# Resource configurations for new family venture growth

By: Mark R. Mallon, Stephen E. Lanivich, and Ryan L. Klinger

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## Abstract:

**Purpose:** Sustainable Family Business Theory states that human, social, and financial capital are important for new family venture growth, yet there may be multiple combinations that could be beneficial. The purpose of this paper is to examine whether all three types of resources are always needed for growth. **Design/methodology/approach:** Fuzzy-set Qualitative Comparative Analysis, a configurational method, is used to investigate which combinations of human, social, and financial capital consistently lead to new family venture growth. **Findings:** Multiple distinct combinations of resources – usually containing some form of human capital along with either social or financial capital – were sufficient for new family ventures to grow. **Research limitations/implications:** The findings contribute to a more accurate Sustainable Family Business Theory in terms of the resource bundles needed to achieve growth. Not all three primary resources are needed at founding for the venture to grow. Results suggest a need for renewed focus on human capital in family venture research, as well as further investigations of the resource configurations uncovered here and their effects on family firm outcomes. **Practical implications:** Given the costs associated with acquiring resources, the findings can inform family entrepreneurs and other stakeholders purposed with assisting new family ventures regarding optimal avenues of achieving growth. **Originality/value:** This study advances theory by demonstrating which combinations of primary resources lead to new family venture growth. The findings shed light on how human, social, and financial capital may substitute for each other, as well as how the value of each depends on the presence or absence of the others.

**Keywords:** social capital | human capital | financial capital | firm growth

## Article:

### Introduction

The Family Firm Institute (www.ffi.org) estimates that family firms account for two-thirds of all businesses in the world and 70-90 percent of global gross domestic product. Yet, despite the apparent importance of family firms, there is a critical gap in the understanding of their performance in the early stages of existence (Sharma *et al.*, 2012). According to Sustainable

Family Business Theory, family firms are systems of resources and interactions that lead to family business achievements (Stafford *et al.*, 1999). Within this framework, human, social, and financial capital are identified as the primary resources needed for family business viability (Danes *et al.*, 2009; Stafford *et al.*, 1999). Many studies have investigated one or more of these determinants (e.g. Chang *et al.*, 2009; Danes *et al.*, 2009), demonstrating that all three forms of capital can, independently, have a positive impact on new family venture performance.

Although prior research has tested the net effects of each individual form of capital, no study has empirically investigated how distinct bundles of these resources affect family business outcomes. This is an especially relevant oversight because Sustainable Family Business Theory states that family firms are systems with multiple interactions and mutually reinforcing effects among the types of resources, leading to potentially multiple combinations producing equivalently positive family firm outcomes (Stafford *et al.*, 1999). The current study answers calls made by scholars that "any theory used to study NBV [new business venture] creation would need to be inclusive of all these capital types" (Werbel and Danes, 2010, p. 423). One factor limiting such an approach is the existing dominant methodological paradigm, which relies on standard econometric methods to uncover the relative strengths of linear relations between sets of variable, making it poorly suited for exploring issues of complex interactions and configurations of causal factors (Ragin, 2008). Alternative methodological approaches are needed to better understand the complex interplay between these fundamental firm inputs and the ways in which they may be combined to achieve new family venture outcomes.

The current study addresses this theoretical and methodological quandary by applying a configurational approach to answer the research question:

> *RQ1.* Which combinations of new family ventures' initial endowments of human, social, and financial capital consistently lead to growth?

Configurational methodological approaches have significant potential to advance scholarly thought in family business (Nordqvist *et al.*, 2014). In particular, fuzzy-set Qualitative Comparative Analysis (fsQCA) has become an increasingly common methodology in business research, including studies of new ventures (e.g. Beynon *et al.*, 2016; Muñoz and Dimov, 2015).

FsQCA is used to examine a sample of 56 family start-ups in the USA reported in the Kauffman Firm Survey (KFS). In contrast to previous studies emphasizing the independent importance of human, social, and financial capital, the findings herein provide evidence of substitution effects, as no single resource was needed at the time of founding to achieve growth. Generally, only two of the three were needed: usually some form of human capital combined with either social or financial capital. Additionally, multiple distinct configurations of capital were consistently associated with growth.

These findings have important theoretical and practical implications for family businesses. First, this study contributes to a more accurate Sustainable Family Business Theory by showing that not all forms of capital are needed at the time of founding to generate new family venture growth. Although each resource has independent worth, this study highlights the unique value of bundling certain combinations of resources. Second, this study may be among the first to

demonstrate the equifinality of new family venture outcomes, highlighting a major assumption in Sustainable Family Business Theory that has heretofore been largely uninvestigated. Finally, the importance of human capital contrasts with the emphasis on social capital in family business literature and suggests a renewed focus on family firms' human capital resources. Based on these findings, it is suggested that scholars use configurational approaches in family business research. Additionally, the configurations found here could be used in future studies to investigate how they affect other outcomes of interest. Finally, the identification of unique configurations that consistently lead to new family venture growth has important practical implications for would-be entrepreneurs attempting to acquire the requisite resources to start a family venture, as well as for current family ventures and groups that advise them.

In the next section, Sustainable Family Business Theory and family firm resources are introduced, highlighting the need for configurational studies to advance this stream of literature. Based on this literature, propositions are developed regarding the system of resources within family firms and the effects on firm growth. These propositions are then tested on a sample of new family ventures, and the study concludes with a discussion of the theoretical and practical implications of these findings.

## Resource systems and family venture growth

### Sustainable Family Business Theory

Sustainable Family Business Theory was first developed by Stafford *et al.* (1999) and later refined in various studies (Danes *et al.*, 2008, 2009). The tenets of this theory were derived from general systems theory and hold that family firms can be understood as systems of resources and processes that produce outcomes affecting the long-term viability of family businesses. That is, the family business is a nexus point where family-level resources and processes intermingle with firm-level resources and processes to produce outcomes. In extensions of the Sustainable Family Business Theory framework, human capital, social capital, and financial capital have been identified as the critical resources needed for family firms (Danes *et al.*, 2008, 2009).

Sustainable Family Business Theory seeks "to identify family and business resources and constraints, processes, and transactions that are most likely to lead to business and family achievement and sustainable family businesses" (Stafford *et al.*, 1999, p. 203). Although there have been investigations of the independent effects of human, social, and financial capital (e.g. Chang *et al.*, 2009; Danes *et al.*, 2009), no study has uncovered configurations of these resources that improve family business outcomes. This oversight is especially relevant given Sustainable Family Business Theory's grounding in general systems theory: "The key concepts of general systems theory as related to families are the *mutual influence of system components*, hierarchy, boundary, *equifinality*, and feedback" (Stafford *et al.*, 1999, p. 199; emphasis added). In a word, reliance on parametric methodologies has stymied the development of Sustainable Family Business Theory by limiting empirical investigations into the mutual influence of system components (i.e. resources) as well as the possibility for equifinality or multiple combinations of components that lead to the same outcome. This is because parametric methodologies like regression are well-suited for determining the net effects of independent variables, but poorly suited for understanding how several independent variables interact or combine to produce

multiple pathways to the same outcome (Ragin, 2008). This study fills this gap by using a novel methodology (fsQCA) to uncover distinct bundles of resources that aid in sustaining new family ventures. The focus here is on the outcome of new venture growth, as this is an important means of sustainability for new ventures in particular, in that it protects them from liabilities of smallness and newness (Gilbert *et al.*, 2006).

## Determinants of new family venture growth

Human capital consists of the "skills and knowledge that individuals acquire through investments in schooling, on-the-job training, and other types of experience" (Unger *et al.*, 2011, p. 343). Scholars have distinguished between general human capital (education level and amount of work experience) and specific human capital, or knowledge of a certain kind of business or industry (Cooper *et al.*, 1994; Corbett, 2007; Marvel and Lumpkin, 2007). Both forms of human capital can be important determinants of entrepreneurial success because they create alertness to certain opportunities, allowing the entrepreneur to discover or notice such opportunities (Ardichvili *et al.*, 2003; Marvel, 2013; Shane, 2000); and provide the requisite knowledge and skills to parlay this opportunity recognition into a successful venture (Cooper *et al.*, 1994; Corbett, 2007; Honig, 1998). Specific human capital may be most important at the early stage of business formation (Unger *et al.*, 2011), with general human capital becoming more important later on as the entrepreneur switches from exploiting an opportunity to running an established business (Corbett, 2007).

Human capital is important for new family venture growth because it provides knowledge that could be the basis of an inimitable competitive advantage. Because of its tacit nature, knowledge is one of the most difficult advantages to duplicate (Barney, 1991; Nelson and Winter, 1982). Moreover, this knowledge could be embedded in either general or specific human capital. General human capital, in the form of education level, can lead to the discovery of unique opportunities, especially those relating to radical technological innovations (Baum *et al.*, 2001; Shane, 2000). Also, it conveys at least some competence for management (Corbett, 2007). Similarly, specific human capital, in the form of industry experience, provides family venture founders with unique knowledge of how to serve customers and exploit market opportunities (Shane, 2000). Broadly, either form of human capital can lead to the discovery and exploitation of lucrative opportunities (Marvel, 2013). As Sirmon and Hitt (2003, p. 352) concluded: "In general, the most important resource to a family firm is its human capital. Relying on human capital (e.g. knowledge) provides opportunities for these firms because intangible resources are the most likely to lead to a competitive advantage; intangible resources are socially complex and difficult to imitate."

Social capital is "the goodwill available to individuals or groups. Its source lies in the structure and content of the actor's social relations" (Adler and Kwon, 2002, p. 23). For entrepreneurs, the value of social capital is important for gaining access to information and resources (Davidsson and Honig, 2003; Shane and Cable, 2002). Social capital is thought to be especially important for family firms, as their "familiness" or system of interactions among family members and the business can improve performance (Habbershon *et al.*, 2003). Family social capital, or the social capital among family members (Arregle *et al.*, 2007), is an important aspect of this construct (Carney, 2005; Chrisman *et al.*, 2005; Eddleston *et al.*, 2008; Habbershon *et al.*, 2003; Pearson *et*

*al.*, 2008). Family social capital can create efficiencies because employees of the firm trust each other, family members may work for little or no pay, and family management and ownership reduce agency costs (Carney, 2005; Carr *et al.*, 2011; Chrisman *et al.*, 2005; Chua *et al.*, 2011; Sirmon and Hitt, 2003; Sorenson and Bierman, 2009).

Finally, financial capital is the initial amount of monetary resources used to start the venture, enabling the entrepreneur to purchase inputs and convert them to outputs, implement innovations, and sustain the venture through times of little or no profit (Aldrich and Martinez, 2001; Cooper *et al.*, 1994; Heunks, 1998). It has proven a robust predictor of venture performance across a variety of contexts (Cooper *et al.*, 1994; Danes *et al.*, 2009; Honig, 1998). For family firms, financial capital is an important resource for short-term performance goals because it allows the firm to sustain operations and eventually provide an income to the family (Danes *et al.*, 2009).

Despite the individual importance of human, social, and financial capital to family venture growth, theory indicates that all three may not be needed at the time of business formation because of their potential for mutual substitutability. Sustainable Family Business Theory states that there are mutually reinforcing effects among these resources (Stafford *et al.*, 1999), suggesting the forms of capital are highly interrelated and, therefore, having one may make up for deficiencies in others. In other words, "the presence of one type of capital may reduce the dependence on or need for others" (Packalen, 2007, p. 873).

Consider human capital. If family venture members lack human capital but possess financial capital, they could deploy their financial assets to either hire employees with the requisite human capital or invest in developing the human capital themselves. Indeed, one of the few empirical studies of capital substitutability found that ventures with endowments of human capital (but little financial capital) performed about the same as ventures with endowments of substantial financial capital and little human capital (Chandler and Hanks, 1998). Similarly, social capital within the family network could be deployed to find someone with needed human capital skills (Sorenson and Bierman, 2009). In sum, lacking human capital may not be an insuperable barrier to new family venture growth, as financial or social capital could serve as a temporary substitute or a bridge to acquiring it.

Moreover, the benefits of social capital could be substituted. For example, instead of relying on social support, founders could learn for themselves about the areas where they lack knowledge if they already have human capital. This is because founder human capital is thought to increase the capacity for venture learning (Unger *et al.*, 2011), perhaps lessening the need for external advice. Alternatively, if the venture is flush with financial capital, it could use financial resources to hire professional advisers, such as consultants, to improve business functions.

Finally, financial capital can be substitutable. If it is lacking, the family network can be used to raise funds directly or indirectly (Sorenson and Bierman, 2009; Steier, 2009; Steier and Greenwood, 2000). If financial capital is eventually sought out, family involvement has been found to increase access to it (Chua *et al.*, 2011). Additionally, human capital could be used to garner needed financial resources, as external investors typically weigh founders' human capital heavily when considering whether to invest (Hsu, 2007; Sandberg and Hofer, 1987).

In sum, considering that each form of capital could potentially be leveraged to gain access or provide similar value to one another (at least temporarily), it stands to reason that new family ventures likely do not need each form of capital when they are founded. It takes a great deal of time and money to develop each form of capital (Aldrich and Martinez, 2001; Hsu, 2007), so it is unlikely that all successful family firms would begin their lives with all three. Instead, they may get by with what they have at hand. "Similar to most other firms, particularly smaller and younger entrepreneurial firms, family business firms rarely have all of the resources they need to compete effectively. They must compensate for this deficit by developing their capabilities or by gaining access to the necessary resources in other ways" (Sirmon and Hitt, 2003, pp. 352-353). Thus:

> *P1.* There exists substitutability among human, social, and financial capital, such that new family ventures will consistently achieve growth without needing to deploy all three at the time of founding.

The network of substitutability and mutual reinforcement among forms of capital suggests there are likely multiple resource configurations that lead to new family venture growth. New family ventures could leverage several distinct – albeit limited – combinations of resources in order to grow, as the configurational nature of resources implies that multiple paths to performance could exist (Short *et al.*, 2008). Indeed, a study of family firm performance found differences in human, social, and financial capital as drivers of performance across two different samples (Danes *et al.*, 2009). This notion is consistent with Sustainable Family Business Theory's assumption of equifinality. Importantly, however, scholars have suggested that bundling of resources is needed for new family venture growth. Although there may exist substitutability among the three forms of capital, this does not mean that each provides the exact value of the other in all situations. Human capital, for example, may be especially difficult (though not impossible) to substitute for (Sirmon and Hitt, 2003). Similarly, family social capital is thought to be a singular driver of family firm performance (Danes *et al.*, 2009).

Therefore, although they may not require each form of capital at the time founding, new family ventures will likely need to bundle more than one form of capital or more than one type of the same kind of capital (e.g. general and specific human capital) to grow. Although the lack of rigorous empirical studies on resource configurations precludes a fine-grained understanding of which combinations are likely to be most effective, research does indicate that bundling appears to have positive outcomes. For example, family firms possessing only financial capital will likely need to bundle it with human or social capital to achieve sustainable performance (Danes *et al.*, 2009). Similarly, there may be a positive effect from bundling human and financial capital to acquire social capital (Florin *et al.*, 2003). Finally, family social capital and non-family social capital can complement each other (Hoffman *et al.*, 2006), perhaps amplifying their ability to act as a bridge to either human or financial capital.

In sum, the substitutability among the three forms of capital suggests equifinality, but previous research also indicates at least some bundling of capital resources is needed for growth. In other words, having only one form of capital at the time of founding may not be sufficient. This prediction is consistent with the notion in family business literature that family firms must draw

on "stocks" of resources – rather than a single resource – to be successful (e.g. Danes *et al.*, 2009; Sirmon and Hitt, 2003). Accordingly, there could exist multiple combinations of capital that lead to new family venture growth, consistent with Sustainable Family Business Theory's assumption of equifinality. Hence:

> *P2.* Multiple combinations of human, social, and financial capital at the time of founding will consistently lead to new family venture growth.

## Methodology

### fsQCA

FsQCA is a set-theoretic approach in which cases are analyzed based on their membership in sets of causal conditions and outcomes (Ragin, 2008). The essential assumptions of this methodology are that casual conditions can interact in complex, non-linear ways to produce a given outcome, and that equifinality can exist (Fiss, 2007; Ragin, 2008). For instance, the presence of a condition may have a positive, negative, and/or neutral impact on an outcome depending on the presence or absence of other causal conditions. In addition, different causal conditions may be important in determining different levels of an outcome. In other words, the recipes of capital that lead to new family venture growth may not be equal in magnitude and opposite in direction to the recipes that do not lead to family venture growth.

The first step of fsQCA requires calibrating the data by indicating the extent to which each case (here, each family venture) exhibits each causal condition (human, financial, and social capital) and outcome (venture growth). Once cases are assigned membership scores, fsQCA involves identifying the different configurations of causal conditions that consistently lead to the presence (or absence) of the outcome in question, allowing for inferences regarding the necessity and sufficiency of conditions or sets of conditions.

FsQCA is a distinct approach to qualitative comparative analysis (Ragin, 2010). Compared to its predecessor, crisp-set analysis, where cases are calibrated "crisply" as either fully belonging to a membership set or not (e.g. financial capital is either present or absent in a particular family venture), the "fuzziness" in fuzzy-set analysis refers to the fact that qualitative, theoretically grounded calibration anchors are constructed to assign cases based on their degree of membership in sets of causal conditions and outcomes (Ragin, 2008). For instance, financial capital may be fully present in a family venture, fully absent, or somewhere in between, allowing for more fine-grained assessments (Ragin, 2008). Compared to traditional interval approaches to measuring variables, which emphasize relative differences among cases, calibrated measures are based on theoretical anchor points and qualitatively indicate whether, and to what extent, the cases fit with an established theoretical definition (Ragin, 2008).

Calibration consists of assigning each case (e.g. family venture) scores that represent its membership in each causal condition set (e.g. human capital, social capital, financial capital) and the outcome set (e.g. growth). These scores range from 0 to 1, where 1 denotes full membership, 0 denotes full non-membership, and ranges in between 0 and 1 denote degrees of membership in a set (Ragin, 2010). When calibrating, anchors are assigned to reflect which numbers in the un-

calibrated data serve as cut-off points for full membership and full non-membership. When applicable, a midpoint anchor representing the point of maximum ambiguity can be inputted (Ragin, 2008). Whenever possible, theoretically established anchor points were used for calibration of the data in this study. When such anchor points were unavailable, anchor points that were inductively derived from the distribution of the data were used, a practice consistent with previous research (e.g. Fiss, 2011). Although external anchor points are preferred, this approach is appropriate when such theoretical standards are non-existent (Crilly, 2011; Ragin, 2008).

Once cases have been calibrated, a "truth table" is created to represent all the possible combinations of causal conditions that could lead to the outcome in question. The table is completed by distributing the observed cases to each unique possible configuration (e.g. how many ventures possess high levels of human capital and high levels of financial capital and high levels of social capital; how many ventures possess high levels of human capital and high levels of financial capital and low levels of social capital, etc.), and then assessing how consistently each configuration was associated with a particular outcome (e.g. to what extent were ventures that possessed high levels of human capital and high levels of financial capital and low levels of social capital growing vs not growing). Finally, Boolean logic is used to simplify the configurations that lead to the outcome. For instance, consider the hypothetical case of two configurations consistently related to new family venture growth:

1. High human capital AND High financial capital AND High social capital.

OR

2. High human capital AND High financial capital AND Low social capital.

In this case, the conditions of growth could be simplified to a more parsimonious configuration: high human capital AND high financial capital; as long as these two conditions are "high," the presence or absence of social capital is irrelevant.[1]

FsQCA results allow researchers to make inferences regarding the necessity and sufficiency of causal conditions (Fiss, 2007; Ragin, 2008, 2010).[2] According to Ragin (2010), a necessary causal condition is one that must be present for a given outcome to occur; that is, the outcome is a subset of the casual condition, meaning the outcome does not occur in the absence of the causal condition. A causal condition is sufficient if it can produce a given outcome by itself; that is, it is a subset of the outcome, so if the causal condition is present, the outcome is also present. However, the presence of the outcome does not necessitate the presence of a sufficient causal condition. Moreover, necessity and sufficiency operate in tandem: a causal condition is both necessary and sufficient if it is the singular causal condition that can produce a given outcome. A

[1] The intent is to provide a simplified primer to fuzzy-set logic. A more detailed overview of this methodology as well as the precise algorithms used to perform the truth table calculations and Boolean reduction operations can be found in Ragin (2008) and Ragin (2010).

[2] In the parlance of set theory, causal conditions are akin to independent variables, whereas an outcome is akin to a dependent variable. Although this terminology is used to maintain consistency with the methodological approach, establishing true causality is impossible with any quantitative method.

causal condition is sufficient, but not necessary, if it can produce a given outcome by itself, but is not the only causal condition that can do so. A causal condition is necessary, but not sufficient, if it produces a given outcome in combination with other causal conditions and appears in all combinations where the outcome is present. Lastly, a causal condition is neither necessary nor sufficient if it only appears in a subset of the combinations of causal conditions that produce a given outcome. In sum, the goal of fsQCA is to identify the necessity and sufficiency of individual causal conditions, and how these causal conditions combine to lead to the outcome. The fsQCA 2.5 software was used to perform the fuzzy-set analyses reported below (Ragin *et al.*, 2014).

Sample and measures

The sample of new family ventures was drawn from the KFS. The KFS followed a cohort of 4,928 new ventures founded in 2004 in the USA. This effort was a nationally representative, random sampling of new firms in the Dun and Bradstreet list of new businesses. Survey items included questions about owner/operate characteristics, products/services offered, financing of the ventures, and their achievements or failures. The survey administrators conducted yearly follow-up interviews, with data available through 2008. The design of the KFS allowed access to data on family firms as well as measures of their stocks of resources and growth rates (described below). More details of the sampling and methodology procedures of the survey are available at: www1.kauffman.org/kfs/default.aspx. New family ventures were identified as those with multiple owner-operators who were related (Miller *et al.*, 2007). In total, 56 such firms were identified for inclusion in the analysis. Most firms had two related owners, though some had three. Additionally, the sample was dominated by firms operating in service industries.

One advantage of fsQCA is that it examines set relations, rather than strengths of associations between variables, and therefore does not require large sample sizes (Ragin, 2008; Schneider and Wagemann, 2013). In fact, fsQCA was designed to handle complex combinations of factors in small-sample research settings of 10 to 50 cases (Greckhamer *et al.*, 2013). This study's sample size exceeds those of most previously published business research using fsQCA (e.g. Crilly, 2011; Judge *et al.*, 2014). The relevant data were extracted as described below.

Following Cooper *et al.* (1994), growth was measured in the number of employees. This operationalization is advantageous because it does not rely on founders' memory of profitability, it is not subject to large swings, and it measures the economic contribution of the firm (Cooper *et al.*, 1994). Additionally, new ventures face the greatest risks from liabilities of newness and smallness, so growth should be the goal of most new firms in order to mitigate these risks (Gilbert *et al.*, 2006). The scale from Cooper *et al.* (1994) was adapted as follows to calibrate growth: 1= survival with greater than 50 percent increase in the number of employees, 0.66= survival with growth up to 50 percent increase in the number of employees, 0.33= survival with no growth, and 0= the firm shut down. These benchmarks were measured four years after founding.

Human capital was measured using two operationalizations. Because each venture had multiple owner-operators, human capital variables were based on the highest level of education/industry experience among all owners within each venture. Following previous works investigating

entrepreneurs' human capital that measured general human capital using an ordinal scale to reflect the highest education level attained (e.g. Davidsson and Honig, 2003; Honig, 1998; Marvel, 2013), the causal condition for general human capital was calibrated as follows: 1= PhD or terminal degree, 0.8= master's degree, 0.6= bachelor's degree, 0.4= associate's degree, 0.2= high school degree, and 0= less than high school degree. The causal condition capturing specific human capital reflects whether the entrepreneur had previous work experience related to the venture prior to business formation, and was coded as: 1=6 years or more experience, 0.66=3-5 years, 0.33=1-2 years, and 0=0 years (Chandler and Hanks, 1998).

Two measurements of social capital were also used. The first measurement, assistance, indicated whether the founders had help forming the business or engaging in development or planning from a variety of sources who were not owners: professionals, non-profit organizations, friends, etc. (Aldrich and Martinez, 2001; Chang *et al.*, 2009). Assistance was coded as 1 if the founder reported having help forming the business from any source, and 0 if not. The second measure, which is called family support, captured whether non-owner family members contributed financial equity to the venture, which can be an important resource mobilized by family members who are otherwise not directly involved in the business (Steier, 2009; Steier and Greenwood, 2000). This was calibrated dichotomously, such that 1= the presence of family support, and 0 if not.

Financial capital was operationalized as the initial amount of monetary resources used to begin entrepreneurial activities (Aldrich and Martinez, 2001; Chandler and Hanks, 1998). Because there are no theoretical anchor points regarding financial resources, previous research of financial capital of new ventures was followed and anchor points were determined using a quartile-splitting method (Chandler and Hanks, 1998). The median was used as the crossover point for calibration, followed by quartile splitting to represent a range of financial capital set membership from high financial capital to low financial capital (Fiss, 2011). The threshold for high financial capital, indicating the point of inflection for those ventures possessing financial capital amounts in the top quartile, was set as the anchor point for full inclusion, and the threshold for low financial capital, indicating the point of inflection for those ventures in the bottom quartile, was set as the anchor point for full exclusion. Put differently, those firms at or above the top quartile would be considered increasingly closer to "fully in" the set and assigned a number closer to 1, and those at or below the bottom quartile would be considered increasingly closer to "fully out" and assigned a number closer to 0. The points of full membership, crossover, and full non-membership were $158,000, $42,500, and $10,000, respectively. The calibration function of fsQCA 2.5 was used to calibrate these financial data (Ragin, 2008). The calibration function calculates membership scores of continuous variables by determining the logarithmic odds of each case's falling within the ranges determined by the anchor points, resulting in continuous membership scores ranging from 0 to 1. In other words, the calibration function transforms the data such that it is represented using values between 0 and 1, inclusive.

## Findings

The first test using fsQCA 2.5 involves analyzing which, if any, conditions are necessary for a given outcome. A necessary condition exists if the outcome is a subset of the condition. In other words, the form of capital must be present for firms to achieve growth. Necessity is inferred from

the calculation of a condition's consistency score. In fuzzy-set membership, calculating consistency is complex since cases may represent degrees of membership within sets. Here, fsQCA 2.5 calculates consistency based on Ragin's (2010) formula:

$$\text{Consistency of Condition} = \sum(\min(\text{Condition}, \text{Outcome}))/\sum \text{Outcome}$$

where "min" refers to the lower of the two values of membership scores for the case. This measure equals 1.00 if for every case, scores for a condition are greater than or equal to scores for an outcome. Importantly, in instances with a few "near misses," consistency scores are slightly reduced from the value of 1.00. The larger the number of cases and greater extent to which cases of the outcome occur without the condition, the lower the score.

A consistency score of 0.90 or higher suggests necessity (Schneider and Wagemann, 2013), indicating a causal condition is almost always present when the outcome is present. As shown in Table I, no single causal condition meets this criterion, although specific human capital comes close (consistency =0.88). However, the condition indicating endowment of either general human capital or specific human capital had a consistency score of 0.96. From this, one can conclude that at least one form of human capital is almost always necessary for new family venture growth.

**Table I.** Test for necessary conditions causing new family venture growth

| Casual condition | Consistency | Coverage |
|---|---|---|
| General human capital | 0.74 | 0.67 |
| Specific human capital | 0.88 | 0.54 |
| Assistance | 0.38 | 0.51 |
| Family support | 0.10 | 0.60 |
| Financial capital | 0.50 | 0.73 |
| General or specific human capital | 0.96 | 0.54 |
| Assistance or family support | 0.38 | 0.54 |

The next step in fuzzy-set analysis is to analyze the truth table to test for the sufficiency of configurations of causal conditions. The truth table represents all possible configurations of the causal conditions that lead to the outcome. With five causal conditions (general human capital, specific human capital, financial capital, assistance, and family support), there were $2^5$ (32) different possible configurations. For each configuration, a consistency score is calculated. Whereas the previous consistency score was used to determine the extent to which an outcome is consistent with a condition (i.e. necessity), in truth table analyses, the focus is on the extent to which the combination of causal conditions is consistent with the outcome.

For the truth table analysis, certain constraints are inputted regarding which configurations should be included in analysis. Essentially, the researcher must determine which configurations are relevant for explaining the outcome and which are not. For example, including configurations with no actual cases in the data or configurations with no consistent relationship with the outcome may not increase understanding of the outcome and may be dropped from the analysis (Schneider and Wagemann, 2013). For this truth table analysis (see Table II), a consistency cut-off score of 0.85 was used for analyzing configurations, which is a common, stringent cut-off

point (Ragin, 2008). It was also required that each configuration be represented by at least one case in the data; those not meeting this frequency threshold were deleted (16 total). The truth table, therefore, had 16 rows/configurations, seven of which were consistently associated with high levels of growth. Thus, an initial inspection of the truth table indicated that there may be equifinality when it comes to the outcome of new family venture growth.

**Table II.** Truth table of family venture resources and growth

| General human capital | Specific human capital | Assistance | Family support | Financial capital | Number of cases | Growth | Consistency |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0.99 |
| 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0.97 |
| 1 | 1 | 0 | 0 | 1 | 6 | 1 | 0.88 |
| 0 | 1 | 0 | 0 | 1 | 2 | 1 | 0.86 |
| 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0.85 |
| 1 | 1 | 1 | 0 | 1 | 4 | 0 | 0.83 |
| 0 | 1 | 0 | 0 | 0 | 6 | 0 | 0.82 |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0.78 |
| 1 | 0 | 0 | 0 | 1 | 3 | 0 | 0.74 |
| 1 | 1 | 0 | 0 | 0 | 15 | 0 | 0.72 |
| 0 | 1 | 1 | 1 | 1 | 2 | 0 | 0.70 |
| 0 | 1 | 1 | 0 | 0 | 4 | 0 | 0.70 |
| 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0.64 |
| 1 | 1 | 1 | 0 | 0 | 6 | 0 | 0.59 |

**Notes**: 1 = condition is present; 0 = condition is absent, except for the columns displaying number of cases and consistency scores

Finally, the fsQCA 2.5 software analyzes the truth table using the Quine-McKluskey algorithm to simplify (using Boolean logic) the configurations of causal conditions leading to the outcome, minimizing the number of configurations to a more parsimonious set of sufficient configurations (Ragin, 2010). Such an analysis provides a simple indication of the essential ingredients in the recipes leading to the outcome in question.

**Table III.** Results of truth table analysis for new family venture growth

| Configuration | 1 Wealthy industry expert | 2 Supported industry expert | 3 Networked educated venture | 4 Educated venture | 5 Wealthy venture |
|---|---|---|---|---|---|
| General human capital | | | • | • | ⊗ |
| Specific human capital | • | • | ⊗ | ⊗ | |
| Assistance | ⊗ | ⊗ | • | | |
| Family support | | • | | | ⊗ |
| Financial capital | • | | | ⊗ | • |
| Consistency | 0.78 | 0.77 | 0.99 | 0.87 | 0.88 |
| Raw coverage | 0.22 | 0.06 | 0.04 | 0.12 | 0.26 |
| Unique coverage | 0.06 | 0.10 | 0.02 | 0.07 | 0.09 |

**Notes:** • indicates a condition's presence, ⊗ indicates its absence, and blank indicates irrelevance. Solution coverage: 0.45, Solution consistency: 0.83

The results of the truth table analysis are displayed in Table III. Consistent with recently published studies using the fsQCA method (Bell *et al.*, 2014; Garcia-Castro and Aguilera, 2014; Garcia-Castro and Casasola, 2011; Misangyi and Acharya, 2014), the symbol "•" indicates a causal condition's presence in the configuration, the symbol "⊗" indicates its absence, and a blank cell indicates the condition was irrelevant in that configuration (i.e. it could be present or absent). Moreover, each configuration has a consistency, raw coverage, and unique coverage score associated with it. Raw coverage indicates how much variation of the outcome is covered by a single path, including overlap with other paths. Unique coverage represents the portion of the outcome covered by a path that does not overlap with other paths (Ragin, 2008; Schneider and Wagemann, 2013).

Two measures are used to assess the adequacy of the entire solution of configurations: solution consistency and solution coverage. Solution consistency indicates the degree to which membership in the set of identified configurations is a subset of membership in the outcome; the higher the value (on a scale of 0 to 1), the more likely possessing one of the solution configurations will lead to venture growth. Solution coverage measures the extent to which the outcome is explained by the set of identified configurations. If this number is low, then many alternative configurations following no discernable pattern achieved the outcome. The observed solution coverage (0.45) and consistency (0.83) scores indicated acceptable solution fit (Schneider and Wagemann, 2013).

Proposition 1 stated that not all three forms of capital would be needed at the time of founding for new family venture growth, and the data supported this claim. In each configuration, a maximum of two forms of capital was sufficient for growth, usually one form of human capital paired with either social or financial capital. Moreover, critical forms of capital were either lacking or irrelevant in multiple configurations leading to growth (e.g. no form of social capital in Configuration 1; no financial capital in Configuration 4). Proposition 2 is partially supported, as five distinct configurations of capital resources emerged that were sufficient for new family venture growth. Hence there are several combinations of resources with which family ventures can achieve growth. However, in Configurations 4 and 5, possessing a single resource was sufficient, so although bundling different forms of capital was common, it did not always occur.

The results of the sufficiency analysis show that although human capital may usually be necessary, it is not generally sufficient. Even though at least one form of human capital was present in four of the five configurations leading to growth, each of these configurations involved other critical ingredients, except for Configuration 4, where general human capital was present, but there was an absence of both specific human capital and financial capital. Firms that conformed to this configuration were labeled "educated ventures" because they rely almost exclusively on general human capital in the form of education. Financial capital combined with specific human capital in Configuration 1, leading such firms to be labeled "wealthy industry experts" because they possess knowledge of the industry and financial capital to exploit such knowledge. Family support combined with specific human capital in Configuration 2. Firms in this configuration were labeled "supported industry experts" because they have industry knowledge, but rely on the support of family to raise appropriate financial capital. General human capital combined with assistance in Configuration 3. Such firms were given the moniker "networked educated ventures" because they have high levels of education, but appear to rely on

external advice to aid in the development of their business ideas. Finally, in Configuration 5, financial capital combined with the absence of general human capital and the absence of family support was sufficient for growth. Ventures that conformed to this configuration were labeled "wealthy ventures" in recognition of their reliance on financial capital.

Overviewing the results, four of the five configurations included some form of human capital, which was revealed to be almost always necessary for growth. However, it appears that the source of human capital could be either formal education or industry experience. Interestingly, other needs of the venture appeared to vary based on the type of human capital available. Ventures with specific human capital primarily needed (financial) support from the family or funds from other sources, perhaps because they already had in-depth knowledge of markets and only required financial capital to implement their strategies (Configurations 1 and 2). Ventures endowed with general human capital, on the other hand, needed external assistance (Configuration 3) or no other resources (Configuration 4). Such ventures appeared to rely on their educational qualifications to run their businesses, seeking out expert advice when needed. Their ability to grow without needing endowments of family support or financial capital suggests a lack of dependence on familial resources, substituting such resources with a reliance on educational qualifications that may attract outside investors, if needed.

Finally, Configuration 5 or "wealthy ventures" grew while only possessing financial capital. Similar to ventures relying on general human capital, these firms may not require familial support because they already have sufficient funds. Additionally, wealthy ventures flush with funds may be able to hire employees with requisite human capital or outsource important business functions as needed. Accordingly, such family venture founders may act more as financiers than owner/operators. This configuration contrasts with others that included some type of human capital. Still, having financial capital produced firm growth, indicating that families may parlay existing family wealth into growing businesses despite lacking human capital.

## Discussion

This study sought to answer the question:

> *RQ2.* Which configurations of new family ventures' initial endowments of human, social, and financial capital consistently lead to growth?

In contrast to traditional statistical techniques, which assume that there is one model that best fits the data, the fuzzy-set approach used here revealed multiple paths to new family venture growth, wherein not all forms of capital were needed at the time founding. Next, specific implications of these findings for theory and practice are discussed.

### Theoretical implications

The findings of this study have important theoretical implications for Sustainable Family Business Theory and new family ventures. First, there is an assumption within Sustainable Family Business Theory that human, social, and financial capital are all needed for successful family firms. The results of this study show that, at the time of founding, only one or two forms

of capital are needed to produce short-term family venture growth. Considering that Sustainable Family Business Theory seeks to understand both resources and constraints (Danes *et al.*, 2008), this study contributes to a more accurate theory. That is, new family ventures often operate within the constraints of limited access to human, social, and financial capital (Sirmon and Hitt, 2003). The results presented here illustrate these constraints by demonstrating that new family ventures often do not possess all three forms of capital, yet can nonetheless grow if the "right" bundle of resources is deployed. Sustainable Family Business Theory should account for these important bundles rather than emphasizing a somewhat unrealistic perspective wherein all family ventures need access to all beneficial resources. Family entrepreneurs can save time and other resources by avoiding the acquisition, protection, and development of nonessential (or contextually irrelevant) capital resources, which also can reduce potential for strain from resource loss (Lanivich, 2015). Hence, this study contributes a more accurate, realistic theoretical explanation of critical resource bundles driving new family venture growth.

Turning attention to the drivers of growth, previous studies have shown contradictory results, with some scholars emphasizing social capital (Eddleston *et al.*, 2008) and, to a lesser extent, financial capital (Danes *et al.*, 2009) as predominant drivers of family venture success. In contrast, the results here demonstrate that achieving growth in new family ventures is an inherently equifinal phenomenon, with human capital being almost always needed. This is because tacit knowledge can be the basis for a competitive advantage for family firms, especially considering family firms can face heightened difficulty accessing human capital outside of the family network (Sirmon and Hitt, 2003). That is, family members may be reluctant to bring in non-family managers, as they may not wish to be bound by formal managerial rules (Carney, 2005). Similarly, professional managers may be reluctant to work for family firms because they would likely not be included in succession plans (Sirmon and Hitt, 2003). Thus, human capital may be of paramount importance in new family ventures. However, the source of this human capital does not seem to matter, as it could come from either general or specific human capital, probably due to the fungibility of knowledge. Indeed, both general and specific human capital can have positive effects in new ventures (Davidsson and Honig, 2003).

Although social capital was not generally as common as human capital in configurations that led to growth, the familial social network can play an important role in providing financial support when founders lack monetary resources (Steier and Greenwood, 2000). Additionally, social capital was likely used for targeted advice when founders possessed general human capital but lacked specific human capital. Hence, the value of social capital in new family ventures appears to be complementary to human capital. Indeed, entrepreneurship scholars have speculated that "human capital facilitates success only in conjunction with adequate levels of appropriate social capital" (Davidsson and Honig, 2003, p. 322). This precept appears to hold true for new family ventures in particular, with either family support or non-familial assistance complementing stocks of human capital. However, this notion must be amended, as the results of this study indicated that financial capital can also complement human capital if social capital is unavailable.

Practical implications

The findings presented here have significant practical implications for both aspiring and active family entrepreneurs. Given the amount of energy needed to acquire or develop the different forms of capital, it is advisable for family-firm entrepreneurs to focus on developing only those resources that are part of bundles leading to growth. For example, aspiring family entrepreneurs might forego the process of accumulating large amounts of financial capital if they already possess human and social capital. Also, the findings can inform entrepreneurs with a desire to start a family business regarding how to best maximize their returns on initial capital investments, and when to switch from a stage of opportunity development or evaluation to venture launch. That is, if the individual components of a specific configuration found here are at hand, entrepreneurs can proceed to launch a venture with some degree of confidence.

Entities seeking to encourage family ventures, such as policy makers, incubators, or universities, should note that human capital may be essential for family venture growth. They should focus programs on developing either the general or specific human capital of aspiring family venture founders, perhaps through entrepreneurial education programs in schools (for general human capital) or industry apprenticeships (for specific human capital). Additionally, groups advising family ventures should be cognizant of the different paths to growth. There is not one "right way" for ventures to grow, so advisors should endeavor to tailor their assistance based on the existing resources controlled by the venture. That is, they should try to help family ventures supplement existing resources with only those resources that would be needed to form an effective bundle, rather than advising them to spend time and energy developing resources that might not necessarily be needed.

## Limitations and future research

Three major strengths and sources of contribution of the analysis here were the context, the data set, and the analytic technique. Relying on a nationally representative, longitudinal data set allowed for the use of archival records of entrepreneurial growth spanning several years. In addition, examining configurational relationships answered interesting and novel research questions yet unexamined in the family business literature. However, with these strengths came several limitations which could be addressed in future research.

Data constraints limited the exploration of certain aspects of the sampled firms. For example, there were no data indicating the number of family members involved as non-owners in the business, and forms of non-financial family support could not be assessed. With the knowledge of this study's findings, researchers could focus on the configurations that led to growth, and how these other forms of capital not included in the present analysis might fit in with these configurations. Also, the data set limited the outcome variable used in the analysis. Future research would benefit from exploring alternative outcomes of family business venture success. For example, family firms may pursue non-economic goals (Basco and Rodríguez, 2011; Sirmon and Hitt, 2003), and researchers could investigate the effects of the discovered configurations on the attainment of those goals. Another possible outcome of interest is the failure of new family firms, though this would necessitate a different theoretical perspective, as Sustainable Family Business Theory is meant to explain achievements of family firms.[3] Additionally, the

[3] The authors thank an anonymous reviewer for this point.

configurations could be entered as independent variables in linear methods to test the strength of effects of each configuration on other outcomes, such as financial performance.

Finally, because the importance of the forms of capital were highly dependent on the presence or absence of the others, the need for family business scholars to study configurations of resources, rather than focus on their individual net effects, is a salient implication for future research. Exploring equifinality and the complex substituting and neutralizing effects of causal conditions allows for a richer understanding of new family venture success and can generate new and meaningful research questions.

## Conclusion

This paper contributes to the literature by demonstrating that an initial endowment of human capital, social capital, and financial capital is not necessary for new family venture growth; rather, there are multiple combinations of capital that can lead to growth. In general, only two forms of capital were required at the time of founding. This finding contradicts an implicit assumption in Sustainable Family Business Theory that all three are needed. Moreover, human capital was found to be almost always needed for growth, along with either social capital or financial capital. Thus, family entrepreneurship scholars should focus future endeavors on exploring these distinct configurations, including their relationship with other important family venture outcomes, such as non-economic goals. Aspiring founders of family firms should take note of the combinations of capital that promote growth and seek to acquire resources that combine with existing ones to create bundles that consistently lead to growth.

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