. Causation: Background and Dimensions

The theoretical roots of Sarasvathy's effectuation model can be found in the work of Frank Knight, Jim March, Herbert Simon, and Karl Weick. Knight's (1921) notion of 'true' uncertainty points at the fundamentally unknown future that many entrepreneurs face when starting up their business. Under conditions of true uncertainty, probabilities of success are unknown and unknowable. This implies that prediction is impossible and that entrepreneurs have to rely on other ways to guide their activities. March's work on learning, uncertainty, and the garbage can model of organizations (Cohen, March, & Olsen, 1972; March, 1991), together with Simon's (1991) notion of bounded rationality, points at the essential goal ambiguity and limited rationality underlying many organizational decisions. Based on these ideas, the effectuation model assumes that goals are initially ambiguous and become more specific over time. Finally, the notion of enactment is central for the effectual model (Weick, 1969, 1995). It implies that entrepreneurs do not simply face an objective environment but rather select and create it through their actions (cf. Santos & Eisenhardt, 2009).

Sarasvathy (2001) integrates the insights from these theoretical roots in the a model of effectual reasoning that explicitly addresses a logic of control (rather than prediction), endogenous goal creation, and a (partially) constructed environment. After amendments in the years thereafter (e.g., Sarasvathy, 2001), triggered by empirical research on experienced entrepreneurs, the effectuation model today is characterized by five dimensions:

Non-Predictive as Opposed to Predictive Control: The first dimension on which causation and effectuation approaches differ is the extent to which entrepreneurs rely on prediction. While causal entrepreneurs try to accurately predict the future, effectual entrepreneurs engage in non-predictive control by eschewing predictive information in favor of what they can actually control at any given point in time (Wiltbank, Dew, Read, & Sarasvathy, 2006).

Means-Driven as Opposed to Goal-Driven Action: The second dimension that distinguishes causation from an effectuation approach concerns the starting point for taking action. A causation approach is goal-oriented. This means that goals determine the actions that should be taken and means that should be gathered. On the other hand, an effectuation approach, starts from means and considers what can actions these means allow and what goals can be achieved with them.

Affordable Loss as Opposed to Expected Return: The third dimension concerns the entrepreneur's attitude towards risk and returns. Entrepreneurs adopting a causal approach tend to focus on and calculate expected future returns, thereby choosing opportunities with the highest expected return. Conversely, effectual entrepreneurs focus on how much they can afford to invest in a venture. Hence, their choices are not guided by uncertain returns in the future, but by setting limits to what they are willing to invest.

Partnerships as Opposed to Competitive Analysis: A fourth distinction relates to the entrepreneur's attitude towards others. The traditional, causal, view of entrepreneurs is one of single persons or single companies competing with others. The causal entrepreneur engages in a competitive analysis and selects those market(s) where competition would be relatively easy. After making this choice, causal entrepreneurs look for potential partners and stakeholders that could help them to compete. Effectual entrepreneurs, on the other hand, build partnerships and bring stakeholders on board even before clarifying the markets they will serve and other goals for the venture.

Leveraging as Opposed to Avoiding Contingencies: The final dimension concerns how entrepreneurs deal with contingencies. Causal entrepreneurs are working towards a specific goal and are trying to avoid unexpected surprises. Anything that has not been anticipated in advance is seen as a possible threat to achieving their goals and should therefore be avoided. Effectual entrepreneurs do the opposite. Rather than avoiding contingencies they attempt to use them to the best extent. They make do with what comes their way and attempt to transform both positive and negative contingencies into useful opportunities for their venture (Dew, Read, Sarasvathy, & Wiltbank, 2009).

The first four of these five dimensions can be studied by means of business plans. For example, business plans can show the extent to which entrepreneurs try to predict demand for their product, the extent to which their firm is based on existing means and experience, how they make their investments, and the extent to which they collaborate with others. The fifth dimension, however, concerns how entrepreneurs deal with unexpected events. These, by definition, cannot be anticipated in a business plan. While business plans may contain various scenarios of what may happen, such scenarios do not capture whether and how entrepreneur will leverage or avoid contingencies. Therefore, this fifth dimension was left out of this research.

Effectuation vs. Causation: Effect on Firm Performance and Growth

Research on the effect of effectuation and causation on the performance of small firms and new ventures dates back to, at least, the early 1980s. While not using Sarasvathy's recently developed terminology, several studies were conducted to establish a relationship between planning and various indicators of firm performance such as including survival, growth and profit. Taken together, these studies yield mixed results. Rue and Ibrahim (1994), for example, found a positive but weak relationship between planning sophistication and growth in sales and other performance indicators of small firms. In contrast, Robinson and Pearce (1983) found earlier that small banks using formal planning did not outperform those employing non-formal planning in their sample, in contradiction to research on bigger businesses.

Small firms are more comparable to start-ups than to large organizations, but there remain differences. Matthews and Scott (1995) found for example that entrepreneurial firms use more sophisticated planning methods than small firms. In another study, against Robinson and Pearce's findings, Bracker, Keats and Pearson (1988) analyzed small firms in growth industries and found a significant relationship between planning and performance, especially structured strategic

planning outperforming structured operational planning and unstructured planning in terms of financial performance. Similarly, Shrader, Mulford and Blackburn (1993) investigated small firms and found that operational planning in general is important, and probably more so for small firms, and that strategic planning also positively relates to performance.

To get insight into these mixed results, Schwenk and Schrader (1993) conducted a meta-analysis on the relationship between strategic planning and financial performance in small firms. They concluded that there is straightforward support for the general assertion that strategic planning does have a significant, positive association with performance across studies and that this association, despite small effect sizes, is unmistakable. Along that same line, Delmar & Shane (2003; Shane & Delmar, 2004) conclude that business planning enhances founders' product development and venture organizing activities and reduces the hazard of venture disbanding. Yet, as Honig & Karlsson (2004) study of the role of written business plans shows, planning – particularly when done in response to institutional forces – does not have an evident effect on firm performance.

Gruber (2007) tried to resolve the ongoing debate using a process and contingency perspective. He found that the benefits of planning depend on the amount of planning and the focus. As he puts it, entrepreneurs need to be efficient planners, and need to know exactly what to plan in new firm creation, rather than just plan, to achieve superior outcomes (p. 801). Moreover, he found that the influence of efficient planning also varies with the dynamism of the environment, and proposes a new paradigm: planning processes need to be governed by different planning regimes, depending on the type of founding environment (p. 801). Observing that the debate on the role of planning is still unresolved today, Brinckmann, Grichnik and Kapsa (2010) conducted a meta-analysis focusing on moderating contextual factors. Their analysis confirmed the benefits of planning for both new and established firms. More importantly, though, they found several moderating variables, such as uncertainty, limited prior information, and an absence of business planning structures and procedures that negatively moderated the relationship between planning and performance. The two most important contextual variables that explain the contingency are the development stage (small vs. new firms) and the cultural context, i.e. the amount of uncertainty avoidance imbedded in the culture, which affects the behavior and the returns after the planning stage. Hence we must conclude that previous research has neither confirmed nor disconfirmed that planning has an effect on firm performance or growth.

In addition to these several studies on the effect of planning on firm performance, entrepreneurship scholars have studied the more fine-grained distinction between the five dimensions that distinguish effectuation from causation. By analyzing these dimensions individually, rather than at the aggregate level of planning vs. emergence, a better understanding should be possible of the relationship between the approach chosen and firm performance. Yet research on effectuation and causation so far has been primarily descriptive. In the past decade, an increasingly detailed understanding has developed the two processes and their distinctions. Furthermore, there is increasing empirical evidence that effectuation approaches are particularly often used by experienced entrepreneurs and under conditions of uncertainty. Novice entrepreneurs and entrepreneurs operating in relatively predictable markets, on the other hand, tend to favor causation approaches (Chandler, DeTienne, McKelvie, & Mumford, 2009; Dew, et al., 2009; Sarasvathy, 2001).

However, empirical proof of an effectuation approach or a causation approach leading to advantages or higher performance in start-ups has only just begun to be gathered. An example is Wiltbank et al (2009) who studied performance differences of angel investors. They find “empirical evidence in support of the arguments in the theory of effectuation, specifically, that efforts anchored on existing means, using the principles of affordable loss, pre-committed

partnerships, and leveraging surprise, can provide useful benefits under uncertainty” (p. 129). They furthermore found that "angel investors who emphasize control experience fewer investment failures without experiencing fewer homeruns. The direct relationship of prediction to outcomes was not supported in this study" (p. 129). While angel investment success cannot be translated directly to entrepreneurial success, these findings do indicate that control-based strategies result in a higher chance of success of the start-ups invested in.

Similar results have been found by Read, Song and Smit (2009) in their meta-analytic review of papers published in the Journal of Business Venturing on the relationship between effectuation and firm performance. For their meta-analysis they took four of the five effectual variables as independent variable: means vs. ends, partnerships vs. competitive analysis, affordable loss vs. maximizing returns, and leverage vs. avoiding contingencies. They reviewed 48 studies, encompassing 9897 new ventures, and found a positive relationship with performance for each of the four dimensions, except for the affordable loss vs. maximizing returns dimension.

The limited empirical research on effectuation so far and the larger literature on planning to date provide a blurred picture on the relationship between effectuation/causation and firm growth and performance. While some studies find positive relationships between causation and growth/performance others find no relationship or a positive relationship between effectuation and growth/performance. Faced with these mixed results, we adopt four sets of competing hypotheses with the four dimensions of effectuation and causation as independent variables to guide our empirical study. For the dependent variable, we were restricted by our data. Given that all 92 firms in our sample have remained small and given that financial data of these firms was unavailable, our dependent variable is whether a firm has been able to overcome the threshold of a micro-firm.

RESEARCH METHODS

Using business plans

Despite their intuitive association with planning and prediction, business plans, however, are not necessarily connected to causation approaches only. Business plans provide detailed information on the origins of a business idea, the actions planned by the entrepreneurs and the extent to which entrepreneurs have clear goals and plans for the future. As such, business plans provide a snapshot of the entrepreneurs’ approach at the time of starting their business. This snapshot can show elements of both the causation and the effectuation approach.

Sample

Data were collected from the archival records of one of the oldest incubation programs in the Netherlands. This setting was chosen given the candidates’ requirement of writing and presenting a business plan to be accepted and the long time period over which data was collected – over 15 years. For this paper, we used the business plans of 92 firms in this database. Further secondary data was collected from the Dutch Chamber of Commerce.

Variables

The following measures were used:

Dependent variables. Measuring new ventures' growth is a significant challenge for entrepreneurship research (Brush & Vanderwerf, 1992). We chose to use employment measured in the number of employees as the main dependent variable for two reasons. First, small firms are not required to provide financial information while declaring the yearly average number of employees is compulsory in yearly balances. Second, growing in terms of employees reflects the fact that the initial team cannot undertake every managerial task. This threshold is typically acknowledged in stages theories of firm growth (Levie & Lichtenstein, 2010; Stanworth & Curran, 1976).

We further coded our dependent variable using a dichotomous variable identifying two major firm categories: micro companies (1-9 employees) and small companies (10-49 employees). This procedure will allow us to investigate growth in terms of overcoming a specific size threshold. This measure also ameliorates some of the shortcomings that can exist when using relative growth measures to the extent that it is not dependent of firm size (Davidsson, Delmar, & Wiklund, 2006, p. 69). Finally, this distinction is often used in large scale firm ecology studies and as criterion for transnational institution to study companies (EC, 2005; Gibson & Vaart, 2008).

Independent variables. The distinction between effectuation and causation was measured on four of the five dimensions reported in the literature (Sarasvathy, 2001). One dimension – leveraging vs. avoiding contingencies – could not be measured because business plans do not reveal how contingencies during the process have been dealt with. Based on previous operationalizations of effectuation (Chandler, et al., 2009; Dew, et al., 2009; Wiltbank, et al., 2009) the remaining three dimensions were operationalized as yes/no questions and Likert type indicators (see Table 1).

++ PUT TABLE 1 ABOUT HERE ++

Control variables. We controlled for *Company age*, measured in years since inception till most updated year, *Team-size* as size of the entrepreneurial team when entering starting the company; *Offering*: product, service or combination; *Educational background*: technical or business related; *Highest degree* attained by any of the entrepreneurs and *Amount of support received* measured in total amount of business support meetings each company requested.

Based on a pilot set of 15 business plans, a coding scheme was developed to measure the independent and the control variables. Consequently, each business plan was analyzed independently by two coders. Inter-rater reliability was assessed by the weighted kappa coefficient, a correlation that corrects for the degree of convergence between raters that would be expected by chance. We obtained kappa values ranging from 0.682 to 0.957 for the applicable items, suggesting concordance between coders to be good to excellent (Fleiss, 1981).

RESULTS

The contrasting results so far found in the literature make that our study is largely exploratory. Therefore, we decided to present two kinds of statistical tests. First, we show how micro and small firms differ on the four dimensions at the level of individual variables. Second, we build a model and test the joint effect of effectuation mechanisms on firm growth.

Non-Parametric Tests

We divided our analysis a categorical variable related to company size: micro companies (1-9 employees) vs. small companies (10-49 employee). We used non-parametric Mann-Whitney tests to assess the differences between those groups.

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Our analysis shows contrasting results since we found that both effectuation and causation mechanisms are present and related to company growth. Concerning the predictive control dimension, we observe that micro companies are more likely to plan their marketing strategy (p-value ≤ 0.10). Yet top employers also devoting relatively more space in their business planning to plan marketing (p-value ≤ 0.10). No significant results are found in variables related to non-predictive control.

Results are very similar in the *means vs ends-based*. Micro companies are less experienced in starting companies (p-value ≤ 0.01), the entrepreneurial team has on average started fewer firms (p-value ≤ 0.05), their business ideas are less based in the entrepreneurs' experience (p-value ≤ 0.05) and the growth intention is lower at the outset (p-value ≤ 0.05).

As for the *affordable loss vs expected return* dimension, results indicate that only investor capital in year 2 and loans in year 1 are significantly different between micro and small companies (p-value ≤ 0.10). Private capital is not significant in any inter-group comparison.

The final dimension of effectuation we investigated is *partnerships vs competition*. Top growers show more partnerships realized at the outset of their ventures (p-value ≤ 0.10). Yet companies above 10 employees also have more pages on competition (p-value ≤ 0.10) as well as more identified competitors (p-value ≤ 0.01).

Finally, with respect to the *control* variables, entrepreneurs in teams and bigger initial teams are seen in bigger firms and top employers (p-value ≤ 0.05). Top employers also have more entrepreneurial teams with business background (p-value ≤ 0.10) while top growers show less PhD graduates in their teams (p-value ≤ 0.10). Finally, bigger companies show longer incubation periods (p-value ≤ 0.10).

Logit Regression

In order to test every dimension of effectuation, we built a logit model using as dependent variable the size category. Our model will estimate the magnitude and significance of every variable is predicting the probability of a micro company becoming a small company, overcoming the threshold of 10 employees.

We specified several models in order to investigate the possible effects of each effectuation dimension alone. Due to our sample number, we couldn't use every variable each construct and therefore chose to leave out non significant variables in each dimension. We were cautious to include at least one variable per construct though. Results are shown in Table 4. **Error! Reference source not found.** shows the descriptive statistics and correlations for every variable used.

It is visible that not every dimension of effectuation is helping explaining why companies grow above the 10 employee threshold. *Predictive control* has an important role in helping companies to grow. Presence of market research and not entering new markets are helping companies to grow. This is true for every model we specified, either investigating only this dimension separately or all four effectual dimension.

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In the *means vs ends-based* dimension, we observe that both effectual and causal approaches are predicting company growth. Basing the business ideas in experience and having started companies previously to the present venture is strongly associated with growth. This also happens with the growth intention found in business plans. We could not test any *affordable loss* variable due to missing data on private investments by each entrepreneurial team. *Expected returns* variable were both non significant. The same happens when we add the *partnerships vs competition* dimension. None of the variables we testes yield any significant coefficients.

DISCUSSION AND CONCLUSION

The results show that on two of the four effectuation dimensions there is no significant difference between micro and small firms. This suggests that the dimensions of affordable loss vs. expected return, and partnerships vs. competitive analysis have no significant effect on the likelihood of firms overcoming the micro-firm threshold. While these results could be different for larger firms, this suggests that neither effectuation nor causation approaches are generally associated with growth, and thus, that both approaches could be successful. This largely confirms Sarasvathy's (2001) claims that both approaches can work and that it depends on the situation which of the two is most appropriate.

The results furthermore indicate that on the means vs. ends dimension there are significant differences between micro and small firms. However, rather than observing a preference for either a means orientation or an ends orientation, our findings suggest that the larger firms are both more means oriented and more ends oriented, thereby suggesting that the means-ends dimension of the effectuation model is not a single dimension. The larger firms in our sample have based their business in and on earlier experience within the industry or as an entrepreneur. At the same time, though, they show a stronger intention to grow than the micro-firms in our sample. The remarkable finding here is that it is not the specific intentions or plans that are written in the business plan, but the growth ambition that is expressed by the business plan as a whole. Together, these findings suggests that an entrepreneurial approach in which entrepreneurs make use of their existing experience and use this with a strong intention to grow will be most successful.

Of course, this study suffers various limitations. Our sample is limited to less than 100 Dutch firms participating in an incubator program; these firms have not grown larger than 50 employees, and our measurements have largely been inter-subjective. Nevertheless, because of using two independent coders and making comparisons within the sample on the various variables, there is no reason to assume that our findings are not generalizable. Future research will have to show to what extent this assumption is correct.

The findings of this exploratory study have three implications for future theorizing and research on effectuation/causation and the role of business planning in general. First, we have demonstrated that business plans contain indicators of four of the five dimensions of effectuation. This means that the writing of a business plan should not be associated with a causation approach or a planning orientation per se. It implies that future research on business plans should always look in detail at the contents of a business plan and not take the business plan as a whole or limit the analysis to page counting. While further refinements of our measurements can be made, it also implies that business plans can be used as data sources for researching effectuation and causation. The advantage of business plans is that they have been written *a priori* and are as such unique sources of original data from the early stages of companies. They do not suffer from the retrospective bias of survey data.

The second implication is that the effectuation-causation distinction may require further refinement. While already a significant extent more detailed than the aggregate distinction between planning and emergence/learning, this study has shown that the dimensions do not always coincide. That is, a firm may act effectually on one dimension while acting causally on another dimension. Furthermore, the finding that larger firms are more means-oriented and more ends-oriented indicates that at least one of the five dimensions requires further scrutiny. Earlier on, Wiltbank et al (2006) have already suggested that prediction-based strategies and control-based strategies can go hand in hand and that prediction and control are orthogonal dimensions rather than a single dimension. This study suggests that a means-orientation and ends-orientation are orthogonal dimensions as well. Future research should investigate whether the other dimensions – affordable loss vs. expected return, partnerships vs. competitive analysis, and leveraging vs. avoiding contingencies – are composed of two orthogonal dimensions as well. Theoretically, this seems likely: firms can try to minimize their losses while at the same time try to maximize their returns; they can develop strong partnerships with some firms while at the same time competing severely with other firms; and they can leverage some contingencies while trying to avoid others. Further empirical research is needed to find out whether these combined strategies appear in practice as well, under what conditions and with which effects on firm performance.

Finally, the finding that of all variables measured only experience and growth intention seem to be associated with firm growth suggests that entrepreneurship is a pragmatist process based on creative human action. In a reaction against rationalist, functionalist, and teleological interpretations of human action, pragmatists such as James (1907), Dewey (Damico, 1978; Dewey, 1929), and Joas (1993, 1997), have developed nonteleological models of human action in which intentions and experience play a central role. The heart of these models is that thinking and acting go hand in hand and that both are founded in and affected by our previous experiences – whether we want or not. In her book, Sarasvathy (2001) spends a complete chapter on the pragmatist underpinnings of the effectuation model. Our findings are a confirmation that the pragmatist philosophy deserves further attention by entrepreneurship researchers. Yet, the findings also indicate that the dichotomizing of effectuation vs. causation along several dimensions may not prove the most effective way of doing so. For future research on the entrepreneurial process we therefore suggest a) to closely analyze the existing work on effectuation and causation through a pragmatist lens, and b) to closely study the entrepreneurial process more inductively from a pragmatist lens without making the assumptions of the effectuation-causation literature. The first step serves as a further scrutiny of the theoretical and philosophical underpinnings of the effectuation-causation model, while the second helps to take a broader perspective and develop new insights into the entrepreneurial process not yet covered by the effectuation-causation literature.

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