# THE IMPACT OF INNOVATION ON FAMILY BUSINESS SUCCESSORSHIP AND TRANSGENERATIONAL ENTREPRENEURSHIP

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Family enterprises comprise the majority of business organizations around the globe and provide significant economic benefit. Yet, continuity and stability with the family business rarely surpasses the second generation. This phenomenon leads to an understanding of the importance of succession. This study suggests transgenerational entrepreneurship and the opportunity for innovation with successive generations may resolve the long-term challenges that confront family businesses in transition. Transgenerational entrepreneurship occurs when families develop and implement entrepreneurial mindsets and capabilities across generations. Utilizing a sample of potential successor of family-owned businesses in the United States from MTurk, this study examines the relationships of entrepreneurial intention and opportunity for innovation on the succession decision made by the potential successor. The study also examines the moderating role of organizational contextual factors that impact the transgenerational entrepreneurship decision.

DEDICATION

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# CHAPTER 1

# INTRODUCTION

## 1.1 Introduction

The family firm has long been recognized as the dominant business structure globally (Schmieder, 2014). Family enterprises range in size from a firm comprised of one employee, the founder, to large multidivisional enterprises like Armani, Cargill, Home Depot, IKEA, Michelin, and Walmart. Family businesses perform a key role in GDP and employment growth in developing and emerging economies worldwide (Carraher, 2005; Carraher & Carraher, 2006; Shanker & Astrachan, 1996; Tirdasari & Dhewanto, 2012),

Family firms are significantly different from non-family owned enterprises. The strong connection between family relationships and the family business intertwine the family's well-being and the family business's financial success (Schmieder, 2014). Due to these differences, family owned businesses encounter different challenges than businesses that are not likely to be owned and controlled by members of the same family. Although these business structures hold an enduring place in advanced capitalist economies, succession has become one of the unique and complex challenges that family businesses face. Succession planning is a significant decision that leads to critical business continuity, family well-being and family business economic success (Davis & Harveston, 1998; Gilding, Gregory, & Cosson, 2015; Schmieder, 2014).

Researchers are becoming increasingly aware of the great importance of entrepreneurial pursuits on the global economy. Schumpeter (1934) suggested that entrepreneurship in processes and products is the critical engine that drives the change process in business. Entrepreneurs are quickly becoming a critical intervention for struggling economies and provide

necessary opportunities for individuals with entrepreneurial propensity who find themselves unemployed during difficult economic times (Nicholls-Nixon, 2005). Entrepreneurship is defined as the process of recognizing and exploiting new business opportunities usually through new business ventures (Aldrich & Cliff, 2003; Davidsson & Wiklund, 2001; Shane & Venkataraman, 2000). Founders of family businesses are the individuals in the family business entity who recognized and pursued the original business opportunity. Family business research recognized the entrepreneurial endeavors and intentions of founders but has overlooked the acquisition and importance of entrepreneurial skills and entrepreneurial intention by successive generations working within the family business (Chrisman, Chua, & Sharma, 2005; Davis & Harveston, 1998; Mitchell, Hart, Valcea, & Townsend, 2009).

Longevity of the family business entity may find entrepreneurial intention of the potential successor to be an asset or a liability. Entrepreneurial intention may result in an unwilling successor who desires to pursue an entrepreneurial venture outside of the scope of the family business (Blumentritt, 2016; Gilding et al., 2015). Yet if the incumbent family member guides the successor process correctly, the successor may choose to utilize his or her entrepreneurial skills to enhance the family business.

Family business research is recognizing the beneficial inclusion of entrepreneurial intention on family business succession (Kellermanns, Eddleston, Barnett, & Pearson, 2008). Blumentritt (2016) suggests that family business founders can entice successors to be willing to pursue their entrepreneurial intentions within the family business entity. Pursuing entrepreneurial directions upon succession provides an opportunity for increased family involvement and greater economic dominance. Entrepreneurial involvement also serves to provide new interests for current and future successors.

Although family businesses thrive on continuity, innovation opportunities provide an avenue to enhance attracting and persuading successor willingness (König, Kammerlander, & Enders, 2013; Schmieder, 2014). Due to the family firms' necessity to focus on the long-term financial success of the business, entrepreneurial opportunities, risk-taking and innovation are embraced more frequently by family businesses than non-family enterprises (Boling, Pieper, & Covin, 2015; Eddleston, Kellermanns, & Zellweger, 2012). Innovation is emerging as a key factor in the longevity and multigenerational success of the family business (Schmieder, 2014).

**1.2 Self-determination theory**

Self-determination theory (SDT) provides a framework to understand the motivations that lead to individual choices (Deci & Ryan, 1985). Motivation provides an impetus for an individual to be moved to do something (Ryan & Deci, 2000a). However, people vary in the level of motivation (how much motivation) they possess and the orientation of their motivation (type of motivation). The orientation of an individual's motivation involves the attitudes and goals that instigate action. Deci and Ryan (1985) differentiate between types of motivation based on the attitudes and goals that cause action to occur. They suggest that intrinsic motivation occurs within an individual and instigates behavior to investigate new things, new challenges and gain knowledge because a person finds the behavior interesting or enjoyable. Extrinsic motivation occurs due to factors outside of the individual and causes an individual to behave to attain a desired outcome. Intrinsic motivation suggests that individuals perform a behavior due to internal satisfaction rather than concern over an external consequence. Individuals perform actions that are extrinsically motivated with resentment, resistance and disinterest while intrinsic motivation behaviors lead to creativity, high-quality learning and achievement.

SDT identifies social and environmental factors that facilitate intrinsic motivation. Within the macro theory of self-determination theory, Deci and Ryan (1985) developed Cognitive Evaluation Theory (CET) and Organismic Integration Theory (OIT) as sub-theories within SDT. CET argues that intrinsic motivation is enhanced by rewards, communication and feedback that create a feeling of competence. Deci and Ryan (1985) define competence as the effort to experience a level of mastery by controlling the outcome. CET continues to suggest that a feeling of competence enhances intrinsic motivation only when feelings of autonomy and relatedness exist. Autonomy occurs when an individual desires to act as the causal agent of his/her own life such that his/her life behavior is harmonious with one's own integrated self. Deci and Vansteenkist emphasize that autonomy does not suggest that an individual is independent of others. Relatedness occurs when an individual desires to interact, connect or care for another individual (Baumeister & Leary, 1995). When an environment supports the needs of autonomy, competence and relatedness, intrinsic motivation occurs, and individuals are willing to instigate behaviors that lead to creativity and achievement. Organismic Integration theory (OIT) provides a continuum to understand external motivation and the ability of an individual to internalize and integrate external motivations into desired behaviors. SDT, CET, and OIT suggest that individuals who possess an intrinsic interest toward a behavior and are provided an environment that supports relatedness, competence and autonomy are likely to be motivated to take action toward that behavior.

### 1.3 Theory of planned behavior

The Theory of Planned Behavior (Ajzen, 1985) was developed as an extension of the Theory of Reasoned Action (Fishbein & Ajzen, 1977). The Theory of Reasoned Action (TRA) suggests that people are more motivated to action (behavior) when they believe that significant people would like them to perform that action (subjective norm) and if the individual has a positive attitude about the behavior (attitude). Extant literature has strongly supported the correlation between subjective norms and attitude toward behavioral intentions.

Ajzen's extension of the theory of reasoned action allows for the impact of the individual's perception of the difficulty or ease of accomplishing the specific behavior (perceived behavioral control) (Ajzen, 1985, 1991, 2001; Ajzen, 2002; Ajzen & Madden, 1986; Armitage & Conner, 2001). Many studies have supported the positive influence of subjective norm, attitude toward a behavior, and perceived behavioral control on behavioral intention (Ajzen, 1985, 1991, 2001; Ajzen, 2002; Ajzen & Madden, 1986; Armitage & Conner, 2001). The stronger the attitude, subjective norm and perceived behavioral control toward the behavior, the greater the person's intention to act on the behavior. Thus, if an individual has an acceptable level of control over the behavior, he or she is expected to act on his or her intention when the opportunity occurs (Ajzen, 1985).

### 1.4 Research model

By merging the overlapping principles of self-determination theory and theory of planned behavior as the theoretical base, the proposed model investigates the impact of family business contextual factors, entrepreneurial intention and innovation on transgenerational entrepreneurship within the family business environment.

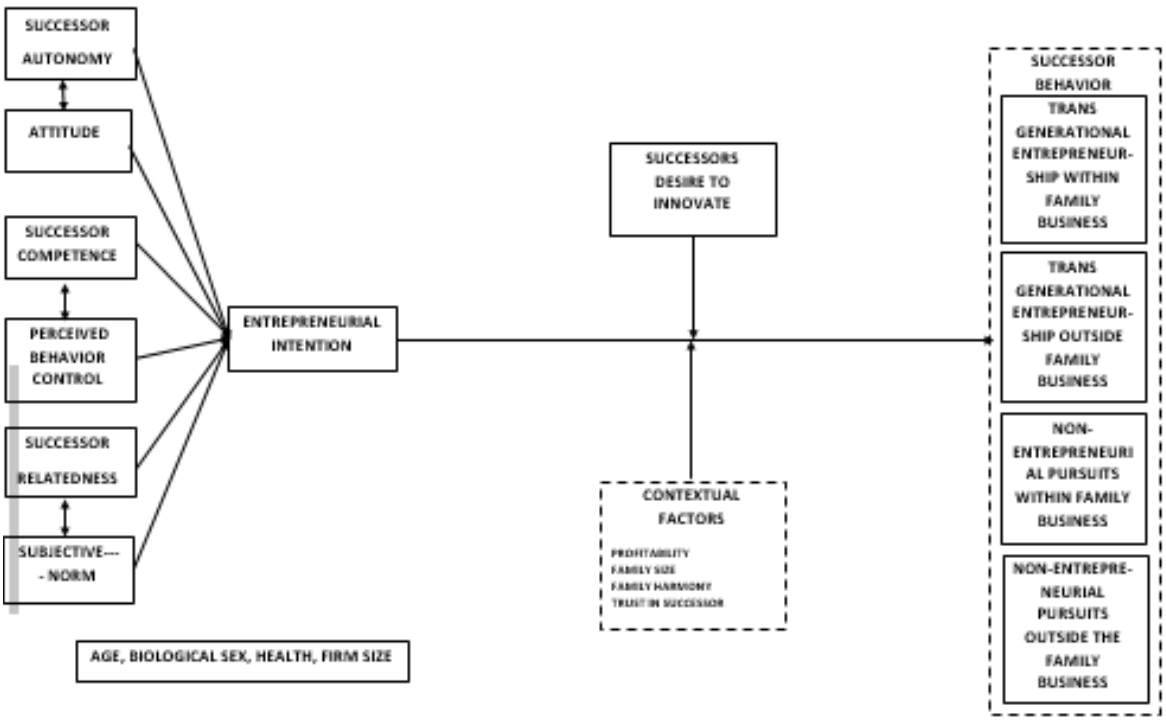


*Figure 1.1* Proposed research model

### 1.5 Research questions

This research will investigate the following research questions:

1. Are the three needs identified in self-determination theory correlated to the three traits of theory of planned behavior such that:
   a) Successor's attitude is correlated to successor's autonomy.
   b) Successor's perceived behavior control is correlated to successor's competence.
   c) Successor's subjective norm is correlated to successor's relatedness.
2. Does successor entrepreneurial intention mediate the relationship between family business successor individual traits of attitude/autonomy, perceived behavioral control/competence, subjective norm/relatedness and successor behavior?
3. Does successor's desire to innovate moderate the relationship between successor entrepreneurial intention and the successor behavior?

In addition to the research questions identified above, this research examines the relationships that family business contextual factors have on the individual traits of the successor.

The corresponding research question is:

4. Do family business contextual factors (family business profitability, family size, family harmony, and trust in successor) moderate the relationships between entrepreneurial intention and the successor behavior?

**1.6 Contributions and importance of the research**

Family businesses must overcome the challenges of survival that face all businesses to include providing successors that carry on the goals and desires of the family business. To provide continuity, profitability and growth within the family business, incumbent leaders of the family business must find methods to motivate potential successors to be willing to lead the family business. This study suggests that supporting intrinsic motivation within the successor will foster entrepreneurial intention and increase successor willingness and transgenerational entrepreneurship. This study further enhances the opportunity of the family business to secure successorship by introducing the opportunity for innovation by the successor into the family business. Additionally, this study advances self-determination theory and theory of planned behavior as useful theoretical contributions to the family business literature. Finally, the application of the principles of this study should increase family business economic success through implementation of fostering innovation and transgenerational entrepreneurship.

### 1.7 Research approach

One of the objectives of this research is to examine the likelihood of next generation successors to accept the responsibility of directing the family business if innovation opportunities are available. Therefore, the unit of analysis of this research will be potential successors of the family business entity. This research will utilize survey research to test the proposed research model empirically. Each participant will be provided an online, self-reported questionnaire. The measures used in this study will be adopted from existing measures to ensure recommended levels of validity and reliability. When needed, modification of existing measures will be implemented to eliminate any unnecessary items or add necessary items.

### 1.8 The organization of the research

The dissertation is organized into four remaining chapters. Chapter 2 provides a literature review of the family business literature, incumbent factors, contextual factors, and successor factors. Additionally, Chapter 2 develops the theoretical framework and hypotheses investigated in the study. Chapter 3 describes the research methodology and data collection procedures utilized. Chapter 4 offers a summary of the statistical analyses and the study results. Finally, Chapter 5 provides discussion of the findings, conclusions derived from the study results, implications, limitations and possible future research possibilities.

# CHAPTER 2

# LITERATURE REVIEW

## 2.1 The role of family business

Family businesses were one of the first business structures known to man and has endured centuries of challenges and transitions. Family businesses have been estimated to create 64-90% of the world GDP according to Family Firm Institute (2002). This is a 40% increase in GDP since 1998 indicating that family businesses are having an increasing impact on the gross domestic product within the United States. Additionally, family enterprises are responsible for employing between 15% and 59% of the United States workforce (Astrachan & Shanker, 2003; Schulze, Lubatkin, & Dino, 2003a; Shanker & Astrachan, 1996). Similar employment numbers are reported in other capitalistic economies. Canada reports that over six million jobs are filled by family firms (Andersen & Touche, 1999; Sharma, Chrisman, Pablo, & Chua, 2001). The national economic landscape is dominated by and dependent upon family firms (Astrachan & Shanker, 2003).

Family business research provides contributions to multiple disciplines including strategic management, organizational theory, economics, sociology, anthropology and psychology (Chrisman et al., 2005). Yet the family business research community is continuing to disagree on the definition of the family business, the unit of analysis in studies involving family businesses and the theoretical framework to ground family business studies (Chrisman et al., 2005). Miller, Breton-Miller, Lester, and Canella (2007) provide 28 different definitions of family firms utilized in top tier finance and management journals between 1996 and 2006. Definitions of family business have been somewhat fragmented and focused on different combinations of family business components: governance, management, generational

succession, and ownership. Since family business is defined in numerous ways, this study suggests that a family business is any form of business where the majority ownership of the company is controlled by a family, management decisions are influenced by the family, and two or more family members actively participate in management of the business and are employed by the firm (De Rosenblatt, Mik, Anderson, & Johnson, 1985). The definitions are beginning to converge around the following major principles including: 1) the family's influence over the direction strategically of the firm, 2) the family intention to maintain control of the firm, 3) firm behavior that reflects family specific values, and 4) unique, idiosyncratic capability and resources that result from family interactions and involvement (Chrisman et al., 2005; Habbershon, Williams, & MacMillan, 2003). Researchers have argued that family involvement makes a family firm distinctly different than a nonfamily business.

Many research efforts focus on traits of family businesses (Jennings & McDougald, 2007; König et al., 2013; McMullen & Warnick, 2015; Miller, Steier, & Le Breton-Miller, 2003; Miller, Wright, Le Breton-Miller, & Scholes, 2015; Molly, Laveren, & Deloof, 2010; Powell & Eddleston, 2013; Royer, Simons, Boyd, & Rafferty, 2008). Family businesses are often begun by a founding member who has long-range plans to sustain an income for the family with the flexibility of being self-employed. Many founders desire to utilize the family business to teach and train their children the idiosyncrasies of the business and industry that provide a profitable outcome.

Family firms are frequently driven by non-economic goals as well as economic goals. Challenges and conflicts within the family often impact the business. Likewise, problems within the family business may create long-term challenges within the family. The long-term welfare (transgenerational wealth creation) of the family is highly valued as well as the reputation and

influence within the community. Family firms experience a higher level of commitment and different sources of motivation than non-family firms. Most family firms experience disproportional power by the CEO due to his or her share of ownership. Position within the family firm may be the result of status within the family (i.e. head of the family). Because many family firms are privately held, the CEO of the family business has the freedom to oversee and control most decisions if external governance is not provided. The average tenure of family-firm CEO is 24 years which represents twice the length of publicly held firms (Beckhard & Dyer, 1983; Miller et al., 2003). It is common for family firms to have small or no boards of directors. Although business analysts recommend seven or more, most family firms have four or less board members. Family firms often appoint board members that are friends of the family or have a fiduciary responsibility (i.e. bankers, attorneys, and accountants) to the firm (Schulze et al., 2003a). The family business may range in size greatly including a small operation of the two primary family members or large companies, such as M&M Mars, Walmart, Seagrams, S.C. Johnson, and Cargill.

Although family business research has gained momentum, a highly integrative theoretical platform for study has yet to be accomplished. Without a highly developed theoretical platform, researchers are continuing to examine causal linkages to assist the management of family firms and guide the investigation of future research. Numerous studies have focused on the strategic management aspect of family firms. These studies are beginning to explain some of the differences in family firms by utilizing agency theory and the resource based view (RBV) of the firm. Consistent with most strategic management studies, these studies strive to examine the antecedents of firm performance that provide the family business with a competitive advantage. Many of these studies focus on empirical evidence that affects the performance of the firm

(Carney, Van Essen, Gedajlovic, & Heugens, 2015; Chrisman et al., 2005; Habbershon et al., 2003; Miller, Le Breton-Miller, Lester, & Cannella, 2007; Molly et al., 2010). Applying these mainstream theories to the family business arena has begun to explain some of the differences between family firms and nonfamily firms. Researchers believe these theories are helpful to define and explain strategic management issues of the family firm such as: goals and strategies of the firm, leadership, family firm succession and strategic implementation and control. Although agency theory and RBV have been helpful in identifying unique characteristics of family firms, they do not address the critical issue of reciprocity of influence between the business and the family (Chrisman et al., 2005). Stakeholder theory may provide some future perspectives on the interaction of numerous stakeholders and the convergence of economic and non-economic firm goals within the family business (Olson et al., 2003). Transaction cost economics theory has also been utilized to integrate economic and management concerns of the family business (Chrisman, Chua, & Steier, 2003; Lee, Lim, & Lim, 2003; Romano, Tanewski, & Smyrnios, 2001; Royer et al., 2008; Verbeke & Kano, 2012). Game theory has been introduced to assist in understanding the strategies utilized in family business succession (Blumentritt, Mathews, & Marchisio, 2013; Lee et al., 2003; Michael-Tsabari & Weiss, 2015). This study continues to provide theoretical application to the family business domain by utilizing self-determination theory and theory of planned behavior to better understand the individual and contextual factors that impact the transgenerational entrepreneurial succession decision.

The gaps in family business literature provide a rich environment for research. Numerous studies have suggested that family businesses in the U.S. exhibit higher performance than other corporations (Anderson & Reeb, 2003, 2004; Villalonga & Amit, 2006). These studies

suggested that the Tobin's q[1] of family firms is higher than other organizations. Yet studies in Europe and Asia provide contrasting information (Bennedsen, Nielsen, Pérez-González, & Wolfenzon, 2006; Maury, 2006). The definition of the family business (lone founder vs. family business), family involvement, and family enrichment have been attributed to the contradiction (Miller et al., 2007). Efforts to define antecedents of family business succession continue to dominate the literature (Lee et al., 2003; Mitchell et al., 2009; Molly et al., 2010; Royer et al., 2008; Vera & Dean, 2005). The application and contradictions of agency costs to the family firm and how they differ from non-family entities is continuing to develop (Schulze et al., 2003a; Schulze, Lubatkin, Dino, & Buchholtz, 2001). The role of entrepreneurship and innovation in the family business arena is continuing to open areas of investigation (Bae, Qian, Miao, & Fiet, 2014; Blumberg & Pfann, 2016; Carland, Hoy, Boulton, & Carland, 1984; Eddleston et al., 2012; Lüthje & Franke, 2003; Miller et al., 2015; Schmieder, 2014). Although no study can address all of these gaps, this study will shed light on incumbent, successor and contextual traits of family businesses, the role of successor entrepreneurial intention on succession, and the importance of innovation on transgenerational entrepreneurial succession.

**2.2 Family business succession**

Family business succession refers to the transference of managerial control from one generation to another (Royer et al., 2008; Shepherd & Zacharakis, 2000). Family business succession continues to dominate the family business research literature (Davis & Harveston, 1998; Gilding et al., 2015; Lee et al., 2003; Molly et al., 2010; Royer et al., 2008). Researchers suggest than only one third of family businesses survive the transition from first generation to second generation and, sadly, only one tenth of family based firms survive the transition into the

[1] Tobin's q is the ratio between an asset's market value and its replacement value.

third generation (Beckhard & Dyer, 1983; Ibrahim, Soufani, & Lam, 2001; Mitchell, Hart, Valcea, & Townsend, 2009). The Chinese culture, which has embraced family businesses for centuries, has a saying that the third generation dissipates the family's fortune that the first generation creates and the second generation maintains (Weidenbaum & Hughes, 1996).

Succession will continue to gain in importance in upcoming years due to the retirement of substantial numbers of business leaders. One third of European family firms will transfer to the next generation in the next years according to the European Commission (2003, 2006). This results in 690,000 small and medium enterprises (SMEs) changing management and impacting over 2.8 million jobs in Europe alone (Molly et al., 2010). Chicago's Daily Herald (February 2, 2017) declared that twenty eight million SME business owners in the United States are considering retirement. The intensifying failure of family businesses in successive generations has the potential of having a tremendous global economic impact. This volume of transitions around the world in family enterprises emphasizes the importance of family business succession as a critical area for future research. Research of family business succession will provide new insights into best practices regarding how businesses change after succession and successful directions to take during the transition of power.

Researchers have suggested succession from the founder to the second generation differs from succession that occurs in later generations (Molly et al., 2010; Schulze, Lubatkin, & Dino, 2003b; Villalonga & Amit, 2006). Succeeding the founder can be more difficult than following a non-founding family member (Vera & Dean, 2005). The founder's continued involvement may place unnecessary constraints on the transference process. Founders often fail to remove themselves from daily operational responsibilities which impede the successor from making strategic decisions. This is referred to as generational shadowing. Entrenchment (the long-term

position of influence or strength of previous leaders or shareholders) of previous generations of shareholder can also hinder the successor's transition. Oftentimes founders are unwilling to relinquish control and may be pressured by age, health concerns, or other family member concerns. These founders may withhold firm specific knowledge and information that may impede the success of the transition. The unwillingness of a founder to relinquish control may result in a potential successor's unwillingness to take over the family business (Sharma, Chrisman, Pablo, & Chua, 2001). These traits are unique to family business succession since non-family businesses leadership transitions are independent of the predecessor (Daily, McDougall, Covin, & Dalton, 2002).

Nepotism has also plagued successful transition of family businesses to the next generation. Nepotism occurs when family business successor selection is made based on familial relationship rather than skills, competencies, resources, training, etc. Nepotism is a unique danger in family businesses considering internal successions. Some researchers suggest that nepotism is a limitation to a family firm that contributes to limited growth of the business (Yeung, 2000). However, other researchers argue that nepotism is the main reason for succession and contributes to the conveyance of idiosyncratic knowledge of family members critical to the competitive advantage of the firm (Lee et al., 2003; Royer et al., 2008). Idiosyncratic knowledge in family firms is often more individual specific rather than firm specific and is often accessible only to trusted family members. The success of the family firm is often linked to the idiosyncratic knowledge of the managing family members that includes contacts, networks, local knowledge, internal processes of the firm and the ability to motivate employees (Lee et al., 2003). These family specific business networks are often essential keys for future successful family business continuity.

Although Royer, et al. (2008) suggest external successors are often best when work experience, education and success in other firms within the same industry are needed, they conclude that family business succession is more successful when they are able to transfer the business-specific tacit knowledge to the next generation. Succession by a family member eliminates problems associated with outsider succession (Lee et al., 2003). When an outsider is selected by a family to be a successor, the successor often appropriates a major share of profitability which is increased with his/her abilities and competencies. Choosing a member of the family to succeed prevents this transfer of firm shares and protects the existing shareholders' positions. Succession by a family member may also lead to a high level of mutual trust that provides for a favorable transition atmosphere.

Yet another challenge faced during family business succession is that many of the family business goals are noneconomic goals. Although researchers want to quantify the success of the transfer in leadership through economic goals, many of the highest priorities of family businesses include family harmony, environmental preservation, family reputation, community prestige, social entrepreneurship, philanthropy, etc. The interests of the shareholders impact the values of the firm that cannot be measured by quantifying profits, performance, or Tobin's q. Successors must be willing to accept, embrace and further the noneconomic goals while maintaining enough profitability to remain operational. Family business succession involves passing down possessions, heritage and the family name. The success of the transition brings continuity not only to the family business but to the family itself in many cases.

As generational succession continues, the goals often change which may cause stagnation. First generation firms are often more business oriented while later generation firms tend to be more family oriented (Molly et al., 2010). As the firm continues through generations

of succession, it moves from the founder to sibling partnerships and later to cousin consortiums (Schulze et al., 2003a). Sibling partnerships are more risk averse and have less leverage to acquire debt (Molly et al., 2010). Over time these characteristics combine to cause decline in firm growth. Cousin consortiums are more willing to take risks, acquire debt, and tend to focus on growing the firm.

Since family business succession faces so many diverse challenges, it is necessary to understand the antecedents and outcomes of this process. This study attempts to shed light on the role of incumbent traits, successor traits, and contextual firm traits on the successor willingness to continue to grow the firm through transgenerational entrepreneurship. The role of entrepreneurial intention and innovation are expected to play a key role in motivating commitment in the successor.

**2.3 Self-determination theory**

Motivation is a widely studied area in numerous disciplines. Motivation is referred to as the energy, intention, or activation toward some end (Ryan & Deci, 2000a). Motivation occurs when an individual is moved to do something. Motivation is highly important in business because motivation results in productivity (Ryan & Deci, 2000b). However, motivation varies by the amount (level of motivation and the type of motivation (Ryan & Deci, 2000a).

Self-determination theory (SDT) focuses on the social-contextual factors that encourage the natural process of healthy psychological development and self-motivation (Ryan & Deci, 2000b). SDT provides a theoretical explanation of human motivation that emphasizes the relevance of behavioral self-regulation and personality development. Research and theoretical development have identified three innate psychological needs that are critical to ensue optimal growth, integration, personal well-being and social development. These psychological needs are

innate and occur throughout the life span of an individual. When these needs are met sufficiently, the individual exhibits tendencies toward achieving coherence, connectedness, and effectiveness. When these needs are thwarted or hindered, SDT suggests that growth and well-being are significantly diminished.

Cognitive evaluation theory (CET) is a sub-theory within self-determination theory. CET specifies the factors that explain the variability of intrinsic motivation. CET focuses on the environmental and social factors that support rather than undermine intrinsic motivation. An underlying assumption of CET suggests that intrinsic motivation is inherent and is catalyzed when conditions are enacted that are conducive toward expression of intrinsic motivation in an individual. Cognitive evaluation theory focuses on the satisfaction of the basic needs of autonomy and competence and their impact on intrinsic motivation. Autonomy involves having the experience of choice and acting with a sense of volition (Gagné & Deci, 2005). Autonomy in CET does not refer to being detached, selfish or independent but rather a choice of will that accompanies an action that is either dependent or independent and can be done individually or collectively (Ryan & Deci, 2000b). Autonomy provides an individual with a sense that his or her behavior is self-determined. Competence is an indivudual's effort to control the outcome and experience a level of mastery. CET argues that social-contextual experiences (i.e. communication, rewards, and feedback) that encourage competent feelings during an action enhance intrinsic motivation for that specific action. Likewise, appropriate feedback, ideal challenges, and avoidance of negative evaluations also encourage intrinsic motivation. However, unless feelings of competence are accompanied by a sense of autonomy, intrinsic motivation will not occur. Thus, for intrinsic motivation to occur, a sense of competence (efficacy) and autonomy (self-determined behavior) must occur. The third variable of relatedness was later

added. Relatedness is the desire to interact, care for others and be connected to other individuals. Self-determination theory suggests that intrinsic motivation is more likely to exist over a life span characterized by a sense of connection and relatedness. CET thus supports that when individuals have a sense of competence, autonomy and relatedness, they will be intrinsically motivated for activities that they find interesting, novel, challenging or have some aesthetic value.

Although intrinsic motivation is important, it is not the only type of self-determined motivation (Deci & Ryan, 1985). Many individuals perform countless activities every day that they do not find interesting, challenging or novel. Although they are not intrinsically motivated to perform these activities, people perform duties due to social pressure, expectations of reward or the certainty to avoid specific consequences. These behaviors are performed due to extrinsic motivation. Whenever a person encourages another individual to behave in a certain way, the motivation can range from amotivation (unwillingness) to passive compliance, to personal commitment (Ryan & Deci, 2000b). Self-determination theory suggests that different motivations reflect different degrees that an individual internalizes and integrates the requested behavior. Internalization occurs when the individual takes in or accepts the behavior. Integration refers to accepting the behavior as their own so that the behavior emanates from the person's sense of self.

Deci and Ryan introduced a second sub-theory into self-determination theory (Deci & Ryan, 1985). Organismic integration theory provides a continuum of the different types of extrinsic motivation and the contextual factors that encourage or prevent integration or internalization of the desired behavior. See Figure 2 Self-Determination Continuum. Extrinsically motivated behaviors move from amotivation to intrinsic motivation depending on

the variation in the autonomy of the regulated behavior. The least autonomous behaviors are described as externally regulated. These behaviors require a reward or an external demand. The next level of extrinsically motivated behaviors is called introjected regulation. This behavior is taken in at some level but not taken as one's own to prevent guilt, anxiety or to attain some level of ego enhancement. Introjection occurs based on self-esteem where individuals must demonstrate an ability or prevent failure to attain some feeling of self-worth. The next level, identification, is more autonomous and suggests that an individual consciously values the behavioral goal. The action becomes accepted and personally owned as important. Finally, the most autonomous stage of extrinsic motivation is integrated regulation. Integration refers to the behaviors that become fully assimilated to the individual (the behaviors have been fully evaluated and become congruent with the individual's values and needs). Although extrinsically motivated, integrated actions provide many of the qualities of intrinsic motivation yet still are done to attain an outcome rather than for the person's enjoyment. These different types of extrinsic motivations are associated with different outcomes and experiences. The less an individual owns a behavior, the more likely they will disown responsibility for any failures and blame others for negative outcomes. Individuals exhibiting introjected regulation will expend more effort but feel greater anxiety and deal poorly with any failures. When behaviors fall into the identified classification, individuals will experience more enjoyment and interest and will expend more effort while coping positively with outcomes. As internalization of extrinsically motivated behaviors result in numerous advantages including: better well-being, greater persistence, better assimilation within the individual's social group, higher quality learning and behavioral effectiveness (Ryan & Deci, 2000b). OIT thus embraces the need for autonomy, relatedness, and competence to internalize and assimilate extrinsically motivated behaviors.

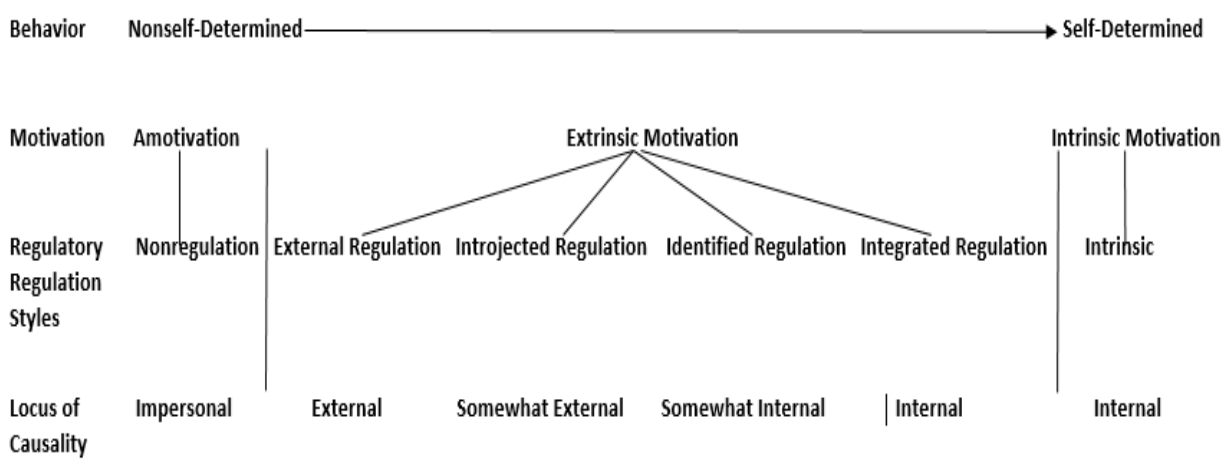


*Figure 2.1* Self-determination continuum

Although the focus of self-determination theory and the subsequent sub-theories (cognitive evaluation theory and organismic integration theory) focus on supporting the positive aspects of motivation, SDT provides a theoretical basis to understand the negative aspects of behavior that result from the needs of competence, autonomy and relatedness becoming thwarted. SDT suggests that thwarting the needs for competence, relatedness, and autonomy will result in the hindrance of personal well-being, social functioning and self-motivation. When environments are especially controlling, individuals are less likely to internalize the behaviors. Studies have supported the conceptualization that even highly capable and effective people decrease their well-being when they pursue and reach goals that do not meet their needs for autonomy, relatedness and competence.

Self-determination theory has been examined across a variety of research domains (Deci & Ryan, 2008) and provides a robust theory to examine entrepreneurship within the family business realm. The role of the family can enhance or hinder the motivation of the future successor by fulfilling or failing to meet the needs of autonomy, relatedness and competence. SDT provides a platform to examine transgenerational entrepreneurship within the family

business even if the successor is not intrinsically motivated (does not find the family business personally interesting). SDT also provides a mechanism to enhance succession by eliminating behaviors by founders or incumbent family leaders that hinder the integration of succession behaviors for successors that may have extrinsic motivation. Family business research has found that the business becomes an extension of the founder's identity and may very well shape the owner's self-identity (Vera & Dean, 2005). The overlap of self-identification theory and family business research promises to provide a rich context for research.

**2.4 Theory of planned behavior**

The theory of planned behavior (TPB) links beliefs, attitudes, and intentions to human behavior (Ajzen, 1985, 1991, 2001; Ajzen, 2002; Ajzen & Madden, 1986; Elliott & Armitage, 2007). The theory of planned behavior has been heavily vetted and received much research attention to provide a greater understanding of the antecedents of behavior. The theory of planned behavior is an extension of the theory of reasoned action (TRA). The theory of reasoned action posited that if significant others wanted an individual to perform a behavior (subject norm) and the individual perceived the behavior as positive (attitude), they would have a higher motivation (intention) toward the behavior and were more likely to perform the behavior. The theory of reasoned action was grounded in expectancy theory, congruity theory, dissonance theory, learning theories, and balance theory (Ajzen, 1985). The strong correlation of subject norms and attitudes toward behavioral intention and ultimately behavior has been highly vetted in numerous studies.

In spite of the high correlation of attitude and subject norms of behavioral intention and action, some researchers criticized the theory of reasoned action because intention does not always lead to behavioral action (Armitage & Conner, 2001; Langer, 1975; Lerner, 1977). Ajzen

(1985) extended TRA to include the idea of perceived behavioral control to address this concern of non-volitional behaviors.

According to the theory of planned behavior, attitude toward a behavior (behavioral beliefs), subjective norm (normative beliefs) and perceived behavioral control (control beliefs) lead to a behavioral intention that ultimately leads to human behavior or action (Ajzen, 1985, 1991, 2001; Ajzen, 2002; Ajzen & Madden, 1986). Attitude refers to an individual's positive or negative evaluation of performing a specific behavior (Elliott & Armitage, 2007). Subject norm toward a behavior occurs due to an individual's perception of the social pressure to perform (or not perform) the action. Perceived behavioral control is the degree to which an individual believes they control a specific behavior. The more favorable the attitude and subjective norm and the greater the perceived behavioral control, the stronger the behavioral intention and likelihood of corresponding behavior. Perceived behavioral control combines self-efficacy and controllability. Some researchers have mistakenly substituted self-efficacy for perceived behavior control (Ajzen, 2002). Self-efficacy refers to the perception of the individual regarding the difficulty involved in performing the behavior or the individual's belief in his/her ability to succeed in performing the behavior (Elliott & Armitage, 2007). Controllability describes the person's perceptions of his or her ability to control the behavior performance. Controllability involves potential outside or uncontrollable factors that must be considered. If an individual perceives that a behavior is within his or her ability and control, he or she has a high level of perceived behavioral control. The theory of planned behavior posits that an individual is more likely to have intention to act when he/she feels that he/she will behave successfully (Ajzen, 1985, 1991, 2001; Ajzen, 2002; Ajzen & Madden, 1986). See Figure 3 Theory of Planned Behavior Model.

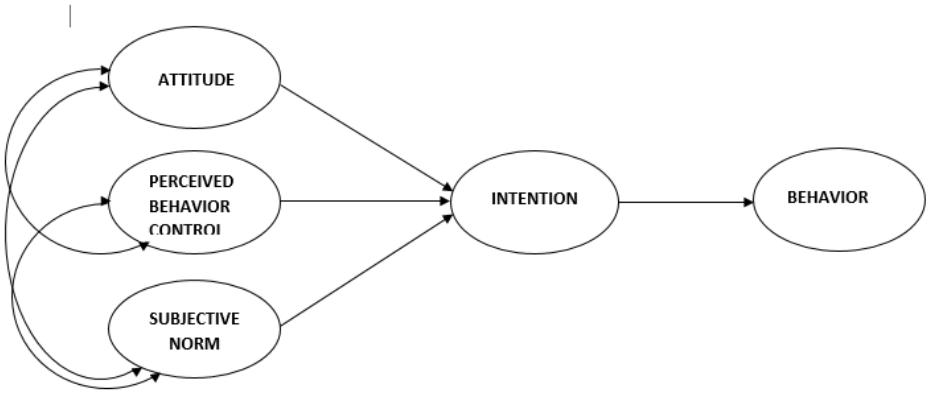


*Figure 3.1* Theory of planned behavior model

Although the theory of planned behavior has received much attention from researchers, it has also encountered numerous criticisms. Researchers have struggled to determine the difference between self-efficacy and perceived behavioral control. Ajzen suggested the two were interchangeable (Ajzen, 1991). However, numerous authors have found that the two antecedents are not synonymous (Elliott & Armitage, 2007). Perceived behavioral control is more concerned with general, external factors while self-efficacy reflects the cognitive perceptions of internalized control factors. Researchers also had concerns about the utilization of self-reported data in quantitative studies supporting TPB. Authors later found support that TPB variables were able to explain 12-55% of the variance in self-reported human behavior. They further substantiated that the TPB variables showed few effects of social desirability when utilizing self-report (Armitage & Conner, 1999). Other researchers took issue with subject norm, suggesting that it was the weakest predictor of intentions of the three antecedents and removing it from their studies utilizing perceived behavioral control (Godin & Kok, 1996; Sparks, Shepherd, Wieringa, & Zimmermanns, 1995). Elliott et al. (2001) found concerns with subject norm were resolved through proper measurement. Many of the concerns had been raised in studies that were using only single item measures instead of a multi-item scale. Due to the value

of the theory of planned behavior to reliably predict intention and behavior, these concerns have been addressed and resolved to find theory of planned behavior to be a robust theory for future studies.

Armitage and Conner (2001) examined the criticisms of the theory of planned behavior utilizing 185 independent research studies through meta-analysis. According to their study, attitude, subjective norm and perceived behavioral control accounted for 27% of the variance of behavior and 39% of the variance of intention. Their study provided support for the efficacy of theory of planned behavior. Although studies indicate that observations lagged behind self-reported data for the best prediction of behavior, the theory of planned behavior robustly explained 20% of the variance in the measures of actual behavior. This explanation provides a medium to large effect size. The results of Armitage and Conner (2001) along with the corroboration of previous TBP meta-analyses, sufficiently put to rest the previous concerns with TPB and conclude that theory of planned behavior is a robust theory to be applied in research to reliably and adequately predict human intentions and behavior.

Theory of planned behavior has been a very useful theory to ground entrepreneurial studies. In two top entrepreneurial journals (*Entrepreneurship Theory and Practice* and *Journal of Business Venturing*) in the past five years, 44 entrepreneurship studies were published that utilized theory of planned behavior as a theoretical foundation of the study. Theory of planned behavior is especially useful in entrepreneurial study due to the link between intention and behavior. These studies examine antecedents, mediators and modifiers of entrepreneurial intention that lead to entrepreneurial behavior (Armitage & Conner, 2001; Carr & Sequeira, 2007; Kautonen, Gelderen, & Fink, 2015; Lee, Wong, Der Foo, & Leung, 2011).

**2.5 Combining self-determination theory and theory of planned behavior**

In this study, self-determination theory and theory of planned behavior are combined to provide a theoretical framework that explains human motivation composed of autonomy, competence, and relatedness that results in potential entrepreneurial behavior that is mediated by entrepreneurial intention. According to Ajzen (1985), the antecedents of entrepreneurial intention are attitude, perceived behavioral control and subject norm. Self-determination theory (Ryan & Deci, 2000b), suggests that the antecedents of human motivation are attitude, competence, and relatedness. Human motivation plays a critical role in entrepreneurial intention and behavior.

Close examination of the antecedents of intention and motivation provide an understanding of the overlap between these two theories to explain entrepreneurship (Hagger & Chatzisarantis, 2009; Jacobs, Hagger, Streukens, De Bourdeaudhuij, & Claes, 2011; McMullen & Warnick, 2015; Sonenshein, DeCelles, & Dutton, 2014; Wilson, Mack, & Grattan, 2008). The antecedents of theory of planned behavior have been defined as: attitude is an individual's positive or negative evaluation of performing a specific behavior (Elliott & Armitage, 2007); perceived behavioral control is the degree to which an individual believes he/she is able to accomplish a specific behavior; subject norm toward a behavior occurs due to an individual's perception of the social pressure of significant others to perform (or not perform) the action. The antecedents of self-determination theory can be defined as: autonomy refers to an individual's attitude or perception that his/her behavior is self-determined; competence refers to an individual's level of mastery (self-efficacy); and relatedness (subject norm) reflects the importance of others to an individual and includes his/her desire to interact and remain connected to other individuals. Thus, in this study autonomy reflects attitude, competence corresponds to

perceived behavioral control and relatedness explains subject norm. Bridging the theories effectively provides a foundation within the family business literature to further understand the dynamics and impact that autonomy (attttude), competence (perceived behavioral control), and relatedness (subjective norm) have on the family enterprise. Due to the commonality of the definitions and the similarity in the scales that measure these variables, this study suggests:

**Hypothesis 1A**: Successor autonomy will be positively correlated to successor attitude.

**Hypothesis 1B**: Successor competence will be positively correlated to successor perceived behavior control.

**Hypothesis 1C**: Successor relatedness will be positively correlated to successor subjective norm.

**2.6 Entrepreneurship**

Entrepreneurship involves the discovery and exploitation of profitable opportunities (Shane & Venkataraman, 2000). Some researchers suggest that entrepreneurship is a way of thinking that focuses on opportunities over threats (Krueger, Reilly, & Carsrud, 2000). Entrepreneurship may be best defined as "sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate and exploit them" (Shane & Venkataraman, 2000 p. 218). This definition provides a broad opportunity to investigate the individuals and the process of recognizing, exploring and capitalizing on new opportunities. It is estimated that between twenty and fifty percent of the population are involved in entrepreneurial activities (Aldrich & Zimmer, 1986; Reynolds & White, 1997). Although the individuals who perform entrepreneurial activities are at the center of most research, it is equally as important to investigate the process that provides opportunities that encourage individuals with entrepreneurial intentions to pursue them. This definition also argues that entrepreneurship may include but does not require the creation of a new venture. The

creation of new ventures is an important component of entrepreneurship, however, equally important is the process of creating new streams of social and economic value through entrepreneurial activity.

Entrepreneurs may not explore new opportunities for monetary benefit but rather to enjoy autonomy, utilize their personal skills, and pursue their own ideas (Liang & Dunn, 2011). This contributes to the debate over new business ventures being the result of creation or discovery (Alvarez & Barney, 2007). The creation argument suggests that entrepreneurs develop opportunities through their actions and behaviors while the discovery view argues that entrepreneurial ventures are created through recognition and seizure of market opportunities. Although creative and discovery views are distinctive and conflicting theories, the result is the exploitation of an opportunity by an entrepreneur to start or expand a business venture creation.

Entrepreneurship is a critically important discipline of study. The growth of many economies has been attributed to the activity and behaviors of entrepreneurs (Miaoulis Jr, Brown, & Saunders, 2005; Thomas & Mueller, 2000). New business ventures are often the result of entrepreneurial endeavors that expand business into new arenas, create new employment opportunities and generate economic growth. Entrepreneurship provides an important mechanism to convert technical information into products and services (Shane & Venkataraman, 2000). Entrepreneurship also provides an avenue to remove inefficiencies in an economy. Entrepreneurship is also responsible for the innovation that provides change for capitalistic societies (Schumpeter, 1934).

Family businesses make up the majority of businesses globally (Aldrich & Cliff, 2003). Aldrich and Cliff (2003) point out that with changing role relations and family composition, the family business institution provides opportunity recognition, start-up possibilities, resource

mobilization and business opportunities. Existing roles within the family provide new opportunities for individuals to continue entrepreneurial processes within the family firm (Dobrev & Barnett, 2005). The family business is a fertile soil for investigation of entrepreneurial opportunities.

Transgenerational entrepreneurship occurs as a process through which a family unit develops entrepreneurial mindsets and capabilities that are family influenced to create new opportunities and streams of entrepreneurial ventures across generations (Habbershon, Nordqvist, & Zellweger, 2010). Generational impact has resulted in potential successors becoming less likely to leave the organization to build new businesses as the organizations grow and age. However, the same study suggests that founders are more likely to start new businesses and leave the original family business as the original business grows and develops (Dobrev & Barnett, 2005). Acquiring capital for an entrepreneurial endeavor is critical to success (Blumberg & Pfann, 2016). The three primary components of entrepreneurial capital are financial capital, human capital, and social capital. The social capital provided within the family business arena provides a decrease over time in the baseline risks for transgenerational entrepreneurs. Yet, with diminished risk extant literature suggests that most family businesses do not survive past the third generation (Beckhard & Dyer, 1983; Ibrahim, Soufani, & Lam, 2001; Mitchell et al., 2009). Some researchers suggest that "family business have become the oxygen that feeds the fire of entrepreneurship" (Rogoff & Heck, 2003)p. 559). Entrepreneurship and innovative opportunities become key to the succession and long-term performance of multigenerational family businesses.

**2.7 Entrepreneurial intention**

Entrepreneurial intention is the combination of personality traits, perceptions and experience of a potential entrepreneur (Kets de Vries & Miller, 1984; Pitt, 1998). Intentionality

refers to a state of mind that directs an individual's mind (thus, experiences and actions) toward a goal or direction to achieve something (Bird, 1988). Entrepreneurial intention is defined as a person's predisposition to create or pursue a new opportunity. Bird (1988) suggests that entrepreneur's intentions and ideas are a strategic template for future entrepreneurial endeavors. Intention has been considered the best predictor of behavior (Ajzen, 2001; Fishbein & Ajzen, 1975). However, intention to begin entrepreneurial behavior is no indicator of timing (Fayolle, Gailly, & Lassas-Clerc, 2006). Once entrepreneurial intention is developed, it may be a short or long time period before an opportunity is identified and entrepreneurial behavior is exhibited (Shook, Priem, & McGee, 2003). However, the intention models agree that entrepreneurial behavior must be preceded by entrepreneurial intention. Intention models provide an opportunity for researchers to predict and explain entrepreneurial activity (Krueger, 1993; Krueger & Carsrud, 1993).

The launching of a new business is never an impulsive action although the timing of the launch may be less predictable. New business ventures and new directions for existing business are actions that result from intention.(Krueger et al., 2000). Entrepreneurial activity is planned behavior that is intentional. Understanding intentions provides a better lens to understand entrepreneurship. Understanding intentions provides better insight into the understanding critical antecedents of entrepreneurial behavior.

Researchers examining entrepreneurial intention have been assisted by the development of three intention models: Shapero's (1982) model of entrepreneurial event (SEE), Ajzen's (1987) model of theory of planned behavior (TPB), and Bird's (1988) model for implementing entrepreneurial ideas (IEI) (Shook et al., 2003). Bird's IEI model has not to date been validated empirically. Shapero's SEE model suggests feasibility and desirability increase the likelihood of

individuals with entrepreneurial intention to act when something interrupts the inertia of their lives. Since SEE was developed to best explain the role of entrepreneurial intention on venture creation, the theory of planned behavior has been vetted in entrepreneurial research most frequently to explain individual behavior of the entrepreneur based upon subject norm, perceived behavioral control and attitude toward the entrepreneurial action. Theory of planned behavior has been extensively tested empirically, and the model has been found to be a reliable explanation of the relationship between entrepreneurial intention and entrepreneurial behavior. Krueger, Reilly and Carsrud compared SEE and TPB and found both models to be equally useful in predicting entrepreneurial behavior (Krueger et al., 2000).

The family business environment provides a rich context to empower the development of entrepreneurial intention by potential future successors. The tight family relationships, familiarity and trust provide a source of specialized and rare resources needed for entrepreneurship and the vantage point to perceive new opportunities (Chrisman et al., 2005). Successors with high aspirations will experience a higher entrepreneurial intention due to their desire to look broadly for opportunities (Mitchell et al., 2009). Additionally, the family environment that fosters a sense of trust and increased commitment to family members may lead to greater entrepreneurial intention and transgenerational entrepreneurship. Entrepreneurial intention can be directed to creating new ventures or creating new value in current businesses (Bird, 1988). Entrepreneurial intention has the potential to impact the growth, direction and survival of the firm. Successors with entrepreneurial intention will exhibit the ability to envision, create and implement future courses of action for the family firm that results in renewing the firm, improving performance and extending success of the family firm into the next generation with opportunities for future succession.

Due to the commonalties between the variables of self-determination theory and theory of planned behavior, it is expected by this study that a successor with strong autonomy and attitude attributes will increase their intention to be entrepreneurial. Likewise, a potential successor that possesses competence and perceived behavioral control will have the self-efficacy that increases their intention for entrepreneurial activities. Additionally, when a potential successor is surrounded by a network of individuals who believe in their ability to become entrepreneurial and act in entrepreneurial ways, the potential successor will have greater entrepreneurial intention.

This study proposes:

**Hypothesis 2A**: Successor autonomy will be positively related to entrepreneurial intention.

**Hypothesis 2B**: Successor attitude will be positively related to entrepreneurial intention.

**Hypothesis 3A**: Successor competence will be positively related to entrepreneurial intention.

**Hypothesis 3B**: Successor perceived behavior control will be positively related to entrepreneurial intention.

**Hypothesis 4A**: Successor relatedness will be positively related to entrepreneurial intention.

**Hypothesis 4B**: Successor subjective norm will be positively related to entrepreneurial intention.

Since intention is the greatest predictor of behavior, entrepreneurial intention will mediate the relationship between the successor's individual factors (autonomy, attitude, competence, perceived behavioral control, relatedness and subjective norm) and the successors entrepreneurial behaviors.

**Hypothesis 5**: Entrepreneurial intention will mediate the relationship between successor's individual factors and successor behavior such that:

a) The relationship between successor's individual factors (successor's autonomy/attitude, successor's competence/perceived behavioral control and successor's relatedness/subjective norm) and transgenerational entrepreneurship within the family business will be mediated by entrepreneurial intention.

b) The relationship between successor's individual factors (successor's autonomy/attitude, successor's competence/perceived behavioral control and successor's relatedness/subjective norm) and transgenerational entrepreneurship outside the family business will be mediated by entrepreneurial intention.

c) The relationship between successor's individual factors (successor's autonomy/attitude, successor's competence/perceived behavioral control and successor's relatedness/subjective norm) and non-entrepreneurial pursuits within the family business will be mediated by entrepreneurial intention.

d) The relationship between successor's individual factors (successor's autonomy/attitude, successor's competence/perceived behavioral control and successor's relatedness/subjective norm) and non- entrepreneurial pursuits outside the family business will be mediated by entrepreneurial intention.

**2.8 Innovation**

Innovation refers to creative change that produces meaningful results (Schmieder, 2014). Thus, change itself does not embody innovation if it is not meaningful. In the family business, succession itself involves change; however, succession does not always embody innovation. Innovation occurs when change produces some form of commercially successful outcome. The overlap of innovation and entrepreneurship is becoming more obvious in research studies (Bhupatiraju, Nomaler, Triulzi, & Verspagen, 2012). The role of innovation has become so

important in entrepreneurship as a part of public policy that some researchers are calling for government involvement to produce innovation and entrepreneurship at the societal level (Michael & Pearce, 2009). Innovations may come in numerous forms that may include new products, new services, new target markets, new organizational actions and methods, new business models, new business launch within the family business portfolio, and new structures or processes (Schmieder, 2014). Oftentimes innovation that may not be as visible may produce key results for the family enterprise. Some less visible innovations might include succession plans, next generation training and preparation for family business involvement. Innovation may result from looking in a different direction. Demand-side research suggests that entrepreneurs look downstream toward consumers and product markets to explore value creating opportunities (Priem, Li, & Carr, 2012).

Innovation in family business can be threatened by many traits unique to the family business. Although the risk of embracing innovative concepts and ideas is critical to the longevity of the entity, the incumbent leader or founder may impede the innovative direction if they are not able to envision that direction for the future (Mitchell et al., 2009). The founder's or incumbent's commitment to current processes and products may also impede innovation. In addition, the current leader may have a stronger power base within the family than the potential successor, thus innovation may be opposed by the larger family unit due to the current leader's influence. Current leaders may resist innovation ideas from potential successors due to their loyalty with existing relationships within the community. Innovation that potentially would change current relationships would be viewed as a threat to existing continuity. Oftentimes innovation is cloaked with uncertainty and ambiguity. These traits may elicit resistance toward future innovation. Within the family business, many employees have worked within the

environment and thus have experience with other ideas that may or may not have succeeded; past experiences may impact the trust level of the family employees impeding or encouraging future innovation.

Statistics of family firms ceasing to exist in the second and third generation of succession suggests that family firms are becoming endangered. Studies suggest that conditions such as inertia and strategic simplicity encourage family businesses to choose long standing solutions without examining potential opportunities for improvement (Habbershon et al., 2010). To secure succession and continuity in the family business, firms must find and create new value streams within organizations that are oriented for the long-term. By exploring new ways of accomplishing things while continuing exploitation of current products, services and organizational processes, innovation provides new and long-lasting opportunities for the family business entity to prosper and survive for many generations. Transgenerational entrepreneurship is not simply growing a business and passing it to a successor. Transgenerational entrepreneurship requires family to be innovative to create new streams of value across multi-generations. If a potential successor possesses a desire to be innovative this desire will strengthen his decisions to be innovative within the family business or seek an opportunity to be innovative outside the family business depending on the attitude toward innovation within the family business environment. If a potential successor has a low desire to be innovative but the family business requires innovative solutions to remain competitive, the successor's low desire for innovation will direct his employment decision outside the family business. Therefore, we propose the following:

**Hypothesis 6:** Successor's desire to innovate will moderate the relationship between entrepreneurial intention and successor behavior such that:

a) Transgenerational entrepreneurship within the family business will be stronger when successor's desire to innovate is high and entrepreneurial intention is high.

b) Transgenerational entrepreneurship outside the family business will be stronger when successor's desire to innovate is high and entrepreneurial intention is high.

c) Non-entrepreneurial pursuits within the family business will be stronger when successor's desire to innovate is low and entrepreneurial intention is low.

d) Non-entrepreneurial pursuits outside the family business will be stronger when successor's desire to innovate is low and entrepreneurial intention is low.

**2.9 Contextual factors**

Along with the individual factors of the incumbent and the successor, contextual factors have an impact on the continuity and success of the family business. Contextual factors include importance of profitability, family size, family harmony, and trust in successor. Profitability of the family business is an important consideration for the successor. Past firm profitability can be an indicator of future profitability. Family businesses receive much of their financial capital from family funds. Innovation, new ventures and risk-taking may be perceived as threats to the long-term financial stability of the family (Mitchell et al., 2009). Firm profitability is expected to influence a potential successor to participate in the family business while lack of profitability is expected to lower the successors desire to become a successor in the family business. Family-size is indicative of the number of people dependent on the success of the family business for their livelihood. The larger the family size, the more risk averse the family business becomes (Schulze et al., 2003a). As family size increases, the family business must become more successful to offset the number of people supported by the enterprise. Successors of family

businesses must also contend, embrace and accomplish non-economic values. Family harmony provides an environment where the successor can lead without conflict. The process of successorship may threaten the family harmony within the business context. Conflict within the family can be a threat to the success of the family business and is a hazard with which family business leaders must contend. Family size increases the opportunity for family conflict (Chrisman et al., 2005; Gilding et al., 2015). Trust in successor is very similar to variables that measure trust in leaders in non-family businesses. The confidence that the family has in the successor will provide for a less challenging transition. The trust and confidence the family has toward the successor will lead to family commitment (Mitchell et al., 2009). Family-size, family harmony and trust of successor have the potential to make the successors job much more difficult or much easier. When family-size is small, family harmony is strong and trust in the successor is high, there is a stronger possibility that the potential successor will desire to lead the family business. The potential successors desire to lead the family business will be weaker when family-size is large, family harmony is weak and trust in the successor is low.

Contextual factors are expected to moderate the successor's decision for transgenerational entrepreneurship within the family business, transgenerational entrepreneurship outside the family business non-entrepreneurial pursuits within the family business and non-entrepreneurial pursuits outside the family business.

**Hypothesis 7:** Family business contextual factors will moderate the relationship between entrepreneurial intention and successor behavior such that the relationships are stronger

| Within Family when: | Outside Family when: |
|---|---|
| Profitability is high | Profitability is low |
| Family size is large | Family size is low |
| Family harmony is high | Family harmony is low |
| Trust in successor is high | Trust in successor is low |

### 2.10 Control Variables

Four covariates are included to reduce variance that may be extraneous to the research questions or could possible confound interpretation. Those control variables include: age (of incumbent), biological sex (incumbent and successor), health (incumbent), firm size (number of employees).

Age of incumbent: Age of incumbent has a potential effect on the decision making that impacts the succession decision (Boling et al., 2015).

Biological sex of incumbent/successor: Family business literature suggests that female successors face increased challenges in succession. Extant literature also indicates that female incumbents impact the successor transition (Powell & Eddleston, 2013; Vera & Dean, 2005).

Health of incumbent: The willingness of the incumbent to accept his/her mortality impacts his/her willingness to release the leadership of the company to the successor (Davis & Harveston, 1998). The overall health of the incumbent may force unwilling successors to become transgenerational entrepreneurs due to necessity. The overall health of the incumbent at

the time of the succession can also impact the training and knowledge sharing provided to the successor.

Firm size: The size of the firm is normally indicative of the number of family members employed. Trust of successors, willingness to accept risk, and competence of successor are impacted as more family members become employed and dependent upon the firm for their income (Boling et al., 2015; Habbershon et al., 2003; Schulze et al., 2003b). Additionally, the firm size impacts the availability of training and the mobility options for successors (Davis & Harveston, 1998).

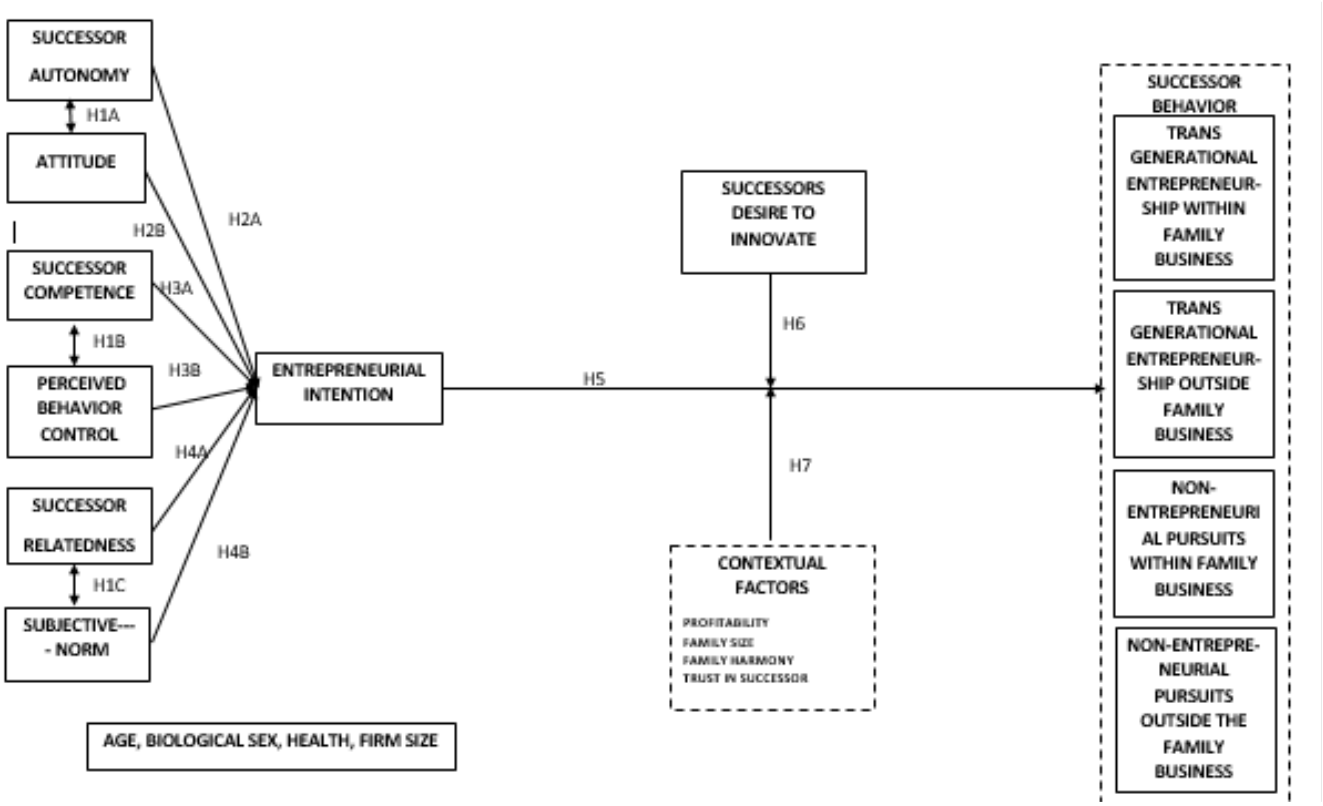


*Figure 4.1* Research model with hypotheses

# CHAPTER 3

# RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter provides a rigorous discussion of the research methodology. Initially the research design is discussed, followed by the selection of the sample and participants utilized. The chapter concludes with a discussion of the instrument development, the method of data collection, methodological considerations and concerns, and data analysis procedures. Figure 5.1 Research Methodology Process outlines the research methodology process used in this study.

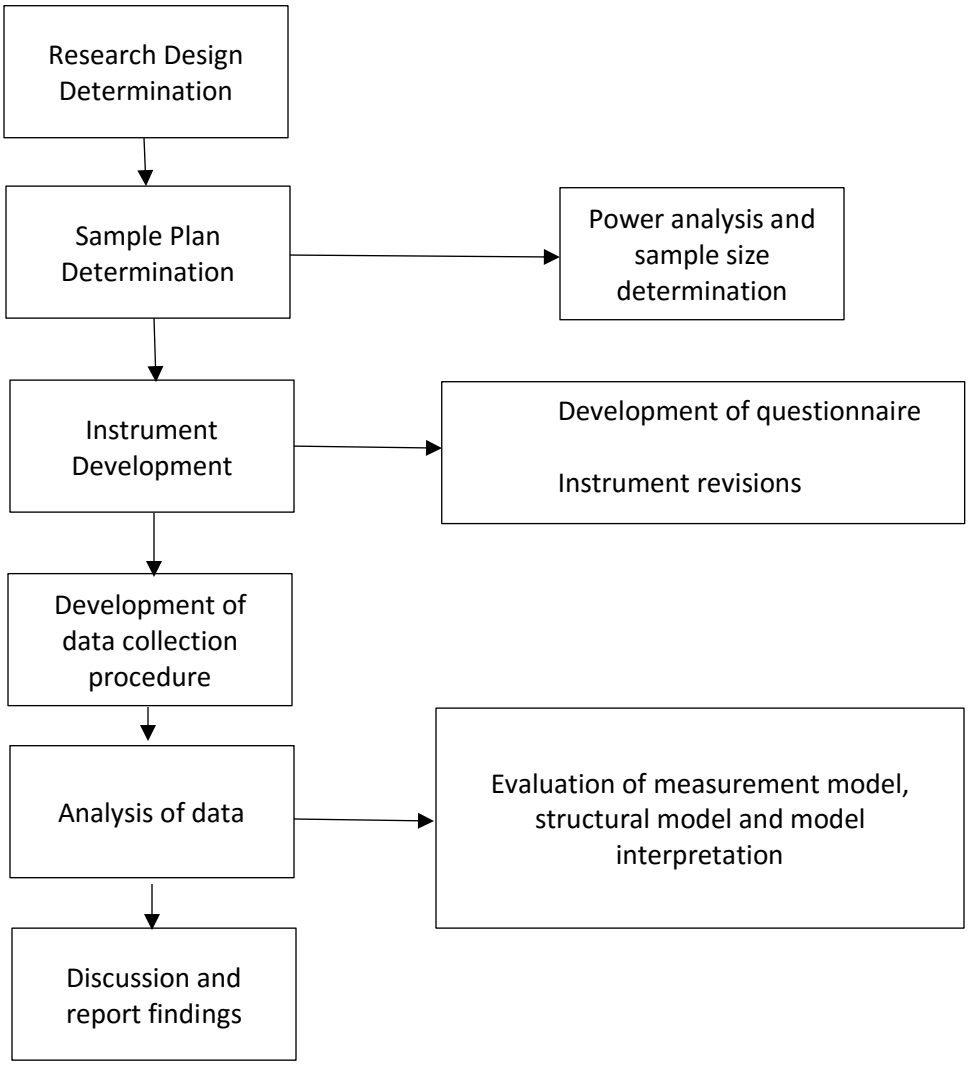


*Figure 5.1* Research Methodology Process

### 3.2 Research design

The model for this study is based on blending two heavily vetted theories: self-determination theory (SDT) and theory of planned behavior (TPB). TPB is an extension of the theory of reasoned action (TRA). Self-determination theory suggests that autonomy, competence, and relatedness produce intrinsic motivation that results in a specific behavior. Theory of planned behavior states that perceived behavior control, attitude and subjective norm lead to an intention that ultimately produces a specific behavior. Both theories rely heavily on internal state constructs that a researcher cannot observe or measure directly but must be measured by utilizing indirect indicators, self-report and verbal depiction (Krueger et al., 2000). It has been determined that self-reported data is an accurate source to acquire reliable information about internal state constructs (Spector, 2006). Spector (2006) concludes that self-reported data resolves the difficulty that arises in acquiring accurate data regarding emotions, attitudes and internal states of individuals. Due to the difficulty in acquiring accurate and reliable information regarding internal state indicators (i.e. attitude, motivation), a common method to collect data in most all social science fields would include interviews, surveys and questionnaires (Kline, Sulsky, & Rever-Moriyama, 2000). Therefore, this study will use a questionnaire of self-reported items to measure all variables of interest.

Zikmund, et al. (2010) points out that a survey instrument provides an efficient, reliable and inexpensive method to analyze data acquired regarding a population. Through rigorous processes, survey research has become very accurate and highly accepted in the research community. Careful planning by researchers allows surveys to be designed to yield statistical

descriptions of populations of individuals by asking questions and receiving self-reported responses.

The survey method must be careful to avoid common errors and pitfalls that have drawn criticism over the years. Zikmund et al. (2010) identifies some of these common random sampling and systemic errors to include: response bias, sample selection error, interviewer error, nonresponse bias, and data processing errors. These errors may be a result of natural environmental influences that may include perceptions of social desirability, interaction between interviewer and respondent, or common method bias. By applying diligent effort to implement random sampling, standards for good practice in question design, appropriate design quality in the survey instrument, and accurate results reporting, these concerns can be properly resolved.

To investigate the nature of transgenerational entrepreneurial pursuits by successor with entrepreneurial intention, this research has grounded the development of the study design in extant literature. The constructs to be examined in this study have been previously utilized, rigorously vetted in previous studies and found to be validated measures. Statistical analysis will be utilized to determine the validity and reliability of these measure in the context of this study. Confirmatory factor analysis will be used to determine the psychometric traits of each measure. The survey instrument will be evaluated to identify any challenges regarding length, ambiguity, or wording.

**3.3 Sample frame**

This study will utilize a cross-sectional survey design approach. Data will be collected at one point in time from a random sample that reflects the larger population of individuals to be studied (Zikmund, William, Babin, & Carr, 2010). The findings will be generalized from this random sample.

Participants in the quantitative portion of this study will consist of individuals in the United States who are twenty years of age or older. To achieve external validity, the researcher must insure that findings can be applied to the population at large. This study will utilize individuals who have families that own a business that provides an option for them to become employed and eventually manage.

Selecting an adequate sample size is critically important. The significance of relationships and correlations between constructs can be influenced by the size of the sample. Hair, et al. (2010), states that the ratio between number of constructs, level of significance, and sample size are closely related. Zikmund, et al. (2010) points out that three factors impact sample size: 1) population variance/heterogeneity), 2) confidence level (i.e. 95 percent), and magnitude of acceptable error. Large sample sizes minimize random errors, but researchers must take precaution to prevent small effects to become statistically significant due to the large sample size (Kline, 2011). Thus, sample size must be determined so that small effects to not appear significant in a large sample yet must prevent detecting only large effects due to a sample size that is too small. Therefore, for this study the research will employ the G-Power[2] application to insure appropriate sample size.

The study will utilize structural equation modeling (SEM) as a statistical technique to analyze the quantitative data in the study model. Large samples are required to conduct a structural equation modeling technique. The following section provides discussion of the researcher's method to determine the minimum acceptable sample size for this SEM study.

[2] G*Power 3 is a statistical power analysis program developed to compute sample sizes and analyze types of power. G*Power3 utilizes many different statistical tests that include F, t, chi-square, and z tests. G*Power 3 allows researchers improved effect size calculation with graphics options. G*Power 3 is usable for distribution-based or design-based inputs and offers five different types of power analyses.

### 3.3.1 Guidelines

To utilize a cross-sectional self-report survey in a study, the research plans to make inferences from the sample that should accurately reflect the population being studied. Accurate inferences can only be made to the degree in which the data gathered from the sample is a true reflection of the population. Larger sample sizes are desirable to reduce random sampling error. Smaller sample sizes make a larger error in estimation more likely (Zikmund, et al., 2010).

Structural equation modeling (SEM) allows a researcher to draw conclusions from the data gathered as the sample size (N) increases without a boundary. Researchers must be careful to select a sample that is not so large that small (even trivial) effect sizes that should be rejected may appear significant (Zikmund, et al., 2010). Many "rule of thumbs" and tables have been developed by researchers to assist in determining the appropriate sample size to accurately assess the significance of study effects. Kline (2011) addresses studies utilizing SEM and recommends that SEM should be avoided for analysis of samples that do not exceed 100 participants. Kline recommends SEM studies should examine 100-200 participants while Hair, et al. (2010) recommends a minimal sample size of 200 subjects. Schumacker and Lomax (2004) recommend the use of 10-20 participants per variable as a rule of thumb.

Hair, et al. (2010) suggests that rules of thumb and previous guidelines are no longer relevant to determine sample size and that sample size is best determined when based on model complexity and the characteristics of the basic measurement model. They theorize that models with five or less constructs (having three or more observable items and communalities not less than .60) could be estimated with a sample size of 100-150 subjects. Kline (2011) extends the number of minimum subjects needed in an SEM study to 200. Complex models with more parameters will require more subjects than simpler models. Studies with less than 200 subjects

are regularly rejected by journal publishers (Barrett, 2007). Kline (2011) recommends the N:q rule used in maximum likelihood estimation most frequently used in SEM analysis. N is the number of subjects needed and q is the model parameters to be estimated. Kline (2011) recommends twenty subjects for every model parameter to be estimated. Combining recommendations from Hair et al. (2010), Kline (2011) and G*Power 3, a minimum sample of 240 is needed for this study.

**3.3.2 Analysis of power**

To test hypotheses, researchers must evaluate the probability of Type I and Type II errors that may occur. Alpha (α) describes the probability of a Type I error occurring which results in rejecting a null hypothesis when the null hypothesis is true. Rejecting a true null hypothesis results in accepting a false alternative hypothesis. Beta (β) describes that probability of a Type II error occurring which results in accepting a null hypothesis (failing to reject the null) when it is false. Accepting a false null hypothesis results in rejecting a true alternative hypothesis (Zikmund, et al, 2010). Type I and Type II errors are addressed by a study having sufficient power to draw accurate conclusions about the population. The power of a study is the probability that the study will accurately reject a null hypothesis when the null is actually false. Hair et al. (2010) recommends that studies that test hypotheses should develop a study design that achieve a minimal alpha level of .05 and a power of at least .80. These minimal level can only be achieved by obtaining the minimum sample size required. Adequate power also becomes a consideration for the model fit for the observed sample covariance matrix in structural equation model studies. In SEM studies researcher must insure that the study possesses sufficient power to insure overall fit of the structural model (Byrne, 2010). A research study that does not have adequate power has a greater likelihood of incorrect findings and conclusions

(finding that the proposed model fits the data and population when it truly does not fit). Sample size impacts statistical power. Therefore, a researcher must secure a sufficient sample size to insure that the study has the minimum desired power to confidently draw conclusions regarding the hypotheses with confidence.

There is a suggested method for SEM models that allows researchers to determine the minimum sample size with the recommended power by identifying the alpha level and degrees of freedom of the study (MacCallum, Browne, & Sugawara, 1996). The number of indicators must be known to determine the degrees of freedom. Prior to confirmatory factor analysis, the number of indicators is difficult to define. Once the confirmatory analysis is completed for the study, the models degrees of freedom will determined by using the formula: p (p+1)/2-q; where p is the number of indicators and q is the freely estimated parameters. The table developed by MacCallum et al. (1996) will be used to determine the needed sample size to achieve a power of .80 and an alpha of .05.

**3.4 Measurements**

The quantitative data will be collected through administration of self-reported questionnaire. The instrument will be composed of seven sections. The first part will collect demographic information. The other sections of the questionnaire will contain items to measure the variables of this study. The questionnaire used for this study is provided in Appendix A.

Demographics: The demographic portion will be used to identify subject and firm characteristics (age, biological sex, race, education, health, firm size, and industry). The demographic data collected will be used for descriptive purposes of the sample.

Contextual Factors: Four factors will be utilized to provide the composite variable of contextual factors. Family harmony was measured using the four item family harmony scale ((Beehr, Drexler Jr, & Faulkner, 1997). Trust in successor was measured using the McAllister's eleven item trust scale (McAllister, 1995). Those four factors include:

Table 3-1*Variable definition and scales*

| Variable Name | Variable Description | Variable Type | Beginning Value | Ending Value |
|---|---|---|---|---|
| Profitability | Perception of family business profitability | 7 pt Likert type | 1 = Not at all profitable | 7 = Extremely profitable |
| Family Size | Family size supported by family business | Categorical | 1= <10 | 7 = >100 |
| Family Harmony | Level of family harmony | 7 pt Likert type | 1 = Strongly agree | 7 = Strongly disagree |
| Trust in Successor | Perception of trust in successor | 7 pt Likert type | 1 = Strongly agree | 7 = Strongly disagree |

Successor Autonomy, Successor Relatedness: and Successor Competence: The Self-Determination Scale (Sheldon & Deci, 1996) with twenty-one items and a 7-point Likert type scale was used to measure successor autonomy, successor relatedness, and successor competence.

Entrepreneurial Intention: Six items will be used to measure entrepreneurial intention via a 7-point Likert-type scale to capture different aspects of intention (Liñán & Chen, 2009).

Opportunity for Innovation: Opportunity for innovation is measured on a ten item scale (Pallister & Foxall, 1998). The items are measured on a 7-point Likert type scale to determine the participant's perception of opportunity for innovation within the family business (1= totally disagree to 7 = totally agree).

Control Variables: Consistent with past research involving family business succession the study will control for age of incumbent and successor, biological sex of incumbent and successor, overall health of incumbent, firm size, (Boling et al., 2015; Davis & Harveston, 1998; Habbershon et al., 2003; Krueger & Carsrud, 1993; Krueger et al., 2000; Powell & Eddleston, 2013; Royer et al., 2008; Schulze et al., 2003a; Vera & Dean, 2005). This will result in a survey instrument consisting of sixty-nine items and is expected to take fifteen to thirty minutes to complete.

**3.5 Procedure**

Quantitative data will be collected from MTurk. Questionnaires will be made available online. Participants will be instructed that the purpose of the study is to explore the role of innovation and entrepreneurial intention on family business succession. All participants will be informed that participation is completely voluntary. Researchers will make all efforts possible to keep all answers anonymous and confidential. Researchers will assure participants that there is no right or wrong answer for any question to encourage participants to respond as honestly as possible.

After the study is granted permission to proceed from the university, an MTurk request will be generated. The questionnaire will be made available through a link on the MTurk website. Participants will be paid an agreed upon amount after the completion of the task. The MTurk task request will remain available until the sample size requested is fulfilled.

**3.6 Methodological considerations and concerns**

**3.6.1 Common method variance**

Concern for common method variance must be addressed in this study since all variables are acquired from the same participant. Podsakoff et al. (2003) and Richardson et al. (2009)

describe common method bias as the variance introduced by using the same measurement method or source. The use of the same method or source may reflect that the variance between two variables is due to the type of measurement utilized rather than the correlation between two variables. Some researchers suggest that the impact of common method variance has been exaggerated and overemphasized (Spector, 1987).

Since self-report, cross-sectional data is utilized in this study, procedural and statistical methods have been implemented to address any concerns (Podsakoff, et al. 2003). Procedurally, this study has taken steps to address common method bias by randomizing questions outside the demographic section of the survey, assuring participant's anonymity, provide clear direction that there is not correct or incorrect response, utilizing different scale formats with varying scale anchors, implementing reverse coded items in the questionnaire and utilizing instruments that have been validated in extant literature. Statistically, Harman's (1967) single factor test will be utilized to address common method bias (Podsakoff et al. (2003). Additionally, the researcher implemented utilization of a marker technique on multiple occasions throughout the survey to insure that the participant was paying attention and preventing any straight line responses. Any participant that did not respond correctly to the marker questions were eliminated.

**3.6.2 Social desirability**

Respondents in this study will be potential successors within family businesses that will be asked to self-report on issues that may cause anxiety or sensitivity within the family. These issues may result in social desirability bias. Social desirability bias occurs when a subject responds in a way that he/she believes to be favorable, potentially understating negative behaviors or attributes and overstating positive behaviors or attributes (Paulhus, 1991). Respondents often respond in a way that may not reflect their accurate feelings to place the

response in a better light. Offering anonymity to the respondent is the method most frequently utilized to control for social desirability bias. Social desirability becomes a concern for self-report studies that investigate issues about which respondents may be sensitive. For example, self-reported responses concerning skills, abilities, personality, character issues (i.e. loyalty or trust), financial reporting, legal/illegal behaviors, appearance, etc. can introduce social desirability bias into a study. Numerous precautionary design steps have been taken in this study to address and reduce social desirability bias. These steps included providing anonymity to all respondents, intention to eliminate any need for details regarding the respondent's identity, self-administration of the survey utilizing a computer, insuring neutrality regarding question items, and assuring respondents that there were no right answers to the questions asked. Procedurally, steps were also implemented to eliminate alternative interpretations to potential responses that would compromise the credibility of the study's findings.

**3.7 Analysis of data**

Structural equation modeling (SEM) will be employed to analyze direct and indirect effect of respondents' autonomy (attitude), competence (perceived behavioral control), relatedness (subjective norm), entrepreneurial intention and innovation on transgenerational entrepreneurship. Mediating effects of entrepreneurial intention and moderating effects of innovation and contextual variables will also be tested using SEM.

This study will follow Kline's (2011) and Baer's (2010) recommendations to utilize a two-step modeling approach. The first step will involve evaluating the measurement model and allow the researcher to assess the measurement error. The second step will evaluate the structural model allowing the research to validate instrumentation of latent variables and examine how the observed variables represent the constructs within the study. This analysis will identify factor

loadings and reliability of the study constructs. Upon achieving acceptable fit for the proposed model, the researcher will begin to test the hypothesized relationships proposed in the structural model. These relationships will examine the significance of estimated coefficients of all paths between latent variables.

### 3.7.1 Discussion of SEM

Structural equation modeling (SEM) is an extension of numerous multivariate techniques (factor analysis and multiple regression analysis) that allows the researcher to examine multiple relationships at a given time to provide inside to interrelated research questions (Hair, Black, Babin, Anderson, & Tatham, 2010). SEM is capable of simultaneously evaluating a series of dependent relationships.

Utilizing structural equation modeling to analyze this study provides two distinct advantages. First, SEM has been found to be very useful in testing models that contain multiple equations utilizing dependent relationships that become independent variables for other relationships within the same model. SEM provides analysis to assess the measurement properties and important theoretical interdependent relationships in one technique. Additionally, structural equation modeling allows the researcher to include latent constructs into the model and control measurement error (Hair et al., 2010). Kline (2011) and Hair et al, (2010) identify six steps that include: 1) specify the model, 2) identify the model, 3) estimate the model, 4) assess the model fit 5) modify the model and 6) interpret and report the results.

The initial step of structural equation modeling requires the researcher to develop or draw the model that represents the series of equations to define the model. This involves defining the individual constructs and determining the items that will be used to measure each variable. As the researcher develops the path diagram, he/she will use squares or rectangles to specify

observed variables (indicators) and circles or ovals to specify unobserved (latent factors) variables. Latent variables (constructs) cannot be observed or measured directly but are measured by the representation of one or more variable (indicator) to provide an accurate assessment (Hair et al., 2010). One headed arrow connects each latent variable to one or more observed variable indicating the causal effect of the latent construct on the appropriate indicator that results in factor loadings. Each observed variable will also have an associated error term which identifies the unexplained variance because latent variables do not explain all the variation in the observed variables. Direct (causal) relationships between constructs are identified utilizing a straight one-headed arrow. The regression (path coefficient) is represented by this arrow (Byrne, 2010).

The second step involves identifying the model. Care must be given to support the validity and unidimensionality of each construct (Hair et al., 2010). This is accomplished by the researcher by establishing accurate theoretical basis of each construct and measure. The researcher must determine the number of indicators needed to properly measure each construct. The degrees of freedom can be calculated by ½ [(p) (p+1)] - k; where p represents the total number of observed variables and k represents the number of free (estimated) parameters (Hair et al., 2010). In SEM the degrees of freedom are based on the covariance matrix size which is derived from the number of indicators in the model. In SEM degrees of freedom is not derived from sample size as in regression.

The third step involves model estimation. Once the constructs and variables have been identified in the model specification step, the researcher must determine how well the model fits the data. Analysis with SEM will provide a covariance matrix (sigma Σ) that is calculated and compared to the model's sample of variance-covariance (S) (Hair et al., 2010). The magnitude

of the difference between the matrices will provide the researcher the information to determine if the model is a good fit for the data. Small differences between the two matrices indicates that the model suggest satisfactory fit. A significant difference between the matrices would suggest that the proposed model does not fit the sample data. If the data fits the model well, the researcher may then begin interpreting the parameter estimates. The determination of the magnitude of difference between the two matrices that would suggest if the model fits or does not fit must be assessed in an objective scientific way to accurately judge the fit of the model. If the data does not fit the model satisfactorily, the researcher must re-specify the model. Fit indices will be utilized to determine if the differences between matrices are large enough to suggest model re-specification.

It is common in SEM studies to find that the sample data does not fit well with the proposed model. SEM provides methods to allow the researcher to re-specify the model to improve model fit. SEM provides modification indices that enable a research to modify the proposed model. The researcher must be careful to ground all modifications in theory and not rely solely on modification indices. The modification index provides the approximation that an improvement (decrease) in chi-square would have on the corresponding parameter if that parameter is fixed or freed (Kline, 2011). The researcher may conduct several iterations in this process before reaching satisfactory fit for the model. When a model is found that fits satisfactorily, the researcher may begin interpreting the results and implications of the study.

**3.7.2 Study fit indices**

Researchers should use multiple fit indices to determine the model fit ((Hair et al., 2010; Kline, 2011). Hair et al. (2010) recommends utilizing multiple fit indices to insure necessary evidence of model fit. The fundamental absolute fit index most frequently utilized is the Chi-

squared ($X^2$) statistic. The $X^2$ statistic is the only statistically based SEM fit measure. Hair, et al (2010) recommends that researcher should also report an incremental index, an absolute index and one of more badness-of-fit indices. To satisfy Hair et al. (2010) suggestions, this study will use several fit indices to determine if the model provides a satisfactory fit to the observed data.

The chi-squared statistic is the most often used fit index in SEM. The $X^2$ statistic is a discrepancy fit index. Chi-squared index examines if the discrepancy between the observed model matrix and implied matrix is significant based upon the alpha level (.05) of the study. Therefore, the null hypothesis would be $S - \Sigma = 0$ suggesting that there is no difference between the generated and observed matrices. A significant $X^2$ statistic ($p < .05$) suggests that the research should reject the null hypotheses and fail to reject the alternate hypotheses (the model does not fill well with the data). Researchers, thus, desire an insignificant chi-squared statistic ($p > .05$) so they are not required to reject the null hypothesis.

The greatest challenge with the chi squared statistic is the necessity for large sample sizes in SEM studies. When sample size increase, the sensitivity to detect differences also increases. Using large sample sizes in SEM studies would then enable even small differences to be significant. The result of the $X^2$ test might encourage a researcher to incorrectly assess the fit or misfit of the observed data. These limitations lead the researcher to utilize alternative fit indices that are less sensitive to sample size and provide a straightforward dichotomous indication of fit or lack of fit of the proposed model.

The root mean square error of approximation (RMSEA) will be utilized as a badness-of-fit index (Steiger & Lind, 1980) in this study. RMSEA measures the discrepancy between the implied model matrix per degree of freedom and the observed model matrix. The root mean square error of approximation provides the researcher to take into account the sample size. The

RMSEA is least impacted by sample size. Acceptable fit is indicated by a value between .05 -.10 (Kline, 2011, Hair et al. 2010).

In addition to the absolute indices discussed ($X^2$ and RMSEA), incremental fit indices will also be utilized in this study. Incremental fit indices evaluate the improvement of fit by comparing the proposed mode to a null (baseline) model. The baseline model assumes there are no interrelationships between variables. This study will utilize the GIF, CFI and NNFI incremental indices (Bentler, 1990; Bentler & Bonett, 1980). These indices suggest value ranges between 0 – 1. Models with better fit have values closer to 1. Kline (2011) recommends an acceptable threshold of at least .90 for proposed models to indicate a reasonably good fit.

**3.7.3 Estimation method**

Although numerous estimation methods are available, maximum likelihood estimation (ML) is most often used. Maximum likelihood estimation demands a large sample and has been found to be robust to violations of normality (Hair et al., 2010). ML has been found to produce more reliable and robust results in various conditions as compared to other methods (Hair et al., 2010; Kline, 2011). This study will utilize maximum likelihood estimation to analyze the model.

Structural equation modeling can use covariance matrix or correlation as input. This study will use SPSS AMOS 24.0 to analyze the structural equation modes utilizing the covariance matrix as the input file.

**3.7.4 Testing mediating effects**

SEM will be used to test the mediating relationships in this study. A mediation relationship occurs when instead of a direct relationship occurring between an independent and dependent variable, the independent variable influences the mediating variable, which influences the dependent variable (Tabachnick & Fidell, 2007; Zikmund et al., 2010). Four steps will be

utilized to establish mediation (Baron & Kenny, 1986). The first step will be to establish a significant relationship between the independent variable and the dependent variable. The second step will identify a relationship between the independent variable and the mediating variable. The third step will identify a relationship between the mediating variable and the dependent variable. The fourth and final step will verify the change in the relationship between the independent and dependent variables when the mediator is included. The Sobel-test will be used to calculate the significance of indirect effects (Baron & Kenny, 1986; Sobel, 1982).

### 3.7.5 Testing moderating effects

Structural equation modeling will also be used to test the moderating relationships in this study. Moderating relationships occur when a third variable affects the strength of the correlation between a dependent and an independent variable (Tabachnick & Fidell, 2007; (Zikmund et al., 2010)). SEM will test for an interaction effect. The first step in this two-step process will test the dependent variable on the main effects. The second step will add the interaction term to the model. The research may conclude that moderation occurs if the interaction effect is significant (Baron & Kenny, 1986). The relevant variables will be mean centered prior to creating the testing the interaction term to reduce multicollinearity (Cohen, Cohen, West, & Aiken, 1983).

# CHAPTER 4

# DATA ANALYSIS

## 4.1 Introduction

This chapter provides a summary of the statistical analyses and the study results. Structural equation modeling and Smart partial least squared was utilized to analyze the direct, mediating and moderating effects of the research model.

## 4.2 Pilot studies

Two pilot studies were conducted prior to final data collection. Although participants for the pilot studies were collected from the same population as the target study (MTurk), all pilot study participants were eliminated from the final study population.

### 4.2.1 Pilot study one

The first pilot study recruited 25 participants that were over 20 years old, had a parent or parents that owned a family business, were residents of the United States and were candidates to be successors of the business. The purpose of this study was to test the survey instrument and solicit feedback on possible challenges with wording, clarity, and time expended in taking the survey. It was evident that the estimated time to complete the survey was between 15-20 minutes and four of the questions were re-worded to bring better clarity and provide consistency with other survey items.

### 4.2.2 Pilot study two

The second pilot study recruited 75 participants that were over 20 years old, had a parent or parents that owned a family business, were residents of the United States and were candidates to be successors of the business. The purpose of this pilot study was to confirm that previous

concerns with wording for survey items had been properly addressed and to determine if the variables were loading as anticipated during factor analysis.

**4.3 Sample characteristics**

Data from a representative sample of the population was acquired for MTurk to determine the impact of successor factors on entrepreneurial intention and ultimately successor behavior. Successor behavior included transgenerational entrepreneurship within the family business, transgenerational entrepreneurship outside the family business, non-entrepreneurial pursuits within the family business and non-entrepreneurial pursuits outside the family business. Participants were screened to include only subjects that were twenty years of age or older, had a parent/parents that owned a family business, resided in the United States and were likely to be selected as the successor of the family business. Four hundred responses were collected that met the study qualifications. These four hundred participants were screened to insure they had not participated in the pilot studies. Respondents who did not respond correctly to the attention questions to check for common method bias, failed to provide complete data and spent less than five minutes on the survey were eliminated leaving 383 respondents. This sample size is compliant with the recommendations of Hair, et al. (2010) and Kline, (2011). This provided a 96% response rate.

Eighty-five percent of the participants were between the ages of 21 and 40. Forty-eight percent were male and fifty-two percent were female. Seventy-two percent of the sample were Caucasian and forty-eight percent had completed a four-year college education. Eighty-four percent of the family businesses were service businesses. Eighty percent of the incumbents were male with seventy-four percent of the incumbents being over fifty years of age. Ninety-one percent of the incumbents were described in fair to excellent health. The demographic profile of

the sample is provided in Table 4-1 Sample successor characteristics, Table 4-2 Sample incumbent characteristics and Table 4-3 Sample family business characteristics/

Table 4-1 *Sample successor characteristics*

| **Variable** | **Category** | **Frequency** | **Percentage (%)** |
|---|---|---|---|
| Successor Age | 21-30 | 185 | 48.2 |
| | 31-40 | 143 | 37.2 |
| | 41-50 | 38 | 9.9 |
| | 51-60 | 13 | 3.5 |
| | 61-70 | 4 | 1.0 |
| | Over 70 | 1 | 0.3 |
| Successor Biological Sex | Male | 184 | 47.9 |
| | Female | 200 | 52.1 |
| Successor Race | Caucasian | 277 | 72.1 |
| | African American | 36 | 9.4 |
| | Hispanic | 29 | 7.6 |
| | American Indian/Alaskan Native | 4 | 1.0 |
| | Asian/Pacific | 31 | 8.1 |
| | Middle Eastern | 1 | 0.3 |
| | Other | 6 | 1.6 |
| Successor Education | Did not complete HS | 1 | 0.3 |
| | HS graduate or equivalent | 51 | 13.3 |
| | 2 year college degree | 81 | 21.1 |
| | 4 year college degree | 184 | 47.9 |
| | Master degree | 52 | 13.5 |
| | Doctoral degree | 14 | 3.6 |
| | Other | 1 | 0.3 |
| Successor Health | Extremely Good | 107 | 27.9 |
| | Good | 218 | 56.8 |
| | Fair | 52 | 13.5 |
| | Poor | 6 | 1.6 |
| | Extremely Poor | 1 | 0.3 |

Table 4-2 *Sample incumbent characteristics*

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Incumbent Age | Under 20 | 2 | .5 |
| | 21-30 | 26 | 6.8 |
| | 31-40 | 18 | 4.7 |
| | 41-50 | 53 | 13.8 |
| | 51-60 | 141 | 36.7 |
| | 61-70 | 116 | 30.2 |
| | Over 70 | 28 | 7.3 |
| Incumbent Biological Sex | Male | 307 | 79.9 |
| | Female | 77 | 20.1 |
| Incumbent Health | Extremely Good | 68 | 17.7 |
| | Good | 183 | 47.7 |
| | Fair | 101 | 26.3 |
| | Poor | 29 | 7.6 |
| | Extremely Poor | 3 | 0.8 |

Table 4-3 *Sample family business characteristics*

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Family Business Type | Manufacturing | 60 | 15.6 |
| | Service | 324 | 84.4 |
| Family Members Involved in Family Business | Less than 5 | 134 | 34.9 |
| | 6 - 15 | 134 | 34.9 |
| | 16 - 25 | 65 | 16.9 |
| | 26 - 75 | 41 | 10.7 |
| | 76 -99 | 6 | 1.6 |
| | More than 100 | 4 | 1.0 |

## 4.4 Assumptions of structural equation modeling

### 4.4.1 Multivariate normality and normality

Multivariate normality was evaluated utilizing linear regression to insure normal distribution. Cook's distance was evaluated using SPSS and records were examined to insure that there were no records exceeding 1.0 in distance. No record was > 1, therefore, there were no outliers. Plots were also used to examine and insure that no outliers existed.

### 4.4.2 Collinearity

Collinearity was examined through linear regression. All variables were estimated to have tolerance > .1 and a VIF < 10. The researcher was able to conclude that the assumption for collinearity had been satisfied.

### 4.4.3 Homoscedasticity

Homoscedasticity was examined utilizing linear regression through SPSS. The variables exhibit homoscedasticity when they have homogeneity of variance (same finite variance). The Loess fit method line was utilized to determine that all the data satisfied the assumption of homoscedasticity.

## 4.5 Exploratory factor analysis

After the data was cleaned of missing data and all reverse coded items had been transformed, an exploratory factor analysis (EFA) was conducted. The initial EFA did not initially provide good model fit. Examination of the loading provided an understanding that the three self-determination variables (autonomy, competence and relatedness) were cross loading heavily on the other theory of planned behavior variables (attitude, perceived behavioral control and subjective norm). A separate EFA was conducted for the self-determination variables and loadings were evaluated. After eliminating some of each variable's items, all three variables loaded correctly and were included with the rest of the independent variables for the study. Lowest loading items, cross loading item, negative loadings, and any items that did not load were eliminated. The final EFA resulted in a KMO of .950. Goodness of fit was significant. The cumulative variance explained was 68.533 with only 1 % non-redundant residuals. Chi squared was 1413.574 with 731 degrees of freedom. The results of the exploratory factor analysis are provided in Table 4-4 Exploratory factor analysis results and Cronbach α.

Table 4-4 *Exploratory factor analysis results and Cronbach α in AMOS*

Pattern Matrix[a]

| | Component | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Chronbach α | 0.956 | 0.918 | 0.886 | 0.915 | 0.912 | 0.869 | 0.868 | 0.882 | 0.863 | 0.745 |
| EI4 | 0.994 | | | | | | | | | |
| EI3 | 0.936 | | | | | | | | | |
| EI6 | 0.928 | | | | | | | | | |
| EI5 | 0.87 | | | | | | | | | |
| EI2 | 0.794 | | | | | | | | | |
| EI1 | 0.733 | | | | | | | | | |
| Inn2 | | 0.927 | | | | | | | | |
| Inn5 | | 0.89 | | | | | | | | |
| Inn3 | | 0.814 | | | | | | | | |
| Inn4 | | 0.773 | | | | | | | | |
| Inn7 | | 0.741 | | | | | | | | |
| Inn6 | | 0.701 | | | | | | | | |
| Inn1 | | 0.595 | | | | | | | | |
| Fam Harm1 | | | 0.84 | | | | | | | |
| Fam Harm2 | | | 0.838 | | | | | | | |
| Fam Harm3 | | | 0.829 | | | | | | | |
| Suc Trust 8 | | | 0.444 | | | | | | | |
| ATT1 | | | | 0.885 | | | | | | |
| ATT4 | | | | 0.879 | | | | | | |
| ATT2 | | | | 0.877 | | | | | | |
| ATT5 | | | | 0.724 | | | | | | |
| | | | | | | | | | | |

Table 4-4 (Continued)

Pattern Matrix[a]

| | Component | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Rel1 | | | | | 0.939 | | | | | |
| Rel2 | | | | | 0.862 | | | | | |
| Rel8 | | | | | 0.772 | | | | | |
| Rel5 | | | | | 0.703 | | | | | |
| PBC4 | | | | | | 0.908 | | | | |
| PBC5 | | | | | | 0.836 | | | | |
| PBC6 | | | | | | 0.625 | | | | |
| PBC1 | | | | | | 0.592 | | | | |
| PBC3 | | | | | | 0.59 | | | | |
| SN3 | | | | | | | 0.889 | | | |
| SN2 | | | | | | | 0.842 | | | |
| SN1 | | | | | | | 0.805 | | | |
| Suc Trust4 | | | | | | | | 0.875 | | |
| Suc Trust11 | | | | | | | | 0.856 | | |
| Suc Trust5 | | | | | | | | 0.773 | | |
| Auto6 | | | | | | | | | 0.825 | |
| Auto3 | | | | | | | | | 0.806 | |
| Auto5 | | | | | | | | | 0.788 | |
| Comp5 | | | | | | | | | | 0.91 |
| Comp6 | | | | | | | | | | 0.839 |
| Comp1 | | | | | | | | | | 0.674 |

Extraction Method: Principal Component Analysis.

Rotation Method: Promax with Kaiser Normalization.

### 4.5.1 Convergent validity

Convergent validity provides the researcher with the confidence that variables that should be theoretically related are indeed related (Hair et al., 2010). The results of the exploratory factor analysis were evaluated to determine convergent validity. If the loadings of the factors averaged above .7 it was concluded that convergent validity was evident (Hair et al., 2010).

### 4.5.2 Discriminant validity

Discriminant validity suggests that variables that should not be theoretically related are unrelated (Hair et al., 2010). The factor loadings were examined to determine that there were no cross loadings within .2 and the factor correlation matrix was evaluated to insure that there was no correlation between the factors that were greater than .7 (Hair et al., 2010). The eighth item of successor trust consistently loaded on family harmony. This created minor challenges with discriminant validity in the confirmatory factor analysis phase of the study and will be discussed in detail in that section.

### 4.5.3 Reliability

Reliability determines that the measures will provide similar results in consistent conditions (Hair et al., 2010). Reliability was determined by calculating Cronbach's alpha in SPSS. Cronbach's alpha of .7 or above is preferred. The Cronbach's alpha for each variable is included in Table 4.2. All study variables exhibited high reliability ranging from .745 to .956.

### 4.5.4 Common method bias

The potential for common method bias must be explored in studies that use self-reported data. Several procedural steps were implemented during the design process of the study (multiple attention checks, reverse coding of items, and reordering variable items) to minimize

any potential for common method bias. However, the researcher must include additional post hoc checks to insure that common method variance did not occur in the study.

Harmon's single factor technique is the most common statistical technique employed to examine potential CMV (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). All the study items were entered into to the exploratory factor analysis and Harman's single factor technique was utilized to check for potential common method bias. After examining the un-rotated factor solutions, no single factor emerged from the CFA, and the first factor continued to account for the majority of variance of all the variables in the study with no single factor accounting for the majority of variance of the items. The results suggest that common method bias is not represented in the study data.

**4.5.5 Social desirability**

Social desirability can impact cause respondents to answer questions in a manner to allow them to be viewed favorably by others. This bias can impact self-report data by interfering with honest and accurate responses. Several methods were utilized during the design of the survey to insure that social desirability did not impact the study data. These efforts included providing anonymity to all respondents, intention to eliminate any need for details regarding the respondent's identity, self-administration of the survey utilizing a computer, insuring neutrality regarding question items, and assuring respondents that there were no right answers to the questions asked. The implementation of these efforts provide reasonable assurance that social desirability did not impact the study data.

**4.6 Confirmatory factor analysis with AMOS**

Confirmatory factor analysis was conducted using structural equation modeling Amos v 24. The CFA was conducted as a second step to assess the proposed measurement model. The

CFA provided a measurement model to assess model fit. The initial model had a moderately good fit. Fit indices were improved upon by correlating the error estimates for similarly worded questions (Kenny, 2012). Model fit was assessed to be acceptable when CFI > .95 PCLOSE > .05 RMSEA between .5 and .8 and GFI between 0 and 1 (Schumaker and Lomax, 2010). After model fit was achieved in the CFA composite reliability, average variance extracted, maximum shared variance, average shared variance and square root of average correlation were calculated. The study data reflects convergent validity as evidenced by all AVE > .5. Reliability is evidenced by a CR > .7. The study reflects appropriate discriminant validity based on the square root of AVE that is greater than any interfactor correlation (with the exception of successor trust). The results of these calculations can be found in Table 4.6.

Table 4.5 *Assessment of convergent & discriminant validity and reliability after CFA in AMOS*

| | CR | AVE | MSV | MaxR(H) | FHARM | ATT | AUTO | PBC | COMP | SN | REL | EI | INN | STRUST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FHARM | 0.888 | 0.725 | 0.701 | 0.897 | **0.852** | | | | | | | | | |
| ATT | 0.922 | 0.746 | 0.440 | 0.955 | 0.391 | **0.864** | | | | | | | | |
| AUTO | 0.866 | 0.682 | 0.679 | 0.966 | 0.634 | 0.440 | **0.826** | | | | | | | |
| PBC | 0.862 | 0.557 | 0.540 | 0.972 | 0.428 | 0.638 | 0.573 | **0.746** | | | | | | |
| COMP | 0.749 | 0.504 | 0.173 | 0.975 | 0.157 | 0.231 | 0.379 | 0.221 | **0.710** | | | | | |
| SN | 0.873 | 0.695 | 0.501 | 0.978 | 0.481 | 0.583 | 0.670 | 0.559 | 0.354 | **0.834** | | | | |
| REL | 0.905 | 0.704 | 0.679 | 0.982 | 0.574 | 0.487 | 0.824 | 0.591 | 0.416 | 0.708 | **0.839** | | | |
| EI | 0.956 | 0.783 | 0.540 | 0.988 | 0.332 | 0.663 | 0.408 | 0.735 | 0.085 | 0.441 | 0.451 | **0.885** | | |
| INN | 0.917 | 0.612 | 0.524 | 0.989 | 0.436 | 0.577 | 0.623 | 0.724 | 0.234 | 0.554 | 0.678 | 0.620 | **0.782** | |
| STRUST | 0.839 | 0.568 | 0.701 | 0.990 | 0.837 | 0.497 | 0.774 | 0.477 | 0.360 | 0.692 | 0.754 | 0.307 | 0.528 | **0.754** |

As discussed earlier and evidenced in Table 4.5, the researcher notes a concern with discriminant validity. The square root of the AVE for STRUST is less than one and the absolute value of the correlations with another factor and the AVE for STRUST is less than the MSV. The research acknowledges this concern and attributes it to the similarity between the question for successor trust and family harmony. After assessing the concern, the researcher chose to keep the eighth item in the study since seven of the items for successor trust had been eliminated in the exploratory factor analysis, and the researcher desired to have enough items to properly evaluate successor trust as a moderator in the study.

### 4.7 Limitations encountered in evaluating structural model with AMOS

After conducting the confirmatory factor analysis using AMOS and establishing an acceptable level of fit, an attempt was made to evaluate the study with a structural model. Multiple attempts were made to no avail due to an error stating that a positive definite covariance matrix was not achieved. This error can be generated for numerous reasons including: data entry error, computation of incomplete data using pairwise deletion, tetrachonic correlations (use of correlation coefficients other than product moment correlations) or observed variables that are linearly dependent. After all other reasons were eliminated it was concluded that positive definite covariance matrix could not be achieved using AMOS due to the linear dependency of the dependent variables. A positive definite covariance matrix cannot be achieved when a perfect linear dependence of one variable on another exists. In this model, the four dependent variables predict each other. If transgenerational entrepreneurship within the family business is equal to one, all other dependent variables are zero. Thus, the value on one variable can be used to perfectly predict the value of the other three variables. Certainly the values of three of the variables will predict the value of the fourth variable every time.

### 4.8 Purpose of utilizing PLS-SEM to further analyze model

Two forms of structural equational modeling exist (Lowry & Gaskin, 2014). Covariance-based (CB-SEM) allows researchers to represent constructs using factors (LISREL and AMOS). The second form is least squares based and represents constructs using components (PLS-SEM). CB-SEM provides the researcher the advantage of model validation (goodness of fit measures) that PLS-SEM does not. CB-SEM provides a comparison between proposed and observed covariance matrices that allows a researcher to assess the "fit" of the proposed model. However, PLS-SEM provides most of the advantages and characteristics of CB-SEM and also provides

some additional advantages when theory building. PLS-SEM utilizes servers statistical techniques that are not utilized in CB-SEM (multiple regression, principal component analysis, canonical correlation, and redundancy analysis) without inflation of the t-statistic. PLS allows each indicator to vary in the amount it contributes to the construct's composite score to prevent fix-scale construction. PLS-SEM is specifically helpful in models that have higher-order constructs.

One of the most significant differences between PLS-SEM and CB-SEM is a result of purpose (Lowry & Gaskin, 2014). The goal of CB-SEM is to demonstrate that the null hypothesis is insignificant, thus the paths as specified by the proposed model can occur. PLS-SEM's objective is to illustrate that the alternative hypothesis is significant which allows the research to reject the null hypothesis when significant t-values and high $R^2$ values occur. Due to the difference in the goals and algorithms of each method, CB-SEM can often result in factor indeterminacy which results in more than one possible solution that is mathematically appropriate without determining which solution corresponds to the tested hypothesis, thus making the argument for causality difficult. Thus, some researcher believe CB-SEM to be less reliable for theory building due to the need for exploratory analysis. These researchers suggest CB-SEM is best used to test well-established theories that have been empirically validated. PLS-SEM avoids factor indeterminacy by constructing factor scores and utilizing the constructed factor scores in all subsequent calculations. By avoiding factor indeterminacy PLS-SEM can be used for exploratory and confirmatory studies even when the theories proposed have not been previously tested.

CB-SEM and PLS-SEM also vary in the way unknowns are handled in model estimation. With PLS-SEM prediction occurs iteratively, minimizing residual variance of the dependent

variable to reach parameter estimates (Lowry & Gaskin, 2014). After obtaining parameter estimates, PLS-SEM calculates significance using a t-test. PLS-SEM does not assume that dependent variables have a normal distribution. Thus, PLS-SEM is very flexible with violations of multivariate normal distributions. Since CB-SEM often utilizes maximum likelihood estimation, data normality is a necessary assumption. Thus, when evaluating proposed models, PLS-SEM provides more flexibility.

CB-SEM requires researchers to utilize reflective indicators. PLS-SEM allows both reflective and formative indicators in a study model (Gefen & Straub, 2005; Hair Jr & Hult, 2016; Lowry & Gaskin, 2014). Reflective indicators are observed variables that are an effect of a latent variable. Changes in the latent variable would cause changes in all of the indicators of that latent variable. All reflective indicators must co-vary requiring convergent validity within the indicators. A formative indicator is a cause or component of a latent variable. The latent variable is a function of its indicators, thus changes in the latent variable may not impact all of the indicators of the latent variable. Changes in one indicator would be reflected in the latent variable. Therefore, indicators can vary independently or inversely of one another. Convergent validity measures are not meaningful for formative indicators. When models have only reflective indicators, critical modeling errors can result producing inaccurate results. Therefore, PLS-SEM provides a statistical technique to properly analyze mixed models that have both reflective and formative indicators.

Finally, CB-SEM is not as sensitive to moderating effects since PLS-SEM deals more effectively with measurement error. PLS-SEM software has incorporated specific design features to insure easier analysis of interactions. Since moderators increase the complexity of the model and the number of indicators needed, researchers can encounter difficulties when using

CB-SEM for analysis. CB-SEM requires large sample sizes for accuracy in estimation and reaches limitations in the number of variables it can handle to achieve convergence. Model non-convergence will require the researcher to explore other possibilities for analysis. For this study, PLS-SEM provided the needed solution to resolve the problems encountered.

### 4.9 Exploratory factor analysis with PLS-SEM

Exploratory factor analysis was accomplished by developing a PLS-SEM model of all the latent variables within the model. This study is made of reflective variables. The model was analyzed utilizing both consistent PLS algorithm and consistent bootstrapping.

#### 4.9.1 EFA using partial least squares

For the initial calculations the PLS algorithm was run connecting all latent variables, utilizing the factor weighting scheme, specifying 1000 maximum iterations and using mean replacement for any missing values. Examination of the outer loadings revealed one factor should be removed from attitude, three factors from autonomy, three factors from competence, one factor from family harmony, three factors from relatedness and four factors from trust in successor. The researcher also examined construct validity, average variance explained, discriminate validity and collinearity to substantiate the need to remove these factors. After these factors were removed, a second PLS algorithm was run.

After the second analysis using the PLS algorithm, the outer loadings for reflective constructs revealed that the loading were acceptable. T-statistics were all greater than 1.96. Further examination of discriminate validity, collinearity, average variance, and SRMR (goodness of fit measure) were examined to support the decision that the estimations were acceptable to proceed. See Appendix B Construct Reliability Validity, and Discriminant Validity.

### 4.9.2 EFA after bootstrapping

Bootstrapping is often applied to test if coefficients such as outer weights (reflective variables), outer loadings (formative variables) and path coefficients are significant through standard errors estimates. Consistent PLS bootstrapping performs the bootstrapping routine on the consistent PLS algorithm. Following the PLS algorithm to determine the initial exploratory factorial analysis, a bootstrapping analysis was conducted. Bootstrapping provides a more accurate analysis of the latent variables. The goodness of fit measure (SRMR = .050) indicates good fit. A SRMR < .08 is indication of goodness of fit (Hu & Bentler, 1998).

See Table 4.6 Exploratory Factor Analysis Results in PLS-SEM.

The consistent bootstrapping report suggests that construct reliability and validity exist when composite reliabilities > .7 and p-values are significant (Hair Jr & Hult, 2016). See Table 4.7 Construct reliability and validity. The average variance explained by each construct was also acceptable ranging from .673 to .821 which exceeds the requirement that the sample mean is > .5 (Hair Jr & Hult, 2016). See Table 4.8 Average variance explained.

Table 4.6 *Exploratory factor analysis results*

| FACTOR ITEM | ATTITUDE | AUTONOMY | COMPETENCE | EI | FAM HARMONY | INN | PBC | REL | SN | TRUST IN SUC |
|---|---|---|---|---|---|---|---|---|---|---|
| ATT_1 | 0.833 | | | | | | | | | |
| ATT_2 | 0.842 | | | | | | | | | |
| ATT_4 | 0.881 | | | | | | | | | |
| ATT_5 | 0.868 | | | | | | | | | |
| AUTO_1 | | 0.761 | | | | | | | | |
| AUTO_3 | | 0.801 | | | | | | | | |
| AUTO_5 | | 0.742 | | | | | | | | |
| AUTO_6 | | 0.784 | | | | | | | | |
| COMP_2 | | | 0.745 | | | | | | | |
| COMP_3 | | | 0.834 | | | | | | | |
| COMP_4 | | | 0.841 | | | | | | | |
| EI_1 | | | | 0.907 | | | | | | |
| EI_2 | | | | 0.942 | | | | | | |
| EI_3 | | | | 0.883 | | | | | | |
| EI_4 | | | | 0.877 | | | | | | |
| EI_5 | | | | 0.827 | | | | | | |
| EI_6 | | | | 0.874 | | | | | | |

Table 4.6 (Continued)

| FACTOR ITEM | ATTITUDE | AUTONOMY | COMPETENCE | EI | FAM HARMONY | INN | PBC | REL | SN | TRUST IN SUC |
|---|---|---|---|---|---|---|---|---|---|---|
| FH_1 | | | | | 0.882 | | | | | |
| FH_2 | | | | | 0.885 | | | | | |
| FH_3 | | | | | 0.783 | | | | | |
| INN_1 | | | | | | 0.864 | | | | |
| INN_2 | | | | | | 0.713 | | | | |
| INN_3 | | | | | | 0.853 | | | | |
| INN_4 | | | | | | 0.738 | | | | |
| INN_5 | | | | | | 0.742 | | | | |
| INN_6 | | | | | | 0.848 | | | | |
| INN_7 | | | | | | 0.718 | | | | |
| PBC_2 | | | | | | | 0.729 | | | |
| PBC_3 | | | | | | | 0.813 | | | |
| PBC_4 | | | | | | | 0.71 | | | |
| PBC_5 | | | | | | | 0.786 | | | |
| PBC_6 | | | | | | | 0.849 | | | |
| REL_1 | | | | | | | | 0.845 | | |
| REL_2 | | | | | | | | 0.869 | | |
| REL_4 | | | | | | | | 0.822 | | |
| REL_5 | | | | | | | | 0.867 | | |
| REL_8 | | | | | | | | 0.831 | | |
| SN_1 | | | | | | | | | 0.84 | |
| SN_2 | | | | | | | | | 0.834 | |
| SN_3 | | | | | | | | | 0.824 | |
| ST_1 | | | | | | | | | | 0.806 |
| ST_11 | | | | | | | | | | 0.734 |
| ST_3 | | | | | | | | | | 0.793 |
| ST_5 | | | | | | | | | | 0.793 |
| ST_7 | | | | | | | | | | 0.865 |
| ST_8 | | | | | | | | | | 0.896 |
| ST_9 | | | | | | | | | | 0.757 |

Table 4.7 *Construct reliability and validity in PLS-SEM*

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (\|O/STDEV\|) | P Values |
|---|---|---|---|---|---|
| ATTITUDE | 0.941 | 0.940 | 0.007 | 131.079 | 0.000 |
| AUTONOMY | 0.901 | 0.900 | 0.009 | 95.303 | 0.000 |
| COMPETENCE | 0.908 | 0.908 | 0.009 | 96.695 | 0.000 |
| EI | 0.965 | 0.965 | 0.004 | 228.249 | 0.000 |
| FAM HARMONY | 0.929 | 0.929 | 0.008 | 109.438 | 0.000 |
| INN | 0.935 | 0.935 | 0.006 | 163.410 | 0.000 |
| PBC | 0.916 | 0.915 | 0.008 | 114.996 | 0.000 |
| REL | 0.945 | 0.944 | 0.006 | 164.585 | 0.000 |
| SN | 0.921 | 0.921 | 0.011 | 87.311 | 0.000 |
| TRUST IN SUC | 0.940 | 0.938 | 0.009 | 110.287 | 0.000 |

Table 4.8 *Average variance explained*

| | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics | P Values |
|---|---|---|---|---|
| ATTITUDE | 0.798 | 0.020 | 38.983 | 0.000 |
| AUTONOMY | 0.695 | 0.022 | 31.259 | 0.000 |
| COMPETENCE | 0.767 | 0.020 | 38.588 | 0.000 |
| EI | 0.821 | 0.018 | 45.224 | 0.000 |
| FAM HARMONY | 0.813 | 0.019 | 42.114 | 0.000 |
| INN | 0.673 | 0.021 | 32.766 | 0.000 |
| PBC | 0.684 | 0.022 | 31.078 | 0.000 |
| REL | 0.773 | 0.019 | 40.491 | 0.000 |
| SN | 0.796 | 0.023 | 33.964 | 0.000 |
| TRUST IN SUC | 0.687 | 0.030 | 23.358 | 0.000 |

### 4.9.3 Successor individual trait correlation

After establishing that the study constructs were psychometrically sound, estimation of the structural model was conducted. The overall model fit was assessed by examining the standardized root meat residual (SRMR). . The SRMR is the discrepancy between the observed correlation within the study model and the implied model correlations. A model has good fit when the SRMR < .08 (Hair Jr & Hult, 2016). The proposed model is assessed as a good fit with

a SRMR of .058 Correlation of the self-determination constructs and theory of planned behavior constructs were assessed. See Table 4.9 Construct correlation table. Successor autonomy is positively correlated (.543) with successor attitude supporting Hypothesis 1A. Successor competence is positively correlated (.647) with successor perceived behavior control supporting Hypotheses 1B. Successor relatedness is positively correlated (.709) with successor subjective norm supporting Hypotheses 1C.

Table 4.9 *Construct correlation table*

| | ATT | AUTO | COMP | EI | HARMONY | FAM SIZE | INN | NEOFB | NEWFB | PBC | PROFIT | REL | SN | TEOFB | TEWFB | TRUST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATT | 1 | | | | | | | | | | | | | | | |
| AUTO | 0.543 | 1.000 | | | | | | | | | | | | | | |
| COMP | 0.554 | 0.795 | 1.000 | | | | | | | | | | | | | |
| EI | 0.683 | 0.456 | 0.513 | 1.000 | | | | | | | | | | | | |
| HARMONY | 0.401 | 0.653 | 0.469 | 0.318 | 1.000 | | | | | | | | | | | |
| FAM SIZE | 0.057 | -0.002 | 0.052 | -0.091 | -0.019 | 1.000 | | | | | | | | | | |
| INN | 0.597 | 0.677 | 0.760 | 0.627 | 0.459 | -0.051 | 1.000 | | | | | | | | | |
| NEOFB | 0.218 | 0.185 | 0.181 | 0.338 | 0.130 | -0.120 | 0.221 | 1.000 | | | | | | | | |
| NEWFB | 0.193 | 0.100 | 0.076 | 0.311 | 0.088 | -0.069 | 0.197 | -0.094 | 1.000 | | | | | | | |
| PBC | 0.619 | 0.616 | 0.647 | 0.751 | 0.407 | -0.050 | 0.726 | 0.202 | 0.225 | 1.000 | | | | | | |
| PROFIT | 0.250 | 0.367 | 0.318 | 0.266 | 0.322 | -0.119 | 0.256 | 0.134 | 0.057 | 0.296 | 1.000 | | | | | |
| REL | 0.510 | 0.847 | 0.849 | 0.439 | 0.571 | 0.043 | 0.663 | 0.089 | 0.100 | 0.576 | 0.268 | 1.000 | | | | |
| SN | 0.613 | 0.708 | 0.626 | 0.441 | 0.474 | 0.131 | 0.538 | -0.006 | 0.106 | 0.534 | 0.230 | 0.709 | 1.000 | | | |
| TEOFB | 0.024 | 0.202 | 0.101 | -0.067 | 0.220 | 0.013 | 0.077 | -0.088 | -0.157 | 0.113 | 0.092 | 0.160 | 0.103 | 1.000 | | |
| TEWFB | -0.263 | -0.306 | -0.214 | -0.343 | -0.284 | 0.098 | -0.306 | -0.332 | -0.595 | -0.344 | -0.171 | -0.231 | -0.150 | -0.557 | 1.000 | |
| TRUST | 0.511 | 0.743 | 0.614 | 0.288 | 0.821 | 0.111 | 0.527 | 0.084 | 0.060 | 0.440 | 0.237 | 0.702 | 0.683 | 0.151 | -0.192 | 1.000 |

**4.10 Structural model with PLS-SEM**

Estimation of the structural model was further assessed by examining the relationship of successor individual traits (autonomy, attitude, competence, perceived behavior control, relatedness and subjective norm) to entrepreneurial intention. As seen in Table 4.9 Construct correlation table all six successor individual traits are positively correlated with entrepreneurial intention. Successor autonomy is positively correlated (.456) with entrepreneurial intention supporting Hypothesis 2A. Successor attitude is positively correlated (.683) with entrepreneurial intention supporting Hypothesis 2B. Successor competence is positively related (.513) to entrepreneurial intention supporting Hypothesis 3A. Successor perceived behavior control is

positively related (.751) to entrepreneurial intention supporting Hypothesis 3B. Successor relatedness is positively correlated (.439) with entrepreneurial intention supporting Hypothesis 4A. Successor subjective norm is positively correlated (.441) with entrepreneurial intention supporting Hypothesis 4B.

### 4.10.1 Control variables with PLS-SEM

Based on theory, five control variables (incumbent's age, incumbent's biological sex, incumbent's health, successor's biological sex, and firm size) were assessed to determine their potential to confound the relationships of the latent variables within the study. See Table 4.10 Control variables. Firm size has a significant negative relationship with profitability and one of the dependent variables of successor behavior (non-entrepreneurial outside the family business). Firm size has a significant positive relationship with a moderating construct of family size. Incumbent age significantly and negatively impacted successor's attitude, successor's competence, successor's relatedness, successor's subjective norm, family size and trust in successor. The biological sex of the incumbent had a significant positive relationship on the successor's behavior to become a transgenerational entrepreneur outside the family business and a significant negative relationship with the successor's behavior to become a non-entrepreneur outside the firm. The successor's biological sex had a significant negative relationship on successor's competence. The health of the incumbent had significant positive relationships with the successor's autonomy, relatedness, subjective norm, family harmony, profitability, and trust in successor. Since all five control variables demonstrate potential impact on constructs within the model, they were retained throughout the model assessment.

Table 4.10 *Control variables*

| | Original Sample | Sample Mean | Standard Deviation | T Statistics | P Values |
|---|---|---|---|---|---|
| FIRM SIZE -> FAM SIZE | 0.355 | 0.352 | 0.049 | 7.268 | 0.000** |
| FIRM SIZE -> NEOFB | -0.088 | -0.087 | 0.028 | 3.154 | 0.002** |
| FIRM SIZE -> PROFITABILITY | -0.110 | -0.110 | 0.050 | 2.210 | 0.027* |
| INC AGE -> ATTITUDE | -0.147 | -0.148 | 0.051 | 2.916 | 0.004** |
| INC AGE -> COMPETENCE | -0.150 | -0.149 | 0.053 | 2.816 | 0.005** |
| INC AGE -> FAM SIZE | -0.227 | -0.225 | 0.048 | 4.716 | 0.000** |
| INC AGE -> REL | -0.158 | -0.158 | 0.057 | 2.793 | 0.005** |
| INC AGE -> SN | -0.227 | -0.228 | 0.053 | 4.286 | 0.000** |
| INC AGE -> TRUSTINSUC | -0.138 | -0.138 | 0.051 | 2.687 | 0.007** |
| INC BIO SEX -> NEOFB | -0.119 | -0.119 | 0.022 | 5.385 | 0.000** |
| INC BIO SEX -> TEOFB | 0.165 | 0.165 | 0.060 | 2.737 | 0.006** |
| INC HEALTH -> AUTONOMY | 0.181 | 0.185 | 0.062 | 2.937 | 0.003** |
| INC HEALTH -> FAM HARMONY | 0.242 | 0.240 | 0.060 | 4.051 | 0.000** |
| INC HEALTH -> PROFITABILITY | 0.196 | 0.198 | 0.063 | 3.124 | 0.002** |
| INC HEALTH -> REL | 0.189 | 0.190 | 0.055 | 3.461 | 0.001** |
| INC HEALTH -> SN | 0.128 | 0.129 | 0.055 | 2.336 | 0.020* |
| INC HEALTH -> TRUSTINSUC | 0.158 | 0.157 | 0.061 | 2.581 | 0.010* |
| SUC BIO SEX -> COMPETENCE | -0.130 | -0.128 | 0.054 | 2.411 | 0.016* |

**4.11 Estimation of mediation with PLS-SEM**

The mediation hypothesis were tested through consistent bootstrapping through Smart PLS 3.0 that mirrors covariance based SEM. Through bootstrapping the direct and indirect relationships are tested. Full mediation occurs when the direct effect between the independent variable and the dependent variable is not significant, the direct effect between the mediating variable and the dependent variable is significant, and the indirect effect of the interaction is significant. Partial mediation may occur when the direct effect between the independent variable and the dependent variable is significant, the direct effect between the mediating variable and the dependent variable is significant, and the indirect effect of the interaction is significant. SmartPLS 3.0 calculates the net interaction effect if there is more than one mediating relationship in the model. Thus, Sobel test calculations were run to determine if there was a significant indirect effect. See Table 4.11 Mediation assessment. Since the relationship between

successor autonomy, competence, relatedness, and subjective norm and all four successor behaviors (TEWFB, TEOFB, NEWFB, NEOFB) were insignificant, there is no mediation in those relationships. Since entrepreneurial intention partially mediates the relationship between attitude and three of the successor behaviors (TEWFB, NEWFB, NEOFB), partial support was found for Hypothesis 5A, Hypothesis 5C, and Hypothesis 5D. Additionally, entrepreneurial intention partially mediates the relationship between perceived behavioral control and three of the successor behaviors (TEWFB, NEWFB, NEOFB) providing further partial support of Hypothesis 5A, Hypothesis 5C, and Hypothesis 5D. Since entrepreneurial intention did not have a significant direct relationship with transgenerational entrepreneurship outside the family business (TEOFB), there is no mediation and Hypothesis 5B is not supported.

Table 4.11 *Mediation assessment*

| | Original Sample ( | Sample Mean | Standard Deviation | T Statistic | P Values |
|---|---|---|---|---|---|
| ATTITUDE -> EI | 0.405 | 0.406 | 0.082 | 4.970 | 0.000 |
| ATTITUDE -> NEOFB | 0.135 | 0.134 | 0.039 | 3.430 | 0.001 |
| ATTITUDE -> NEWFB | 0.125 | 0.125 | 0.035 | 3.556 | 0.000 |
| ATTITUDE -> TEOFB | -0.029 | -0.028 | 0.019 | 1.498 | 0.135 |
| ATTITUDE -> TEWFB | -0.136 | -0.137 | 0.035 | 3.877 | 0.000 |
| AUTONOMY -> EI | -0.149 | -0.152 | 0.130 | 1.143 | 0.253 |
| AUTONOMY -> NEOFB | -0.050 | -0.050 | 0.045 | 1.112 | 0.266 |
| AUTONOMY -> NEWFB | -0.046 | -0.046 | 0.041 | 1.126 | 0.260 |
| AUTONOMY -> TEOFB | 0.011 | 0.010 | 0.012 | 0.867 | 0.386 |
| AUTONOMY -> TEWFB | 0.050 | 0.051 | 0.044 | 1.127 | 0.260 |
| COMPETENCE -> EI | 0.062 | 0.060 | 0.141 | 0.440 | 0.660 |
| COMPETENCE -> NEOFB | 0.021 | 0.020 | 0.049 | 0.424 | 0.671 |
| COMPETENCE -> NEWFB | 0.019 | 0.018 | 0.042 | 0.450 | 0.653 |
| COMPETENCE -> TEOFB | -0.004 | -0.004 | 0.012 | 0.384 | 0.701 |
| COMPETENCE -> TEWFB | -0.021 | -0.020 | 0.048 | 0.436 | 0.663 |
| EI -> NEOFB | 0.333 | 0.330 | 0.066 | 5.066 | 0.000 |
| EI -> NEWFB | 0.308 | 0.307 | 0.054 | 5.710 | 0.000 |
| EI -> TEOFB | -0.071 | -0.069 | 0.042 | 1.681 | 0.093 |
| EI -> TEWFB | -0.335 | -0.336 | 0.050 | 6.696 | 0.000 |
| PBC -> EI | 0.565 | 0.566 | 0.082 | 6.891 | 0.000 |
| PBC -> NEOFB | 0.188 | 0.187 | 0.045 | 4.189 | 0.000 |
| PBC -> NEWFB | 0.174 | 0.174 | 0.040 | 4.324 | 0.000 |
| PBC -> TEOFB | -0.040 | -0.039 | 0.024 | 1.659 | 0.097 |
| PBC -> TEWFB | -0.189 | -0.191 | 0.040 | 4.682 | 0.000 |
| REL -> EI | 0.020 | 0.019 | 0.143 | 0.142 | 0.887 |
| REL -> NEOFB | 0.007 | 0.006 | 0.049 | 0.137 | 0.891 |
| REL -> NEWFB | 0.006 | 0.006 | 0.044 | 0.144 | 0.886 |
| REL -> TEOFB | -0.001 | -0.001 | 0.011 | 0.127 | 0.899 |
| REL -> TEWFB | -0.007 | -0.006 | 0.049 | 0.140 | 0.889 |
| SN -> EI | -0.023 | -0.017 | 0.095 | 0.246 | 0.806 |
| SN -> NEOFB | -0.008 | -0.007 | 0.032 | 0.245 | 0.807 |
| SN -> NEWFB | -0.007 | -0.005 | 0.030 | 0.243 | 0.808 |
| SN -> TEOFB | 0.002 | 0.001 | 0.007 | 0.225 | 0.822 |
| SN -> TEWFB | 0.008 | 0.006 | 0.033 | 0.240 | 0.810 |
| | | | | | |
| | **Sobel Test** | **P Value** | | | |
| ATT->EI->NEOFB | 3.548 | 0.000 | ** | | |
| ATT->EI->NEWFB | 3.019 | 0.003 | ** | | |
| ATT->EI->TEWFB | 3.355 | 0.001 | ** | | |
| PBC>EI->NEOFB | 4.082 | 0.000 | ** | | |
| PBC->EI->NEWFB | 3.447 | 0.001 | ** | | |
| PBC->EI->TEWFB | 4.802 | 0.000 | ** | | |

**4.12 Estimation of moderated mediation with PLS-SEM**

Assessment of five potential moderators were evaluated (successor's desire to innovate, profitability of the family business, family size, family harmony, and trust in successor). Each moderator was assessed in Smart-PLS 3.0 utilizing the moderating effect with product indicator calculation method, the standardized product term generation and automatic weighing mode in consistent PLS bootstrapping with 1000 maximum iterations and parallel processing. Each moderator is expected to moderate the mediation of entrepreneurial intention to the successor behaviors (TEWFB, TEOFB, NEWFB, NEOFB). See Table 4.12 Moderation assessment. The moderated mediation of successor's desire to innovate was not significant for any of the four successor behaviors. Therefore, Hypothesis 6 is not supported. Profitability had a negative significant moderating effect between entrepreneurial intention and transgenerational entrepreneurship outside the family business (TEOFB). Profitability of the family business had no significant moderating effect on transgenerational entrepreneurship within the family business (TEWFB), non-entrepreneurial pursuits within the family business (NEWFB) or non-entrepreneurial pursuits outside the family business (NEOFB). Therefore, there was partial support for Hypothesis 7A. Family size had a negative significant moderating effect between entrepreneurial intention and non-entrepreneurial pursuits outside the family business (NEOFB). Family size had no significant moderating effect on transgenerational entrepreneurship within the family business (TEWFB), non-entrepreneurial pursuits within the family business (NEWFB) or transgenerational entrepreneurship outside the family business (TEOFB). Therefore, there was partial support for Hypothesis 7B. The moderated mediation of family harmony was not significant for any of the four successor behaviors. Therefore Hypothesis 7C is

not supported. The moderated mediation of trust in successor was not significant for any of the four successor behaviors. Therefore Hypothesis 7C is not supported.

Table 4.12 *Moderation assessment*

| Moderator | Original Sample | Sample Mean | Standard Deviation | T Statistics | P Values | |
|---|---|---|---|---|---|---|
| INNOVATION -> TEWFB | -0.005 | -0.023 | 0.050 | 0.100 | 0.921 | |
| INNOVATION -> TEOFB | -0.085 | -0.066 | 0.114 | 0.741 | 0.459 | |
| INNOVATION-> NEWFB | 0.030 | -0.005 | 0.135 | 0.222 | 0.824 | |
| INNOVATION -> NEOFB | 0.123 | 0.154 | 0.073 | 1.678 | 0.094 | |
| PROFITABILITY -> TEWFB | 0.022 | 0.033 | 0.056 | 0.396 | 0.692 | |
| PROFITABILITY -> TEOFB | -0.114 | -0.116 | 0.031 | 3.630 | 0.000 | ** |
| PROFITABILITY-> NEWFB | 0.013 | -0.010 | 0.063 | 0.205 | 0.837 | |
| PROFITABILITY -> NEOFB | 0.116 | 0.119 | 0.065 | 1.785 | 0.075 | |
| FAMILY SIZE -> TEWFB | 0.036 | 0.054 | 0.053 | 0.678 | 0.498 | |
| FAMILY SIZE -> TEOFB | 0.124 | 0.143 | 0.072 | 1.715 | 0.087 | |
| FAMILY SIZE-> NEWFB | -0.030 | -0.046 | 0.069 | 0.441 | 0.659 | |
| FAMILY SIZE-> NEOFB | -0.183 | -0.185 | 0.046 | 3.976 | 0.000 | ** |
| FAMILY HARMONY -> TEWFB | -0.015 | 0.024 | 0.087 | 0.170 | 0.865 | |
| FAMILY HARMONY -> TEOFB | -0.040 | -0.055 | 0.071 | 0.563 | 0.574 | |
| FAMILY HARMONY-> NEWFB | 0.065 | -0.014 | 0.132 | 0.490 | 0.624 | |
| FAMILY HARMONY -> NEOFB | 0.130 | 0.081 | 0.195 | 0.669 | 0.504 | |
| TRUST IN SUC -> TEWFB | 0.125 | 0.125 | 0.094 | 1.338 | 0.181 | |
| TRUST IN SUC-> TEOFB | 0.092 | 0.068 | 0.137 | 0.672 | 0.502 | |
| TRUST IN SUC-> NEWFB | -0.121 | -0.14 | 0.088 | 1.365 | 0.173 | |
| TRUST IN SUC-> NEOFB | -0.175 | -0.103 | 0.204 | 0.861 | 0.390 | |

### 4.13 Summary of findings

The research findings of this study could be summarized by stating: 1) although the constructs of self-determination theory (autonomy, competence, and relatedness) are closely defined and positively correlated with the constructs of theory of planned behavior (attitude, perceived behavior control and subjective norm), autonomy, competence and relatedness do not significantly impact entrepreneurial intention or successor's behavior and 2) attitude and perceived behavioral control significantly predict entrepreneurial intention and transgenerational entrepreneurial behavior within the family business, and 3) profitability and family size impact successor's behavior to choose business opportunities outside the family business rather than

within. Therefore, more effort must be exercised to determine the potential of merging the fundamental constructs of self-determination theory and theory of planned behavior in transgenerational entrepreneurship.

# CHAPTER 5

# DISCUSSION

This final section summarizes the research and the implications of the study. Limitations of the research study, methodology review, and future study recommendations are provided. Finally, a conclusion of this study is presented.

## 5.1 Research implications

The connection of self-determination and theory of planned behavior to predict behavior is an important and valuable contribution to entrepreneurship literature. Merging the constructs of these theories has been done successfully in medical research, exercise physiology, and psychological studies. The importance of connecting motivation to intention is paramount in understanding behavior and behavior modification. Since theory of planned behavior has vetted that intention is the strongest indicator of behavior, the potential of linking motivation to intention provides researchers the ability to examine social, professional, and behavioral developmental opportunities that are linked to the volumes of research on motivation. Since self-determination theory has thoroughly examined impacts of motivation on early childhood development, linking these theories could bridge the long pursued efforts to understand the possibility of entrepreneurial development from childhood. Linking motivation to intention becomes necessary to utilize the self-determination studies that link motivation to behavioral self-regulation and personality development. These studies would be a great addition to the information researches already know about entrepreneurship and personality. Linking self-determination theory to theory of planned behavior will assist researchers in understanding the developments of organismic integration theory (sub-theory to SDT) that would allow influence on potential entrepreneurs to move from amotivation to external motivation to intrinsic

motivation. This trajectory could be extremely helpful to transgenerational entrepreneurship in family business and address the growing concern for successful successorship. The ability to develop successors as family business entrepreneurs would also prevent generational shadowing and the resistance of incumbents to transition the family business to the successor sooner. Earlier succession may impact the loss of potential successors to outside opportunities. Continued efforts to make stronger connections between these theories would provide great advancement in entrepreneurial research.

Paramount to facilitating a seamless successorship in the family business is a greater understanding of the individual and contextual factors impacting successor's behavior. Few studies in family business literature combine both individual and contextual factors. This study examined four contextual factors and six individual factors. The interaction of these factors provides a better understanding of impacts on family business succession.

Other studies that have examined the challenges of family business succession have noted the role of biological sex of the incumbent and successor on succession. These studies indicate that male incumbents to male successors is the most successful followed by male incumbents to female successors. The least successful transition occurs with female incumbents to female successors. Due to the high percentage of opportunities for males to transition family businesses numerous conclusions can be drawn. The disproportionate number of males making transition provides greater opportunities for success. With transition to female successors being the least successful succession, incumbents are more likely to continue to choose male successors. This phenomenon perpetuates the hindrance of female succession. Although females may be less likely to become a successor of a family business, more women are starting family businesses than ever before. This study indicates that 80% of the incumbents are male while 52% of the

successors are female. This provides a paramount reason to understand the challenges between biological sex and successorship.

This study examined the relationship between successor's desire for innovation, the successor's entrepreneurial intention, and the successor's behavior toward successorship and entrepreneurship. The successor's desire for innovation did not impact the successor's choice of successorship or entrepreneurship. We understand the need for on-going innovation to insure the longevity of the family business. Since 85% of the family businesses in this study were small businesses with less than fifty people involved in the business and 84% of the family businesses were service and not manufacturing businesses, this may indicate family businesses that provide services instead of manufacturing products may fail to understand the necessity and importance of innovation for survivorship. It may also indicate that these smaller, family owned businesses are so risk averse that they become innovation averse. Understanding and addressing these issues could greatly impact the sustainability of family businesses.

This study highlights the disparity in age of incumbents and age of potential successors. Eighty-five percent of the potential successors in this study were under forty years of age. Thirty-eight percent of the incumbents were over sixty years of age. This emphasizes the on-going problem of incumbents of family businesses holding onto the business longer than necessary. Although incumbents may desire to stay active in some capacity, the ability of successors to develop the skills to run the family business need to take place before the potential successor has opportunities to pursue other professional venues.

Finally, this study emphasizes the need for entrepreneurship education. Sixty-four percent of potential successors in this study had acquired 2 -4 years of college education. Entrepreneurial education should expand their exposure to business and innovative opportunities.

Entrepreneurial education should also assure the incumbent of the necessary preparation and intention by the potential successor. These efforts should also serve to build trust and a bridge for greater success in transition. The implementation of motivational development through entrepreneurial education would enhance the success of transgenerational entrepreneurship within the family business.

**5.2 Research limitations**

Although Deci and Ryan provide numerous scales to measure the basic needs, the basic need satisfaction at work scale utilized in this study was not as rigorous as needed to provide expected results. The exploratory factor analysis revealed that many of the indicators for autonomy, competence and relatedness were highly correlated with one another. Exploring other indicators that may provide more significant correlations to intention would be very helpful, since intention is the strongest predictor of behavior. Addressing this concern would assist advancing the mutual contribution of self-determination theory and theory of planned behavior for future entrepreneurial research.

The use of constructs with only one indicator (profitability, firm size, successor behavior) limited the understanding of the impact on those constructs on other latent variables within the study. Although PLS-SEM allows single indicator variables, the constructs would be more robust and lend a greater understanding of their relationships with other variables within the study.

Innovation is a critical construct in family business succession. This study failed to provide adequate support for its relationship with transgenerational entrepreneurship within the family business. It is likely that the construct chosen (successor's desire for innovation) and its operationalization led to the unfavorable results. Consideration of other constructs that involve

innovation and connecting those constructs to family business succession would be helpful for future consideration.

Although transgenerational entrepreneurship in family business literature is a fairly new construct, the operationalization of this construct is paramount to providing a greater understanding of successorship in family business. Currently very few studies have utilized this construct, and greater effort must be made to determine specifically what factors contribute to its operationalization. This study would have benefitted from a stronger transgenerational entrepreneurship scale.

This study examined only one type of family business succession – parent to child. Clearly numerous family businesses transition from sibling to sibling, cousin to cousin, grandparent to grandchild, nieces, nephews, etc. The parent to child succession has many possibilities of constructs that can enhance and complicate the process of succession. In some aspects the parent is best positioned to develop, mentor and enhance the succession of the business to his/her child. The parent is most equipped to pass on physical, psychological, and social traits to his/her own child. However, the relationship between parent and child could prevent the healthy transfer of mentorship, business knowledge and family business succession.

**5.3 Methodology review**

Organizational behavior literature favors the use of AMOS over PLS-SEM. Although in this study the use of dependent variables that were linear dependent prevented the successful utilization of AMOS, these constructs were properly evaluated in PLS-SEM. As this study is modified and continues to progress, collection of data with different operationalization of dependent variables that assess transgenerational entrepreneurship within and outside the family business in ways that can be analyzed using AMOS would be helpful.

Although PLS-SEM was more than adequate to analyze the complexity of this model, it would have been more beneficial to break this model down into multiple models that built upon one another over time. If researchers desire to use covariance-based SEM, simplification of the model will allow for greater degrees of freedom and provide more reliable results and conclusions.

**5.4 Future study recommendations**

The significance of understanding family business successorship has been established throughout this study. Continued interpretation of studies that introduce new constructs to the family business literature and specifically to transgenerational entrepreneurship within the family business will have a strong world-wide economic impact. The understanding of intrinsic knowledge within family business and the development of skills to pass that knowledge down to the next generation and successfully transition the business to the next generation would be insightful. Many of the current potential successors of family-owned businesses are millennials. A significant trait of millennials is entitlement and failure to launch. Studies that evaluate these traits and other traits specific to millennials would be a timely asset as millennials are being groomed and educated to take over the family business. Grit has recently been introduced and provided interesting findings into the entrepreneurship literature. The generational tendency to possess grit in incumbents and future successors could be instrumental in successorship of the family business. Future studies that clearly connect the role of grit within the family business literature would promise to be helpful specifically regarding succession.

The role of biological sex is significant in many studies, but may be a key component as family businesses transition from one member to the other. Past experience indicates that biological sex has been a hurdle for family business successorship. Future studies that address

the components and constructs that contribute to these hurdles would help build a bridge for transition from one generation to the next and enable family businesses to overcome barriers due to biological sex.

Future studies that provide better operationalization of constructs critical to the study of transgenerational entrepreneurship and the connection of self-determination theory and theory of planned behavior would enhance the body of literature and provide potential for research in entrepreneurship and family business literature. Operationalization of constructs is paramount to understanding the relationships between variables. Limitations with current construct scales has been a detriment in this study. Future studies that address this issue would provide for greater explanation of the key components of transgenerational entrepreneurship and entrepreneurial behavior.

As addressed in the limitations segment of this discussion, future studies that involve family successions other than parent to child would be helpful. With each successful succession, family businesses move to the next generation and increase the potential that the succession will involve family members other than parents and their children. Few studies in the family business literature address this important category of studies. Future studies that examine succession within relationships other than parent and child could provide great insights.

Finally, gathering data in different geographical and demographical populations could enhance our understanding of transgenerational entrepreneurship. Successorship of family business is not unique to the United States. Nor is it limited to millennials. Studies that target transgenerational entrepreneurship in other countries and focus on populations of different age, ethnicity, and educational backgrounds would continue to add to our understanding of entrepreneurship within the family business arena.

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APPENDICES

# APPENDIX A: SURVEY INSTRUMENT

Disclaimer:
This research is being conducted in affiliation with Southern Illinois University Carbondale and is intended to help us understand factors related to transgenerational entrepreneurship and entrepreneurial intention.

Your completion of the survey indicates voluntary consent to participate in this study. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. Your responses will be confidential and data from this research will be reported only in the aggregate. Only the researchers will have access to the complete data set. All reasonable steps to protect your identity will be taken. The survey will take approximately 15-30 minutes to complete.

If you have questions at any time about the survey or the procedures, you may contact Carol Lucy, clucy@siu.edu, or Dr. John M. Pearson, jpearson@business.siu.edu.

Thank you for your time and participation.

This project has been reviewed and approved by SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Sponsored Projects Administration, Southern Illinois University, Carbondale, Il 62901-4709. Phone (618) 453-4533.

*Demographics*:
Please indicate your age:
- o Under 20
- o 20-30
- o 31-40
- o 41-50
- o 51-60
- o 61-70
- o Older than 70

Please indicate your biological sex:
- o Male
- o Female

Please indicate your ethnic background:
- o Caucasian
- o African American
- o Hispanic
- o American Indian/Alaskan Native
- o Asian/Pacific
- o Other

Please indicate your education level:
- o Freshman
- o Sophomore
- o Junior
- o Senior
- o Graduate Student

Please indicate your overall health:
- o Extremely Good
- o Good
- o Fair
- o Poor
- o Extremely Poor

Please indicate the number of people employed by your family firm:
- o < 10
- o 11 -25
- o 26 – 50
- o 51-75
- o 75 – 99
- o > 100

Please indicate the type of family business:
- o Manufacturing
- o Service

*Incumbent Demographics:*
The incumbent of the business is the individual who is currently leading the family business that you (as the successor) will succeed. Please answer the following questions regarding the incumbent:

Please indicate the incumbent's age:
- o Under 20
- o 20-30
- o 31-40
- o 41-50
- o 51-60
- o 61-70
- o Older than 70

Please indicate the incumbent's biological sex:
- o Male
- o Female

Please indicate the incumbent's overall health:
- o Extremely Good
- o Good
- o Fair
- o Poor
- o Extremely Poor

*Contextual Factors:*
Please read each statement carefully and indicate your perception of each statement.

Over the past five years, the family business has been a profitable endeavor:
- o Strongly agree
- o Agree
- o Somewhat agree
- o Neither agree nor disagree
- o Somewhat disagree
- o Disagree
- o Strongly Disagree

The number of family members supported by the family business:
- o < 10
- o 11 – 30
- o 31 – 45
- o 46 – 60
- o 61 – 75
- o 76 - 99
- o > 100

*Family Harmony:*
For the following questions, you are being asked to indicate your perception of the harmony that exists within the family. Family harmony includes strong commitment accompanied by vision and value alignment from members within a family business. There are no right or wrong answers.

Please read each statement carefully. Indicate the employee's level of agreement with each of the statements where:

1 = totally agree 2 = strongly agree 3 = somewhat agree 4 = neither agree nor disagree 5 = somewhat disagree 6 = strongly disagree 7 = totally disagree

- o My family seems to get along with each other better than most families do.
- o The people in my family are very compatible with each other.
- o People in my family agree with each other on most issues.
- o In my family, we almost never quarrel with each other.

*Trust in Successor:*
For the following questions, you are being asked to indicate your perception of employees trust for you as the potential successor. Trust includes affiliation, rapport, empathy, a shared regard for the individual as well as responsibility, competence, dependability and reliability. You may agree with some of the statements, while disagreeing with others. There are no right or wrong answers.

Please read each statement carefully. Indicate the employee's level of agreement with each of the statements where:

1 = totally agree 2 = strongly agree 3 = somewhat agree 4 = neither agree nor disagree 5 = somewhat disagree 6 = strongly disagree 7 = totally disagree

- Our family has a sharing relationship. Within our family, we can freely share our ideas, feelings and hopes.
- Members of our family would feel a sense of loss if I or one of them were transferred and we could no longer work together.
- My family members and I have made considerable emotional investments in our working relationships.
- Given my track record, members of my family would see no reason to doubt my competence and preparation for the job.
- My family would think that most people, even those who are not close to me, trust and respect me as a co-worker.
- Family business members feel if people knew more about me, they would be concerned and monitor me more closely.
- Within the family business I can talk freely about difficulties I am having at work and know that family members want to listen.
- If I shared my problems with a member of my family, I know he/she would respond constructively and caringly.
- Within the family business, family members feel I approach my job with professionalism and dedication.
- Members of my family can count on me not to make the job more difficult by careless work.
- My family feels that other work associates of mine who must interact with me consider me to be trustworthy.

*Successor Autonomy, Competence & Relatedness:*

The following questions concern your feelings about working within the family business. Please indicate how true each of the following statement is for you given your experiences on the job.

1 = extremely true 2 = true 3 = somewhat true 4 = neither true or false
5 = somewhat false 6 = false 7 = extremely false

- I feel like I can make a lot of inputs to deciding how my job gets done.
- I really like the people I work with.
- I do not feel very competent when I am at work
- People at work tell me I am good at what I do.
- I feel pressured at work.

- I get along with people at work.
- I pretty much keep to myself when I am at work.
- I am free to express my ideas and opinion on the job.
- I consider the people I work with to be my friends.
- I have been able to learn interesting new skills on my job.
- When I am at work, I have to do what I am told.
- Most days I feel a sense of accomplishment from working.
- My feelings are taken into consideration at work.
- On my job I do not get much of a chance to show how capable I am.
- People at work care about me.
- There are not many people at work that I am close to.
- I feel like I can pretty much be myself at work.
- I work with do not seem to like me much.
- When I am working I often do not feel very capable.
- There is not much opportunity for me to decide for myself how to go about my work.
- People at work are pretty friendly towards me.

*Entrepreneurial intention*

For the following questions, you are being asked to indicate your level of agreement regarding a business enterprises. A business enterprise is an organization that provides good or services to consumers.

Please read each statement carefully. Indicate your level of agreement with each of the statements where:

1 = totally agree 2 = strongly agree 3 = somewhat agree 4 = neither agree nor disagree 5 = somewhat disagree 6 = strongly disagree 7 = totally disagree

- I am ready to do anything to be an entrepreneur.
- My professional goal is to become an entrepreneur.
- I will make every effort to start and run my own firm.
- I am determined to create a firm in the future.
- I have very seriously though of starting a firm.
- I have the firm intention to start a firm someday.

*Subjective Norm*

The following questions concern the feelings of those close to you regarding your desire to become an entrepreneur.

1 = total approval 2 = strong approval 3 = some approval 4 = neither approval or disapproval 5 = some disapproval 6 = strong disapproval 7 = total disapproval

- If you decided to be an entrepreneur, would people in your family approve of that decision?
- If you decided to be an entrepreneur, would your friends approve of that decision?
- If you decided to be an entrepreneur, would your colleagues approve of that decision?

*Perceived Behavioral Control*

"To what extent do you agree with the following statements regarding your ability to become an entrepreneur?"

1 = totally agree 2 = strongly agree 3 = somewhat agree 4 = neither agree nor disagree 5 = somewhat disagree 6 = strongly disagree 7 = totally disagree

- To start a firm and keep it working would be easy for me.
- I am prepared to start a viable firm.
- I can control the creation process of a new firm.
- I know the necessary practical details to start a firm.
- I know how to develop an entrepreneurial project.
- If I tried to start a firm, I would have a high probability of succeeding.

*Attitude*

The following questions concern your feelings about your attitude toward entrepreneurship.

1 = totally agree 2 = strongly agree 3 = somewhat agree 4 = neither agree nor disagree 5 = somewhat disagree 6 = strongly disagree 7 = totally disagree

- Being an entrepreneur provides more advantages than disadvantages for me.
- A career as entrepreneur is attractive for me.
- If I had the opportunity and resources, I'd like to start a firm.
- Being an entrepreneur would entail great satisfactions for me.
- Among various options, I would rather be an entrepreneur.

*Successor Desire for Innovation*

For the following questions, you are being asked to indicate your level of agreement regarding your desire to innovate within the family business. Innovation can be defined as a willingness to change..

Please read each statement carefully. Indicate your level of agreement with each of the statements where:
1 = totally agree 2 = strongly agree 3 = somewhat agree 4 = neither agree nor disagree 5 = somewhat disagree 6 = strongly disagree 7 = totally disagree

- I am willing to expand existing goods and services within the family business.
- I regularly experiment with new products and services in existing markets..
- I continuously improve the efficiency of the creation of goods or services.
- I continuously increase the level of automation in the creation of goods or services.
- I regularly approach new opportunities in new markets.
- I perpetually develop creative ways to satisfy customer needs.
- I perpetually reduce the costs of the creation of goods or services without quality loss.
- Family members must see other people using new innovations before they will consider them.
- Family members are challenged by unanswered questions.

- Family member often find themselves skeptical of new ideas.

*Successor's Behavior:*

For the following question, you are being asked to indicate which behavior best describes your choice for future employment

- I will become the next entrepreneurial leader of my family's business.
- I will not become the next entrepreneurial leader of my family's business but I will begin my own business.
- I will become the next leader of my family's business but I do not plan to take the business into entrepreneurial endeavors.
- I do not plan to be self-employed or work for the family business.

# APPENDIX B
# CONSTRUCT RELIABILITY, VALIDITY, AND DISCRIMINANT VALIDITY

| | Cronbach's Alpha | rho_A | Comp Reliability | AVE |
|---|---|---|---|---|
| ATTITUDE | 0.916 | 0.917 | 0.917 | 0.733 |
| AUTONOMY | 0.854 | 0.856 | 0.855 | 0.597 |
| COMPETENCE | 0.847 | 0.852 | 0.849 | 0.652 |
| EI | 0.956 | 0.957 | 0.956 | 0.784 |
| FAM HARMONY | 0.886 | 0.891 | 0.887 | 0.725 |
| INN | 0.919 | 0.922 | 0.918 | 0.616 |
| PBC | 0.885 | 0.888 | 0.885 | 0.607 |
| REL | 0.927 | 0.927 | 0.927 | 0.717 |
| SN | 0.872 | 0.872 | 0.872 | 0.693 |
| TRUST IN SUC | 0.929 | 0.932 | 0.929 | 0.653 |


| | Cronbach's Alpha | rho_A | Comp Reliability | AVE |
|---|---|---|---|---|
| ATTITUDE | 0.916 | 0.917 | 0.917 | 0.733 |
| AUTONOMY | 0.854 | 0.856 | 0.855 | 0.597 |
| COMPETENCE | 0.847 | 0.852 | 0.849 | 0.652 |
| EI | 0.956 | 0.957 | 0.956 | 0.784 |
| FAM HARMONY | 0.886 | 0.891 | 0.887 | 0.725 |
| INN | 0.919 | 0.922 | 0.918 | 0.616 |
| PBC | 0.885 | 0.888 | 0.885 | 0.607 |
| REL | 0.927 | 0.927 | 0.927 | 0.717 |
| SN | 0.872 | 0.872 | 0.872 | 0.693 |
| TRUST IN SUC | 0.929 | 0.932 | 0.929 | 0.653 |


Figure 6-1. Construct reliability and validity

| | ATT | AUTO | COMP | EI | FAM HARM | FAM SIZE | INN | NEOFB | NEWFB | PBC | PROFIT | REL | SN | TEOFB | TEWFB | TRUST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATTITUDE | 1 | | | | | | | | | | | | | | | |
| AUTONOMY | 0.543 | 1 | | | | | | | | | | | | | | |
| COMPETENCE | 0.554 | 0.795 | 1 | | | | | | | | | | | | | |
| EI | 0.683 | 0.456 | 0.513 | 1 | | | | | | | | | | | | |
| FAM HARMONY | 0.401 | 0.653 | 0.469 | 0.318 | 1 | | | | | | | | | | | |
| FAM SIZE | 0.057 | -0.002 | 0.052 | -0.09 | -0.019 | 1 | | | | | | | | | | |
| INN | 0.597 | 0.677 | 0.76 | 0.627 | 0.459 | -0.051 | 1 | | | | | | | | | |
| NEOFB | 0.218 | 0.185 | 0.181 | 0.338 | 0.13 | -0.12 | 0.221 | 1 | | | | | | | | |
| NEWFB | 0.193 | 0.1 | 0.076 | 0.311 | 0.088 | -0.069 | 0.197 | -0.094 | 1 | | | | | | | |
| PBC | 0.619 | 0.616 | 0.647 | 0.751 | 0.407 | -0.05 | 0.726 | 0.202 | 0.225 | 1 | | | | | | |
| PROFIT | 0.25 | 0.367 | 0.318 | 0.266 | 0.322 | -0.119 | 0.256 | 0.134 | 0.057 | 0.296 | 1 | | | | | |
| REL | 0.51 | 0.847 | 0.849 | 0.439 | 0.571 | 0.043 | 0.663 | 0.089 | 0.1 | 0.576 | 0.268 | 1 | | | | |
| SN | 0.613 | 0.708 | 0.626 | 0.441 | 0.474 | 0.131 | 0.538 | -0.006 | 0.106 | 0.534 | 0.23 | 0.709 | 1 | | | |
| TEOFB | 0.024 | 0.202 | 0.101 | -0.07 | 0.22 | 0.013 | 0.077 | -0.088 | -0.157 | 0.113 | 0.092 | 0.16 | 0.103 | 1 | | |
| TEWFB | -0.263 | -0.306 | -0.214 | -0.34 | -0.284 | 0.098 | -0.31 | -0.332 | -0.595 | -0.34 | -0.171 | -0.23 | -0.15 | -0.56 | 1 | |
| TRUST IN SUC | 0.511 | 0.743 | 0.614 | 0.288 | 0.821 | 0.111 | 0.527 | 0.084 | 0.06 | 0.44 | 0.237 | 0.702 | 0.683 | 0.151 | -0.192 | 1 |

Figure 6-2. Discriminant validity: Fornell-Larcker criterion

| | ATT | AUTO | COMP | EI | FAM HARM | FAM SIZE | INN | NEOFB | NEWFB | PBC | PROFIT | REL | SN | TEOFB | TEWFB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATTITUDE | | | | | | | | | | | | | | | |
| AUTONOMY | 0.545 | | | | | | | | | | | | | | |
| COMPETENCE | 0.554 | 0.797 | | | | | | | | | | | | | |
| EI | 0.681 | 0.456 | 0.514 | | | | | | | | | | | | |
| FAM HARMONY | 0.402 | 0.655 | 0.471 | 0.317 | | | | | | | | | | | |
| FAM SIZE | 0.057 | 0.044 | 0.063 | 0.091 | 0.020 | | | | | | | | | | |
| INN | 0.593 | 0.673 | 0.758 | 0.629 | 0.459 | 0.064 | | | | | | | | | |
| NEOFB | 0.218 | 0.185 | 0.180 | 0.338 | 0.134 | 0.120 | 0.223 | | | | | | | | |
| NEWFB | 0.192 | 0.101 | 0.077 | 0.311 | 0.087 | 0.069 | 0.198 | 0.094 | | | | | | | |
| PBC | 0.616 | 0.615 | 0.645 | 0.752 | 0.406 | 0.075 | 0.726 | 0.203 | 0.227 | | | | | | |
| PROFIT | 0.251 | 0.367 | 0.318 | 0.266 | 0.321 | 0.119 | 0.257 | 0.134 | 0.057 | 0.297 | | | | | |
| REL | 0.511 | 0.848 | 0.851 | 0.439 | 0.571 | 0.058 | 0.658 | 0.090 | 0.100 | 0.572 | 0.269 | | | | |
| SN | 0.614 | 0.707 | 0.629 | 0.441 | 0.471 | 0.131 | 0.531 | 0.025 | 0.105 | 0.531 | 0.230 | 0.709 | | | |
| TEOFB | 0.027 | 0.202 | 0.104 | 0.067 | 0.219 | 0.013 | 0.076 | 0.088 | 0.157 | 0.113 | 0.092 | 0.159 | 0.103 | | |
| TEWFB | 0.263 | 0.306 | 0.215 | 0.343 | 0.284 | 0.098 | 0.307 | 0.332 | 0.595 | 0.346 | 0.171 | 0.231 | 0.150 | 0.557 | |
| TRUST IN SUC | 0.512 | 0.740 | 0.619 | 0.285 | 0.818 | 0.114 | 0.521 | 0.081 | 0.060 | 0.437 | 0.235 | 0.701 | 0.684 | 0.150 | 0.189 |

Figure 6-3. Discriminant validity: Heterotrait-Monotrait ratio

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