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Generational Shadow, Conflict, and Succession Planning in Farming Businesses

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GENERATIONAL SHADOW, CONFLICT, AND SUCCESSION PLANNING IN FARMING BUSINESSES

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To God, our heavenly Father

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ABSTRACT

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The goal of this thesis is to examine the relationship among succession progress, generational conflict, and generational shadow and concentrate on the effects of the latter two on succession planning progress in small and medium sized family farms. Generational shadow refers to "the prior generation's excessive and inappropriate involvement in a farm" (Davis & Harveston, 1999) – essentially, it reflects the incumbent's unwillingness to transfer the business. Because of the suspected simultaneity, I employ a multivariate probit model and test for endogeneity. I found that the level of generational shadow is exogenous to the level of conflict and the succession outcome. In addition, conflict does not significantly affect the stage of succession. However, simultaneity exists between conflict and the succession outcome. The results of the empirical analysis indicate that businesses with more advanced progress towards succession also have a high level of conflict.

CHAPTER 1: INTRODUCTION

The term family farm refers to a farm that has a principal operator, and persons related to the principal operator by blood, marriage or adoption and own a majority of the business (USDA, 2015). Family farms make up an extremely high proportion of farm business and food production: 97 percent of all U.S. agricultural firms are family-owned (USDA, 2015), and are responsible for 85 percent of U.S. farm production (ERS, USDA, 2016).

Family farms are different from non-family businesses because they are owned and are controlled by family members, providing them a great potential to engage in or to have an impact on the business (Davis & Harveston, 1998). As a result, family farms face many unique and complicated problems that have not been found in non-family farms (Davis & Harveston, 1998). Among all the problems, the high mortality rate of family farming businesses, which points to the problem of succession (i.e. the transfer process) as a substantial challenge faced by these farms. Bowman-Upton (2009) indicates that "less than one-third of family businesses survive the transition from the first- to the second-generation ownership" (p. 2). Oppenlander suggests, "An estimated 70 percent of U.S. farmland will change hands in the next 20 years" (p. 322). The high mortality rate of family businesses not only increases uncertainty of aggregate farming production, but also casts a shadow on rural development and sustainability.

One important factor that often impedes long-term sustainability is conflict generated within the family business. Conflict can be classified generationally, and includes "life cycle conflict", "role conflict", "identity conflict", and "justice conflict" (McClendon & Kadis, 1991). Life cycle conflict refers to inevitable conflict raised from the disagreement between the life cycle of a family business and needs of the individuals according to their life cycle stage (Davis & Tagiuri, 1989; McClendon & Kadis, 1991). Role conflict is the conflict generated from frictions among individuals with different position, perspective and emotion (McClendon & Kadis, 1991). Identity conflict is generated from the multiple identities each individual has in a family business system and from senior generation's compelling expectation on the next generation to take over the business (McClendon & Kadis, 1991). Justice conflict is resulted from the distribution of workload and family assets (McClendon & Kadis, 1991).

Previous studies have investigated the issue of succession planning itself and the impact of conflict/tension on succession. Christensen (1953) proposes a systematic process of succession planning:

(1) The identification of the pool of internal people with the potential to take over the business;

(2) The appointment of the successor;

(3) The notification to the successor and leaders of the appointment by the incumbent or by the board of directors.

Applegate (1994) indicates that difficulty in launching an organized succession plan can be attributed to factors including the reluctance of incumbents to accept mortality, reluctance to cede power, generational envy, and the unwillingness to select a successor, which are centered on the conflict/tension between the successor and the incumbent. This reluctance is called "generational shadow", referring to "the prior generation's excessive and inappropriate involvement in a farm" (Davis & Harveston, 1999, p. 311). Previous literature analyzes how generational shadow potentially causes conflict across generations in family farms (Davis & Harveston, 1999; Sonfield & Lussier, 2004; Sonfield & Lussier, 2009; Chirico & Nordqvist, 2010).

This thesis contributes to the current literature by establishing causal linkages among succession outcome, conflict, and generational shadow in small and medium sized family farms. It also enhances the findings of the effect of generational shadow and conflict on the outcome of succession, respectively, by using economic theory and intuition. The second chapter briefly introduces the hypotheses built on past literature and scholarly views. Chapter 3 develops the conceptual framework that serves as a base for the discussion on empirical modeling. A multivariate recursive probit model issued in Chapter 4 to account for suspected endogeneity resulting from the simultaneity between generational shadow, conflict/tension, and succession. Moreover, I evaluate the effects of generational shadow and conflict on succession outcomes in this chapter. In Chapter 5, I present the regression results and a discussion of the empirical results. Chapter 6 contains a conclusion and the suggested direction for future work.

CHAPTER 2: LITERATURE REVIEW AND HYPOTHESES

This chapter discusses the past literature that helps establish the context of the problem, beginning with a literature review on various aspects of family business research: succession, generational shadow, and conflict/tension in family businesses. This past literature also leads us to confront the possibility that these relationships may be endogenously determined; we address this issue in the empirical model. The following paragraphs discuss each section of the literature in turn.

Succession

One of the key components to a family business structure is the leadership transfer and the planning for future succession. The issues of succession and long-term sustainability stand out in family business research because of the high mortality rate of family businesses. Past literature points out that only 30 percent of businesses survive to the second generation (Ward, 1997; Bowman-Upton, 2009; Amarapurkar & Danes, 2005) and only 10 percent of second-generation firms successfully transfer to the third generation (Ward, 1997; Amarapurkar & Danes, 2005). Therefore, it is critical to understand the stages of succession planning. Succession planning is defined as “the process of identifying and developing internal people with the potential to fill critical leadership positions” (Rothwell, 2009), to improve long-term sustainability.

Generational Shadow

A generational shadow refers to “the prior generation’s excessive and inappropriate involvement in a family farm” (Davis & Harveston, 1999) during and after the succession process. Essentially, it reflects the incumbent’s unwillingness to let go of power. The shadow of the senior manager-owner or the business founder hinders the succession process for the next generation (Davis & Harveston, In the Founder's Shadow: Conflict in the Family Firm, 1999). Sonfield and Lussier (2004) suggest that in particular, first-generation family businesses show a higher level of reluctance to start succession planning than the businesses operated by latter-generations. Founders, especially, are found to attempt to influence the family firm and to continue to play roles in the decision-making process. Therefore, as Ward (1997) indicates, an owner may have a hard time completing the transfer and going into semi-retirement. Brun de Pontet et al. (2007) find that succession is more involved in family businesses when an incumbent relinquishes control corresponding to the growth in the successor’s abilities, leadership, and authority (p. 349). As the succession moves forward, the incumbents’ unwillingness to cede meaningful authority/influence/power leads to both generations’ concurrent control over the business (Brun de Pontet et al., 2007) and potentially puts family relationships and the business at risk. In contrast, the “mutual role adjustment” (Handler, 1990) between two generations makes succession much healthier (Brun de Pontet et al., 2007).

Generational shadow is typically measured, empirically, by two questions:

1) “To what extent is/are either or both parents continued to be involved in the day-to-day operations of the business after succession to the organization’s leadership?” (Davis & Harveston, 1999).

2) “To what extent is/are either or both parents continued to influence the company without being involved in day-to-day operations?” (Davis & Harveston, 1999).

However, in the sample that is presented in Chapter 4, these two questions were not asked. Instead, a proxy on generational shadow is measured by the question: “To what extent is the senior generation prepared to give up control of the family business by delegating management to heirs or successors?” Therefore, instead of using the term “generation shadow”, the term “unwilling to cede control” is more suitable here (abbreviation: “over-control” or “control”). The reasoning leads to the first hypothesis:

> H_1: A business in which the incumbent is relatively more willing to cede control makes more advanced progress towards succession than a business in which the incumbent is unwilling to cede control, holding the level of conflict constant.

Conflict and Family Tension

Another critical factor that correlates with succession success is the degree of conflict and tension in a family business and/or a household (Morris et al., 1997; Venter et al., 2005; Jones & Marshall, 2012). Hedlund and Berkowitz (1979) classify tension in family businesses into two groups: familial and non-familial. Familial stressors mainly come from four aspects: “marital relationships”, “farm succession”, “rivalry among siblings”, and “having children under the age of six” (Hedlund & Berkowitz, 1979). Conflict, on the other hand, is highly correlated with family tension. McClendon and Kadis (1991) define conflict as four types according to the source to which the conflict comes from: “life cycle conflict”, “role conflict”, “identity conflict”, and “justice conflict”. These sources of conflict/tension are unique to family business structures and are more likely to result in the failure of succession; for example, potential competition over the authority to lead the business may be associated with high levels of conflict/tension. Taguri and Davis (1996) indicate that simultaneous roles obtained by individuals in a family business, emotional involvement and ambivalence, and private discussions/languages (e.g., languages that only the couple operating the business can understand) can all potentially generate conflict, rivalries or even resentment, which hinder business success. Davis and Harveston (1999) find that conflict generated in family businesses is on account of the effects of two independent variables: “generation and generational shadow” (in this thesis, I use the term “incumbent’s unwillingness to cede control” as a representative of “generational shadow”) as succession makes progress along the way. Weigel and Weigel (1990) also indicate that tension may come from two generations working together, because they both have desires for control and authority in making major decisions about the mission, goals, business structure, strategy, and day-to-day operation. This leads to the second hypothesis:

> H_2a: A family business that has a relatively high level of incumbent over-control is more likely to have a high level of conflict/tension across generations.

> H_2b: A family business that has a relatively high level of conflict/tension is less likely to carry on succession planning than if it had a lower level of conflict, holding the level of over-control constant.

Yet, the suspected simultaneity among succession outcomes, the incumbent’s over-control (or unwillingness to cede control) and conflict/tension casts doubt of the traditional way of viewing their relationship. The simultaneity between these two variables is rooted in the simultaneous goals of family businesses. Because of the simultaneous roles of individuals in the family-ownership-management systems, business outcomes, such as profit, are not the only goal that individuals pursue, especially, medium and small sized firms (Scarborough and Zimmerer, 1987; Stafford et al., 1999; Leach et al., 2009). Fetsch et al. (2001) also suggest that maintaining human relationships is a high priority for management. Therefore, being less advanced in the succession outcome, high level of conflict, and high level of unwillingness to cede control are simultaneously observed in family businesses, although this observation does not necessarily show a clear direction of causality. On the other hand, a family business that is ahead of the “game” tends to have higher level of conflict and higher level of generational shadow. A good example is that in a high conflict business, the incumbent is less willing to transfer the business not because he/she does not want to let go of the power, but because he/she cares more about the relationships among family members. Moreover, as the succession process moves forward, a family business is expected to have more conflict generated through this process than other businesses, which have not started planning succession. Figure 1 illustrates the relationship among over-control, conflict/tension, and succession outcome. Therefore, the third hypothesis is:

> H_3: The succession outcome, conflict/tension, and the incumbent’s degree of over-control are simultaneously determined.

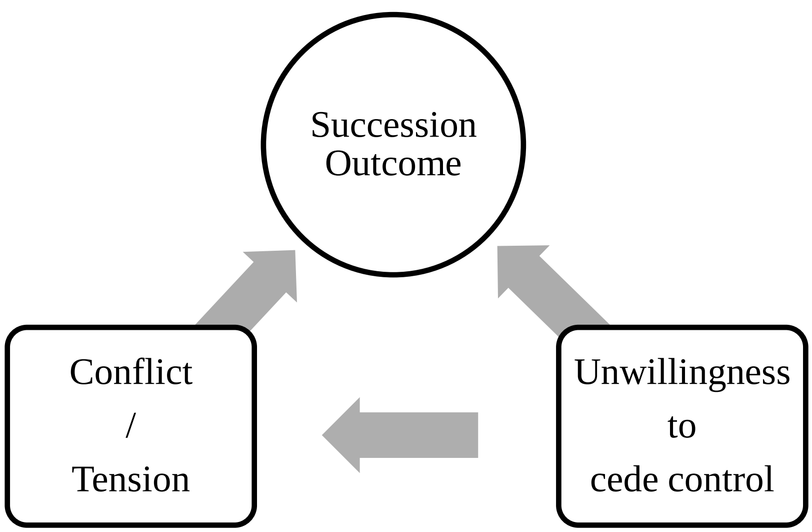

Figure 1 Relationship among Three Dependent Variables

I test these hypotheses empirically using a model that accounts for the suspected endogeneity. In the next chapter, I introduce a conceptual model to develop a better understanding on what independent variables should be put into the model.

CHAPTER 3: CONCEPTUAL MODEL

This section discusses the theoretical framework that helps to shape the analysis of the succession process and the hypotheses that were previously described. Two models are presented here: the Three-Circle Model and the Life Cycle Theory Model. For each model, I describe the underlying assumptions, formation, description, model extensions, advantages, and how the model is used in the context of the subsequent analysis. At the end of this chapter, I present an integrated framework of these two models, and discuss the associated implications for empirical modelling.

One significant contribution of this framework is that instead of using a single model, it combines the two models into one, allowing us to look at the succession process from two perspectives: position movements of the core family members during the succession process (namely, horizontal movement), and the change of influence that core family members have over time (namely vertical change). This provides a more comprehensive understanding about how generational shadow interacts with family business succession. Therefore, when it comes to empirical modelling, identification of which variables are most critical for succession as well as the relationships between these variables, will be clear.

The Three-Circle Model

One of the theoretical strides made in the field of family business research was the introduction of the Three-Circle Model – a system of integrated dynamics of family business systems (FBS) – that was developed by Tagiuri and Davis (1996). The model remains one of the central organizing frameworks for scholars interested in understanding family businesses. A major contribution of the Three-Circle Model is that it has immediate face validity and captures enough complexity in family business systems to help researchers, managers, and families think more clearly about the strengths and challenges of three systems (Davis J. A., 2017). The following subsection demonstrates how the Three-Circle Model can be used to understand the succession planning process.

Assumptions

There are a few assumptions made by Tagiuri and Davis (1996). The model deals only with single family-controlled businesses where two or more individuals being owners or/and managers are simultaneously members of the major owning family. If the owners (managers) are all from different families, or there is only one owner (manager) of the company (this typically happens with start-up companies, which are not yet considered to be a family business), the Three-Circle Model will not likely capture all relevant dynamics. In this study, I narrow down the target companies to those family businesses with both the father (or the senior, incumbent) and the son (or the junior, successor) being involved in the business, and with the son being expected to take over the business at some point (or the son has already taken over the business). That is, I will focus only on family businesses that are at some stage in the succession process – whether just beginning or completed – in order to better understand succession issues in family business systems.

To make the assumptions clearer, the target businesses include any company that has the following characteristics:

a) Ownership of the company is controlled by one family (one family is allowed to have many household units, but majority of the stakeholders are related by blood), and
b) Includes the senior and the junior members of the same household unit in its management.

The assumptions in Tagiuri and Davis (1982) also allow the company to have non-family member employees. However, in my work, non-family employees are not necessary for the reason that I will be mainly focusing on small- and medium-sized family farms, which are mostly owned and managed solely by family members.

Model Description

The theory claims that a family business is comprised of three subsystems that are both interdependent and interactive: family, management, and ownership (Poza, 2010). These three subsystems are shown in Figure 2. Each subsystem is characterized by its own goals, values, and development, though each maintains a porous boundary from the other subsystems. The family subsystem targets the individual members of the family and any interactions among them (Bubolz & Sontag, 1993). Each individual in a family business system is related by blood, marriage, or adoption (USDA, 2015), and is supposed to share similar goals, resources, and make commitments to the family over time. Family concerns are more about family development, such as living standard and time spent with family members. The business subsystem contains the following elements:

1) Individuals who are employed by the company or individuals who share common goals, values, and commitments to the business (Distelberg & Sorenson, 2009);
2) The interdependence and interactions among those individuals in the context of their business environment (Distelberg & Sorenson, 2009).

These two elements together creates the business subsystems. The key to this subsystem is that the business determines who is a member of this subsystem (Distelberg & Sorenson, 2009). For example, succession is one of the processes by which to determine who will next lead the business. Therefore, individuals within the business subsystem share common goals and resources relating to business survival. The ownership subsystem, as with the other two subsystems, is characterized by shared common goals, values, and commitments. This subsystem has a great deal of overlap with the other two, especially during the early development stages of the family business (Gersick et al., 1997); I elaborate more on this in the following chapter. The integration of the three subsystems is required to have the entire family business system functioning in a unified and optimal way (Poza, 2010). Additionally, Poza (2010) indicates that in order to cope with the increasing complexity of the external environment, the three subsystems and the family business system as a whole all have to work together to avoid decline (Poza, 2010).

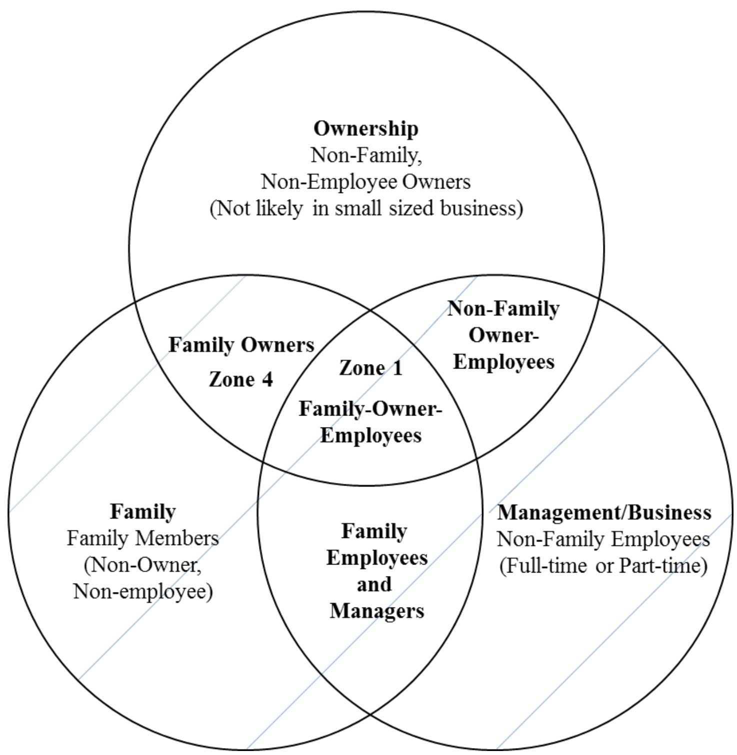

Figure 2 Three-Circle Model for Medium & Small Sized Firms[1] (Source: Tagiuri & Davis, 1996)

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[1] Shaded blue area represents the active subsystems in a small or medium sized family business. Small or medium sized businesses usually do not have non-family owners/managers.

Moreover, Distelberg and Sorenson (2009) indicate that many issues of family-business-system dynamics are revealed only by considering issues associated with three different levels of analysis separately: “the individual level”, “the group (subsystem) level”, and “the family business system level” (p. 66). One cannot evaluate the individual without consideration of his or her group and family business system, and vice versa. For example, I am able to develop a process model of succession planning by recognizing: attributes of the individual being treated (the individual level), the influence of the family, which is a group level, and finally organizational characteristics (the family business system level) (Davis & Harveston, 1998). The individual level contributes to the model by recognizing goals, values, characteristics, and demographics of a specific person. For my work in this thesis, it is vital to integrate the individual level of analysis into the conceptual and empirical models to account for potential misalignments between the incumbent and the successor, though they both belong to the family system. The group level analysis is based on the three subsystems: family, business, and ownership. Finally, the family-business-system level analysis include all dynamics (alignments and misalignments) in the whole system.

One of the benefits of the level analysis is that it reveals that misalignments exist on an individual basis, and on a group basis. Each subsystem has different goals, values, and commitments. In addition, even though one subsystem has shared goals, values, and commitments to the subsystems over time, the degree to which each individual shares goals, values, and commitments individual changes (Distelberg & Sorenson, 2009), also possibly leading to misalignments.

This argument leads to our following two implications of the Three-Circle Model. First, a key insight the Three-Circle Model provides is that it suggests that a family firm is a complex and dynamic social system that can only be understood and studied as a whole. The level analysis indicates that the three subsystems, and individuals in each or multiple subsystems, are integrated through reciprocal adjustments in order to function together. Complete understanding of the family business dynamics is obtained only when all three subsystems, with their interdependencies and mutual dependencies, are studied as one system (Poza, 2010; Bronfenbrenner, 1979; Taguiri & Davis, 1982, 1996; Distelberg & Sorenson, 2009). Therefore, it is impossible to optimize each subsystem separately, and/or attempt to maximize family-business-system welfare by considering each subsystem separately. The family subsystem is expected to have an impact on the ownership and management subsystems, and vice versa. Therefore, when doing empirical research, emphasis should be on the interactions of the three subsystems and on the mechanisms of integration so that the mutual benefits of an outcome of the larger system to subsystems can be taken into consideration.

Second, the family firm will face many systemic alignments and misalignments from one subsystem to another when major events happen, such as participation of the next generation, aging the earlier generation (Poza, 2010). On the other hand, the firm is more likely to expedite its growth because of product or service innovation (Poza, 2010). Each individual in the family business system understandably has a different perspective, due to distinct positions each one holds. According to Figure 2, each member of the family business is placed in one of the groups: family members, family employees, family owners, family-owner employees, non-family employees, non-family-owner employees, and non-family-non-employee owners. Even in a small family business of four – for instance, a father, mother, son, and daughter-in-law – one could easily observe that they have very different goals. Senior parents are family-owner employees, and the daughter-in-law may work outside the family business and only plays a role in the family circle. Senior parents are likely to put the business as their first priority. On the contrary, the daughter-in-law may care about the business much less than the seniors.

Therefore, in the most extreme cases, these misalignments lead to significant sub-optimization of each of the family, ownership, and management subsystems, commonly known as family-first, ownership-first, and management-first (also known as business-first) structures (Poza, 2010). Family firms can, thus, be categorized into three types: family-first businesses, management-first (or business-first) businesses, and ownership-first businesses.

Among the many scholars researching different types of family businesses, Distelberg and Sorenson give most comprehensive definitions to classify family businesses (Figure 3). The authors incorporate each firm’s goals, resources, and values into one measure: value continuum, shown by the top line in Figure 3, with the family-first value orientation on the left and the business-first on the right.

There are two forms of family-first family businesses (the first two columns in Figure 3). Both relationships move resources from the business to the family. The only difference is that some firms use resources without hurting the business but some do it at a cost, i.e., the form of business depleting, whereas others do it without too much or even no immediate damage to the business, i.e., the form of business withdrawing (Distelberg & Sorenson, 2009). Similarly, the business-first firms consists of two different types of resource flow: the family-depleting, meaning that the business moves resource from the family at a cost to the family, and the family-withdrawing, where the business does little or no damage to the family. Note that the resources I indicate here include not only financial resources, but also other forms of tangible or intangible resources – family member's time, as an example.

	Business Depleting	Family Emphasis	Balanced Emphasis	Business Emphasis	Family Depleting
Goals	Family health One-generation focus	Family health Family development Multiple-generation focus and potential succession Maintained business resource base	Family and business health Aligned family and business development Multiple-generation focus and succession	Business health Business growth Maintained level of resources for the family Multiple-generation focus and succession	Business health Business growth
Resource transfers	Business and family resources supporting family goals Investing family and financial resources in the family	Family to business flows seen as family investments to be used at a later time	Flow relatively equitable for family and business Collaborations and policies guiding resource flows	Business to family flows limited or seen as "loans" that can ultimately help the business	Business and family resources supporting the business Investing (reinvesting) family and financial resources in the business
Strengths	Family development	Family development Access to business resources over time	Family and business development	Business development Access to family resources over time	Business development
Limitations	Decline in business resources	Less growth in business system	Resources spent to maintain family and business balance	Lack of growth in family resources	Decline of family resources

Figure 3 Family-first Firms vs. Business-first Firms (Source: Distelberg & Sorenson, 2009)

Many researchers find that the succession rate in business-depleting firms is lower than family-business balanced ones (Distelberg & Sorenson, 2009; Gersick et al. 1997). Several possible reasons given in the literature are:

1) Given the fact that family-first businesses view employment as a birthright of family members, the stereotype of nepotism derives the mildly infrequent sub-optimization of the family business system (Carlock & Ward, 2001). On the one hand, Poza (2010) suggests

that non-family managers with career ambitions often decline to join family businesses due to the concern for future promotions. On the other hand, family members joining the business are paid the same regardless of results, responsibility and overall merit. This is one potential reason for impeding the development of a family business in terms of its scale and productivity;

2) A business-depleting firm is aimed to serve the family as a resource base (Distelberg & Sorenson, 2009). Profit is transferred from the business to the family to support family members' personal purchases, education, and other living expenses (Iglesias, 2015). Although a business-depleting firm survives as long as operators recognize their internal values parallel to family-first philosophy and use resources accordingly (Distelberg & Sorenson, 2009), it faces difficulty in moving from the senior generation to the junior generation because the goal for the firm is to treat the business as a vault while overlooking the importance of business growth, leading to a restriction on family business's ability to collect enough resources (Gersick et al., 1997);

3) For family-first businesses, the first priority are family needs (Iglesias, 2015). Therefore, as successive generations enter the business, the firm will include multiple families, and tend to grow the business to accommodate the increasing family needs (Bronfenbrenner, 1979; Bubolz & Sontag, 1993);

4) The life span of a family firm heavily depends on the commitment of individual family members to the firm and on the levels of conflict that comes along with running the business (Poza, 2010). The firm is more likely to collapse if either of the incumbent generation or the succeeding generation does not aspire to running the business.

There are different conclusions made about the rate of succession in a business-first firm. Gudmunson and Danes (2013) indicate that the business-first family business has longer firm survival. However, Distelberg and Sorenson (2009) suggest that a family-depleting business-first family business will be less sustainable. The reason for this is that the family system does not generate resources (e.g., social resources, human resources) to support the growth of the business which expands at a much higher rate than the family system. Another potential reason that makes it difficult for the junior generation to take over the business is that the junior members are not free to make automatic commitments to management-first family firms because the enterprise is protected from going bankrupt (Poza, 2010). In a business-first firm, appointments of position are based more on merit and qualifications.

Family business outcomes are sensitive to the consequences of any confusion over authority to lead the business and vague boundaries between any two subsystems. The reason is that each subsystem, compromising the complexity as a whole, is composed of unique roles, functions, goals, and operating principles. Optimizing goals for each subsystem (or individual) will lead to many issues arising at the forefront of the family business. Therefore, inherent in the Three-Circle Model is a way to optimize jointly three sub-circles so that the whole system can function most effectively and successfully to reach its goals (not necessarily financial goals).

A joint optimization of subsystems is much more reasonable than separate optimization, and is also rooted in the joint goals of family businesses. Kuratko et al. (2001) suggest a four-factor structure of goal statements, including extrinsic rewards, independence/autonomy, intrinsic rewards, and family security. Extrinsic goals concentrate on wealth accumulation such as increasing personal income. Intrinsic goals, by contrast, include the gaining of public recognition, meeting challenges, and personal growth. This goal structure implies that family business owners are more motivated by the security and autonomy they provide for their families instead of only financial rewards. This explains why family businesses tend to retain jobs and ownership rights in the family. On the other hand, under this goal set structure, the risk associated with running the business is far more complex than simple economic risk versus return. Moreover, the value of a business observed by outsiders may be different from the firm's self-assessed value. The owner takes into consideration expectations about future developments and soft information far beyond the balance sheet (Hines Jr. et al., 2015). This situation of business self-assessment influences decisions of ownership transfer and management transfer. Therefore, to get access to the health condition of a family business, one must understand the goals, values and roles of each system member (Distelberg & Sorenson, 2016).

Formation: how does the Three-Circle Model come into being?

To reveal how the Three-Circle model comes into being, a good approach is to examine the relationship among individuals involved in family, management, and ownership according to the timeline after the business is founded. This section makes clear the logical link between the Three-Circle Model and the Life Cycle Theory in the next section.

Scenario 1: Founding generation A way to understand the Three-Circle Model from the very beginning is to define the relationships surrounding a founder (the first generation) of a business, his/her business, and his/her family, categorized by Figure 4. In this Venn diagram, the intersection of the founder with his business, represented by

Intersection B, shows the interaction between the founder and his business: the emotional, physical, and financial involvement of the founder with business (Churchill & Hatten, 1997). One basic characteristic of the founder is that he both owns and operates the firm. This is the time at which ownership actually overlaps with the family and business subsystems, as mentioned above. Therefore, the founder is an owner-manager with complete absorption in the business's development, often with involvement of 80 hours a week. For example, a founder of a start-up business also works during weekends, and spends a lot of time on the business during after-work hours. Intersection B is often large; indeed the owner and the business are essentially one in early stages of start-up (Churchill & Hatten, 1997). As the business grows professionally over time, this overlap may become smaller. The other intersection, represented by Area A, is the involvement of the founder with his family (wife, children, siblings, parents, etc.). For example, the founder spends time with his/her family for dinner, weekends, taking care of kids, vacation, and so on. In this graph, we assume that there is no intersection between family and business. This case particularly occurs during the start-up period of a family business. It is important to notice the lack of overlap between the family circle and the business/management circle that only signifies that family members are not directly involved in the business during the start-up phase. However, it does not necessarily mean that the two circles do not compete against each other for resources including "the owner-manager's time", "private school and college tuitions", funding for retirement, and the like. (Churchill & Hatten, 1997).

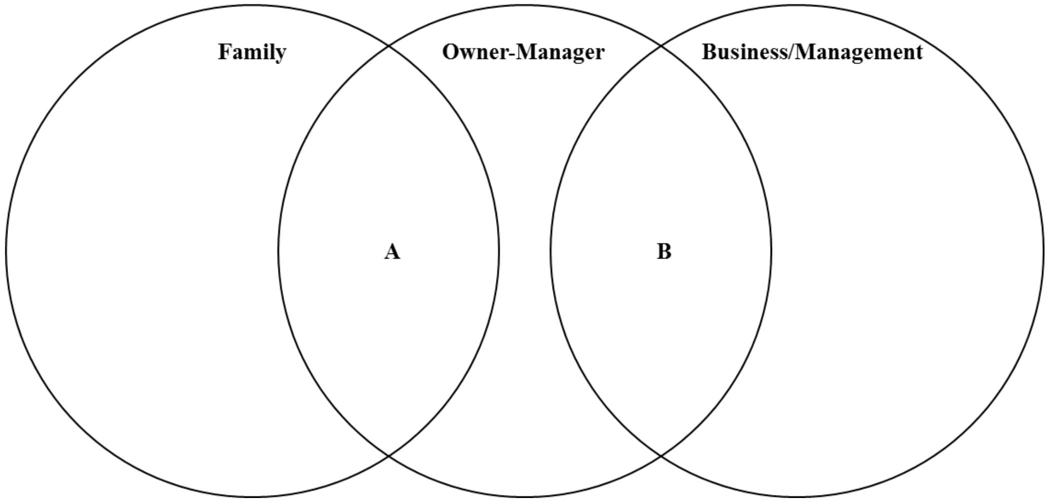

Figure 4 Founding Generation (Source: Churchill & Hatten, 1997)

Scenario 2: 2nd and 3rd generation As the family business develops the situation becomes quite different from the start-up period; now the 2nd or 3rd generations take over the firm. During this phase, Sectors A and B (in Figure 4) continue as before, but with the direct engagements of family members besides the owner in the business, two new areas of interaction come along, as Figure 5 depicts. Sector C represents the family members involved in the business do not interact very often with the owner-manager (Churchill & Hatten, 1997). The reason that Sector C arises is natural, for the owner-manager needs to think of the issues related to business transition to maintain the goals of the business. An example would be junior members or the spouse of the owner (for the companies that are not coprenuerial) enrolled as part-time workers or headed for an intern position. Sector D, on the other hand, depicts the core of a family business — the interactions among family members who own, manage, control and influence the direction of the business daily. One critical fact to know is that family managers are different from nonfamily managers in that there are emotional relationships associated with dealing with business and employees (Churchill & Hatten, 1997). These family members assume responsibilities and have obligations in both business/management and family circles. Therefore, relationships in one area influence relationships in the other (Churchill & Hatten, 1997). This linkage, which depends on the health of both types of relationships, is what makes family firms unique. The second scenario begins when a family member besides the owner enters the business and ends when either one of the generations leaves or family members depart, because of the biological reality of the human life cycle (Churchill & Hatten, 1997).

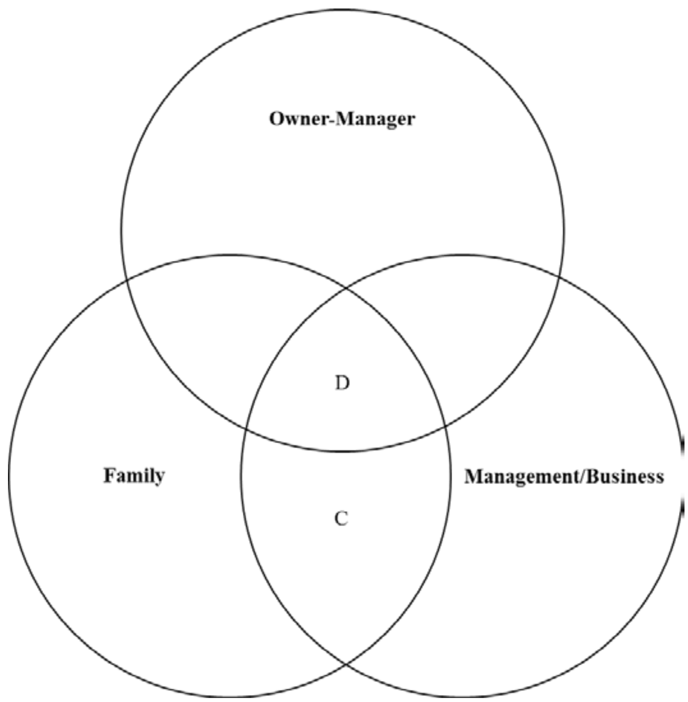

Figure 5 2nd and 3rd generation (Source: Churchill & Hatten, 1997)

Benefits of this model

The Three-Circle Model breaks down the complexity of a family business to small pieces (subsystems and intersections) and helps researchers understand what and why is actually happening. It enables researchers to better analyze various issues including conflict and family tension, family business boundary and so on. For instance, when looking into the boundary issue of allocating income, non-owning family members who do not work in the business (the family circle in Figure 2) often take a very different view from the business owners who are also family members (the core in Figure 2). The former will be in favor of decisions that allocate more resources than before to support family expenses, although this act does not necessarily leave the business in trouble, while the latter will be more likely to sustain the original level of expenses and to reinvest business earnings so that the business gets an opportunity to grow. The case will be more complicated if more family members are involved, such as family members who work for the business and outside employees. Thus, a clear picture of where everyone fits into the family business helps keep the conflict/tension at a lower level and thus expand the longevity of the business.

In addition, the model enables us to place each person within the circles so as to better understand his/her behavior, which often links to the advantages and disadvantages of the position that member occupies. For example, the person heading the company is a member of Zone 1 (the center in Figure 2). The leader generally knows each individual well regarding the strengths and weaknesses and has a good understanding of the family as a whole. Besides, he/she also knows the firm well so that he/she is able to appoint a position to each family member to benefit the firm the best. Meanwhile, the leader is obligated to adjudicate conflicts when there is conflict generated from family and business competing for resources. The leader should not solve family conflict by using business resources and vice versa. The issues are different for the people in Zone 4 in Figure 2 (the intersection of family and ownership). People in Zone 4 are those who are stakeholders of the firm but do not work for the firm. It is very likely these people are more interested in the dividends they can receive in the short-term (such as the time when the first generation operates the firm) than the long-term sustainability and performance of the firm (Poza, 2010). It will be easier for the owner-manager to make decisions by knowing omnisciently goals and values of people with different roles.

Model Extension: Succession Planning in the Three-Circle Model

The Three-Circle Model has been used for analyzing many issues, but it has not yet been used for understanding the succession process. Figure 6 depicts the movements of the incumbent and the successor during the succession process. The red arrows represent the senior's change of position, moving from the core to the family circle, and the green arrows represent the movements of the successor, moving from the family circle to the core.

The successor is identified among family members, and then he/she is brought into the business as an employee or a manager. In the end of the succession process, he/she takes over the ownership from the last generation operator, and becomes a family-owner manager. To the business, this movement is a part of the succession process. To the successor him/herself, this is his/her own career development path.

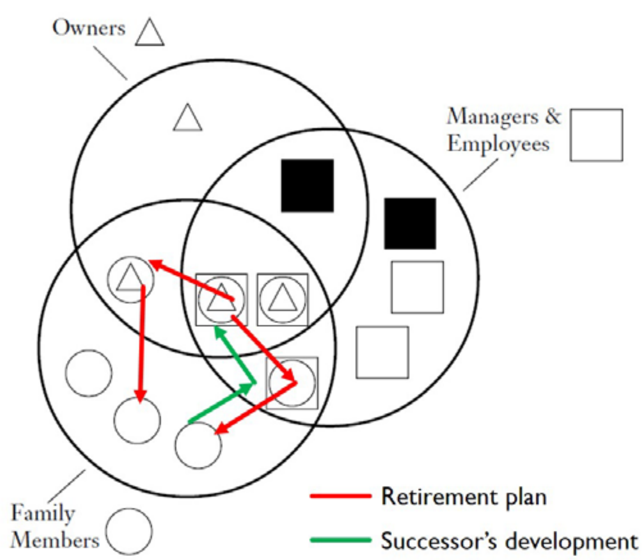

Figure 6 Succession Plan in the Three-Circle (Source: Tagiuri & Davis, 1996)

For the incumbent, the story is a little bit complicated. There are two ways for an incumbent to transfer the business. First, he/she gives up management control and then transfers ownership control. The other way is to give up ownership control first, and then management control. This makes up the second part of the succession process. To the incumbent, this is his/her retirement plan. Apart from these two types of paths, there is a third type, in which the incumbent stays in the business in the form of ownership control or management control, or both. This is what is called generational shadow, reflecting the incumbent's unwillingness to transfer which potentially leads to more conflict. One thing that is important to bear in mind is that although keeping ownership control and management control are both forms of generational shadow, they likely cause different levels of tension. Tension generated by generational shadow is likely to be relatively moderate as long as the incumbent is not involved in the decision making process. Moreover, if the second-generation operators achieve an agreement over the distribution of ownership and management, tension is likely to be reduced. This suggests that communication is also a critical determinant of the level of conflict.

Life Cycle Theory

Churchill and Hatten (1997) propose a life-cycle approach to the research framework of family businesses, with succession as its anchor, aimed to better understand and to improve family business operations surrounding the succession process. The foundation of this framework is the stages a family business generally experience because of the "biological reality" of two generations separated in age and business experience but joined by blood and family experience (Stafford et al., 1999).

The paper starts with a simple but critical step: identifying the intrinsic and distinct characteristics of family businesses from entrepreneurs, which are the involvement of family members in the business and “non-market-based transfers of power between family members” (Churchill & Hatten, 1997). By recognizing the inevitable and natural path of human life, the “biological imperative”, the authors examine the degree of influence two generations (a senior and a junior) have on operation and direction of the business. A natural periodicity, therefore, is developed. This periodicity produces unique stages within the family business that repeats from generation to generation (Churchill & Hatten, 1997). The following text discusses the theory in detail, and more importantly, shows how life cycle theory is related to the Three-Circle Model in the context of family business succession.

Assumptions

There are several assumptions made by Churchill and Hatten (1997). First, the two individuals – the incumbent and the successor – are both involved in the business, which allows one to assess the father’s and the son’s level of influence in a single framework. Second, only two generations operate the business at the same time. However, this assumption does not rule out multi-generational family farms. The way to allow for multi-generational operation of the business is illustrated in the next section: the integration of the two models. Third, the incumbent and the successor are connected by a family relationship, i.e., a biological or adopted parent-child relationship. This criterion excludes the possibility of having a non-family friend or employee as the successor. Fourth, the incumbent and the successor are different in age. Although this assumption rules out the case of having a family member with the similar age of the incumbent (e.g., a sibling, a cousin) as the successor, it does not devalue the theory because it reinforces my focus on different generations in the transfer process. For the purpose of demonstration, consider an entrepreneur who founds a small family firm at the age of 36 (Churchill & Hatten, 1997). He/she had a child at the age of 26 (Churchill & Hatten, 1997). The child enters the business as a full-time employee around age 24 (Churchill & Hatten, 1997). Notice that this age hypothesis varies across different family businesses.

Model Description

Churchill and Hatten (1997) indicate that the most important influence of succession does not involve financial value but the relationship that exists among people both in the business circle and in the family circle (p. 54). Therefore, succession is in reply to “natural biological forces” of change over time instead of a “market-driven transaction” (Churchill & Hatten, 1997, p. 54). One could obviously agree that each individual would experience a path beginning with a period of development and increase in depth of insights, and followed by a period of active engagement in career, and finally the influence gradually vanishes (Churchill & Hatten, 1997). Figure 7 depicts age (time) against the frequency of activity to represent this path, showing that the curve is first convex and second concave, and the curve has a global maximum at some age for each individual (the exact age varies case by case). At a certain age, the person’s frequency of activity gradually decreases. Churchill and Hatten (1997) argue that when biological inevitability is added to a model of family ties within the business, an eventual transfer of the “throne” must take place at some point. Otherwise, the succession alternative is to sell the business.

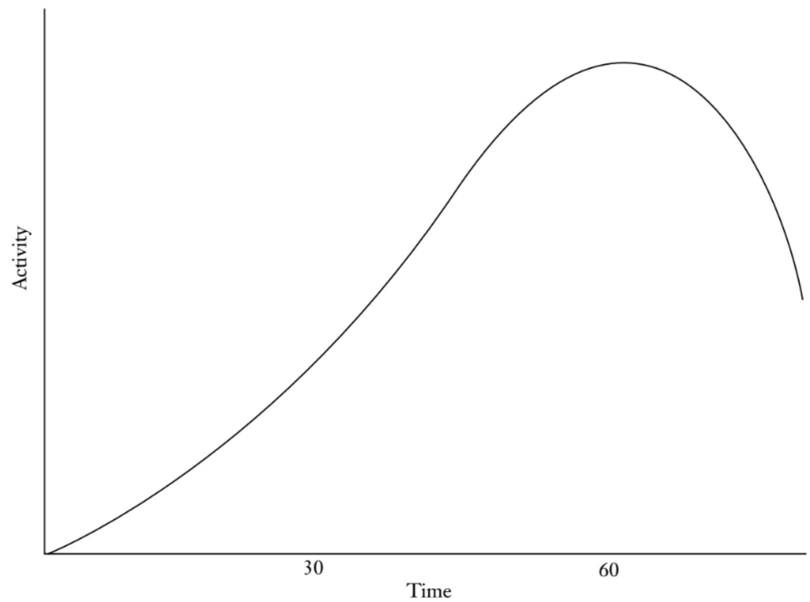

Figure 7 The Human Life Cycle: Biological Imperative (Source: Churchill & Hatten, 1997)

When two generation's life cycles are examined on the same graph, the phase differences between the senior and the junior provide a way to divide the succession process into four stages: "the owner-managed business", "training and development of the new generation", "partnership between the generations", and "transfer of power" (Churchill & Hatten, 1997, p. 59-60), as Figure 8 shows.

From point A to A', as Churchill and Hatten (1997) illustrate, is the first stage: "the owner-managed business". This stage starts from the owner building up an enterprise and lasts to the official entrance of the next generation (Churchill & Hatten, 1997). The enterprise is not considered as a family business until the junior comes along (Churchill & Hatten, 1997). In this stage, family considerations influence the business but family does not directly interact with the business (Churchill & Hatten, 1997).

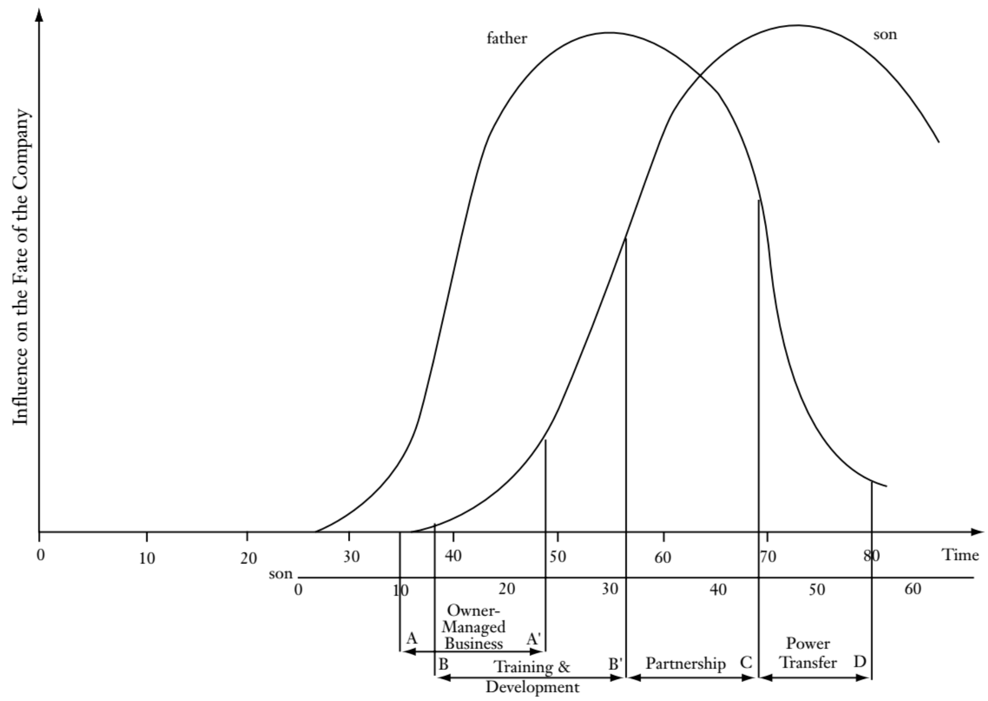

Figure 8 Life Cycles of Two Generations (Source: Churchill and Hatten, 1997)

Second, from point B to B' is the "training and development of the new generation" (Churchill & Hatten, 1997). Training does not need to happen after the new generation is brought into the business, but occurs much earlier in unofficial family settings. The example would be the father talks to the son about the business around the dining table in the evening (Churchill & Hatten, 1997). The new generation joins the firm full-time after point A', which is period for the junior to develop managerial and technical skills (Churchill & Hatten, 1997).

Third, the "partnership between the generations" takes up the period from point B' to C (Churchill & Hatten, 1997). When the junior has acquired sufficient knowledge to delegate responsibilities, he/she begins to be partly involved in decision-making process at point B' (Churchill & Hatten, 1997). This responsibility gradually grows in full, where the junior has well prepared for being one of the policy makers in a partnership between two generations until point C (Churchill & Hatten, 1997).

In the last stage comes the actual “transfer of power” – The period when major decision-making, daily operation, goal setting, and other managerial responsibilities shift to the next generation (Churchill & Hatten, 1997). After point C, the partnership continues for a short time to be prepared for the actual transfer. The process accelerates when either or both parents start planning for retirement (Churchill & Hatten, 1997). This last process can occur with or without ownership transfer (Barnes & Hershon, 1994). Note that there are two aspects of the succession process: a transfer of ownership of the company, and a transfer of management of the business’s daily operations.

Model extension

The purpose of the Life Cycle Theory is to suggest a research framework to understand the dynamics across generations better and thus, to improve the business longevity.

One of the limitations of this model is that the model is only a two-dimensional model of a complex phenomenon (Churchill & Hatten, 1997). What is not shown is the characteristic that causes individuals to take a particular position and assume relevant responsibility, which undoubtedly affects the succession process from selection to the actual transfer. Chrisman et al. (1998) suggest that integrity and commitment to business are the two characteristics that are considered most vital by the incumbent. The potential successor is expected to make decisions that are in the best interest of the business and the family. Although the ability to garner the respect of employees and decision-making skills are valuable attributes, the senior owner-manager mainly looks for commitment in the potential successor. Cabrera-Suarez (2005) suggests that successor's expectation and his/her training for leadership and commitment are vital factors in distinguishing between more and less successful process. Therefore, a potential extension of this model is to add the level of commitment the successor makes to the business as the third axis to build a 3-dimensional space.

Integration of the two models

If one were to compare the two models with each other, one would find that the reasoning underlying the formation of each model is essentially the same. The Three-Circle Model and the Life Cycle Theory model are actually two sides of a coin. It is worth putting them together to study the family business, instead of considering one of them to be redundant. One of the benefits of viewing them at the same time is that this allows one to not only look horizontally into the movement of each family member (especially the successor and the incumbent), but also understand vertically from the change and the transition of power over time. One important link between these two models is that one can see from the Three-Circle Model that there are two aspects of transfers: a transfer of ownership control and a transfer of management control. The Life Cycle Theory model, on the other hand, suggests that although these two types of transfers are overlapping with each other, a medium or small sized business has a comparative advantage in dealing with management transfer (Churchill & Hatten, 1997) because of the small population involved. Given the fact that a failure of management in the business can make transfer of a property right irrelevant because the business is no longer profitable, management transfer can take place without ownership transfer. However, if we only rely on the Three-Circle Model, one might imagine that these two aspects are parallel.

Building on this insight, the integration of the two models performs as a coordinate system during the succession process. Figure 9 puts the two models together, and provides a clear and neat picture. For each stage of the succession process, a coordinate indicates the positions of the senor and the potential successor regarding the management transfer. For example, during the early stage of the management transfer, we expect that the incumbent is holding a position at the center of the intersection of the three circles. The potential successor is involved in the family circle, being identified by the incumbent and waiting to be brought into the business. A similar idea applies to ownership transfer. During the early stage of the transfer, the potential successor is involved in the family, waiting to become a part of the stakeholders. However, as discussed above, a failure of management transfer results in a suspension of the ownership transfer, and the successor might be already brought into the business as an employee or a manager when the ownership transfer takes place, suggested by the Life Cycle Theory. Therefore, the incumbent holds a position in the intersection of the ownership and the family circles, or the center of the systems. The successor holds a position in the intersection of the business and the family.

The second coordinate corresponds to the level of influence of the incumbent or the successor on the business. For example, if the successor has already been brought into the business and the business has started a partnership between generations, the two generations are expected to have roughly an equal level of influence on the business. Referring to the Three-Circle Model, one would not be able to identify this second coordinate. However, this identification of the level of influence is essential to the study of succession for the reason that the level of influence of different generations serves as an indicator of the generational shadow. A higher level of influence of the senior generation and lower level of influence of the junior generation corresponds to a higher level of generational shadow. The third coordinate is the successor's level of commitment to the business. Holding constant the positions of the incumbent and the successor, and the level of influence of the two generations, the level of commitment of the successor is expected to have an impact on how successful the transfer process will be. This level of commitment is a critical coordinate that cannot be ignored, because it is naturally rooted in the interest of the potential successor and why he/she would like to join the business. Researchers studying commitment in family firms discovered that although successors of different family firms exhibit similar behavior regarding the decision of joining the business, the reasons for their behavior differed considerably (Poza, 2010; Sharma, 2004; Handler, 1989).

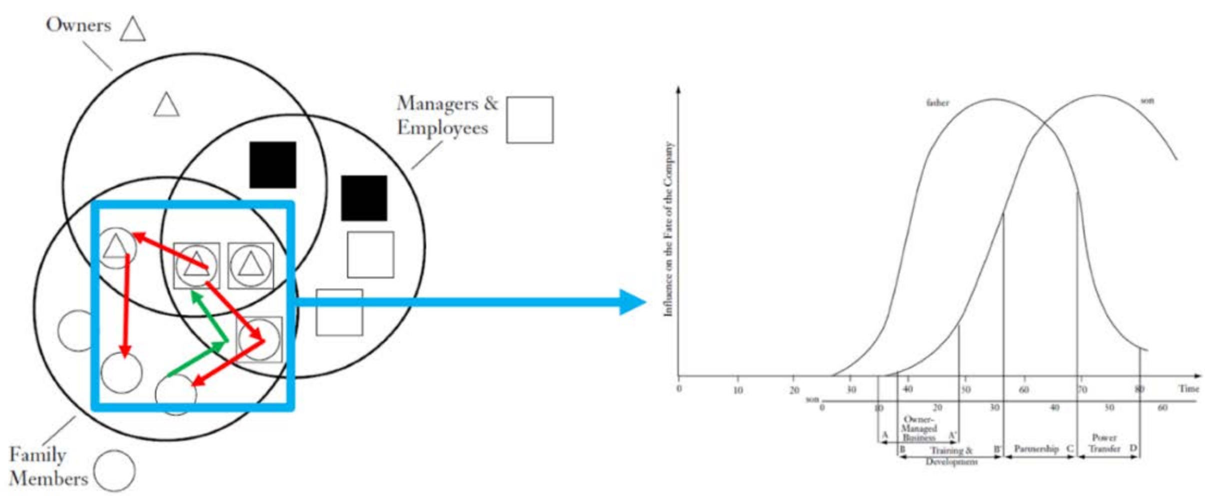

Figure 9. Integration of the Three-Circle Model and the Life Cycle Theory

Although this integrated model only provides a framework for studying two generations at the same time, it does not rule out businesses with three or more than three generations operating the farm. To illustrate this point, take a three-generational business as an example. When the first and second generation are in one of the phases indicated in the Life Cycle Theory, the second and the third generation cannot be in a phase that is ahead of the first and the second generation. For instance, if the second and the third generation are in the partnership stage, the second and the third generation can only be in the phase of training and development of the third generation or in the phase of the partnership as well, which is a rare situation. This means that the first generation cannot skip the second generation and directly transfer the business to the third generation if the second generation has already been working in the business. Thus, we can leave the third generation out of the life cycle of the first and the second generations. If the second generation shows no interest in assuming the responsibility of taking care of the business, as the third coordinate suggests, the generation does not form any commitment to the business, one will not be identified as the potential successor. Then, the model reverts to the normal two-generational model, taking the third generation as the potential successor.

CHAPTER 4: METHODOLOGY AND EMPIRICAL MODEL

This chapter presents an overview of the survey and data used for the empirical model, followed by a description of the econometric model, selection of dependent and independent variables, and descriptive statistics.

Data Description

The data used here are from the 2012 Intergenerational Family Business Survey, which was a 30-minute telephone survey of rural small and medium-sized family businesses in Illinois (IL), Indiana (IN), Michigan (MI), and Ohio (OH). The family farms were from a list of family farms who were registered in Food Industry MarketMaker. All the interviews were conducted from April 2011 to February 2012. The sample contained 736 family businesses for an overall response rate of 34 percent.

To qualify for the study as a farm family business, at least one of the following characteristics had to be met:

1) At least one other member of the family besides the respondent had to have ownership interest in the business;
2) At least one other member of the family besides the respondent had to work at least part-time in the business;
3) The respondent was planning to transfer the business to a family member.

Apart from these requirements, in this thesis, I required a stronger qualification for each observation. As suggested by the assumptions of the conceptual model, I required a family business satisfying the following characteristics:

1) One family, instead of two or more families, controlled business ownership. If a family operated the farm with extended family members, it also satisfied this qualification.
2) The business included the incumbent and at least a junior of the same family working in the business. If one of the juniors was the potential successor, he/she needed to be connected to the incumbent through family.

Therefore, in the end, the sample size was 500 farm family businesses.

Selection of Variables – Dependent Variables

The fundamental reason that family business dynamics are more complicated than non-family business dynamics is their unique set of goals, which is not relegated to traditional performance-oriented goals or financial-oriented goals. Previous research suggests a simultaneity of family objectives and business objectives (such as profit, wealth accumulation) in family farms (Scarborough & Zimmerer, 1987; Stafford et al., 1999; Kuratko et al. 2001). As discussed in the previous section, the family specifically seeks independence/autonomy, human interactions and relationships, and intrinsic awards. Therefore, when studying family business succession both the state of the business – such as profits – and the family objectives – such as harmonious human relationships – should be considered together as variables affecting the probability of the success of the transfer process.

The potential simultaneity is critical to empirical research: if such simultaneity exists as the anecdotal evidence suggests, but is not accounted for statistically, traditional statistical models that ignore this simultaneity will be unable to provide reliable estimates of the parameters (Maddala, 1986). Therefore, a single regression equation would not be able to capture the true interaction if the simultaneity appears.

The empirical model, which will be presented in *Evaluation of the Hypotheses* subsection, estimates the simultaneous effect of the level of conflict/tension and the degree of the unwillingness to cede control on family business succession outcome, accounting for the likelihood that a family business self-selects into a less advanced transfer stage. A complete list of dependent/independent variables is available in *Table 1* along with the detailed descriptions.

There are three dependent dummy variables: succession outcome, conflict/tension, and incumbent's unwillingness to cede control ("control" for short). They were all ascertained from the survey of business owners. Researchers only focus on either management transfer or ownership transfer in past literature. However, I would like to combine both transfers together to get a more complete picture of the transfer process. The succession outcome variable is the result of two discrete choice questions where business managers were asked about their stage in business management and ownership transfers. Succession outcome is one if the business has had a written plan for succession planning in either management or ownership transfers. Succession outcome is zero if the business has not had a written plan. In this case, the business is at one of the following stages: 1) has not started succession at all; 2) has just begun the succession process; 3) has only an oral agreement regarding the succession. The reason to group succession outcomes in this way is that Lansberg (1999) suggest developing a written plan is a critical indicator of how well succession is managed in a family business.

The conflict/tension variable is the result of six discrete choice questions where business incumbents were asked about the degree of conflict/tension generated by the confusion over authority to make business decisions, by unequal ownership, by the compensation levels of family members, by the failure to resolve conflicts among family members, by the workload distribution, and by competition for resources between the family and the business. It is important to recognize the degree of conflict/tension generated by confusion over authority because it is the main source of the conflict across generations. The senior and the successor are likely to have a different levels of perceived control over the management of the business. During the succession process, successors gain authority through experience and competence he/she demonstrates (Tharenou, 2001). However, the successor's level of authority is seldom clearly defined (Brun de Pontet et al., 2007). Therefore, it is hard for the incumbent and the successor to agree on the division of authority. The senior and the successor, thus, are likely to have different level of perceived control over the management power of the business. The Life Cycle Theory (Figure 8) presents this difference in authority very clearly. During the phase of the partnership between the two generations, in particular, the point where the second generation's influence exceeds the first generation's is not fixed and varies by each generation's perception. Family firms fell within the category where only small or even less amount of conflict is generated were defined as low conflict/tension.

The third variable, control (unwillingness to cede control), comes from the responses to the question: "To what extent is the senior generation prepared to give up control of the family business by delegating management to heirs or successors?" Business owners chose the degree of control from 1 = Not at all, 2 = Slightly, 3 = Somewhat, 4 = Very much, and 5 = Extremely. In the empirical model, control is defined as high control, i.e., 1, if a response is smaller than 3; otherwise, control is defined as low, i.e., 0.

Table 1: Variables and Definitions

Category	Variables	Definition
Dependent Variables	Succession outcome (sucdu)	What stage of the planning process your management and ownership transfer plan are in currently?[2] $Succession = 0, if\ both\ answers\ are\ \leq 3,$ $Succession = 1, otherwise$
	Conflict/tension	How much tension is generated by confusion over authority to make decisions/unequal ownership/the compensation levels/failure to resolve business conflicts /workload distribution/competition for resources between the family and the business?[3] $Conflict = 1,$ $if\ cumulated\ number\ of\ all\ questions \geq 12,$ $Conflict = 0, otherwise$
	Control	To what extent is the senior generation prepared to give up control by delegating management to heirs or successors?[4] $Control = 1, if\ the\ answer < 3$ $Control = 0, otherwise$
Independent Variables	Generation (gen)	Are you a first or founding generation, a second generation, a third generation, a fourth generation or a fifth or more generation owner?[5]
	Number of generations (numgen)	How many generations of family members, including yourself, are involved in the day-to-day management of the family business?
	Trigger A to E	Have any health reasons/your want to retire/your want to bring a new generation into the business/your want to take over the business/any other reasons not already mentioned prompted or would they prompt you to think about succession planning? $1 = Yes, 0 = No$
	Age	$Age = 2012 - the\ year\ of\ born$
	Married	$1 = \text{Married}, 0 = \text{Otherwise}$
	Family business functioning (fbfunct)	$0 = The\ most\ dysfunctional,$ $16 = The\ most\ functional$
	Role clarity (rolecl)	Is there any confusion about the roles and responsibilities of the family members involved in the family business? $1 = Yes, 0 = No$

[2] 1-Not started, 2-Have just begun, 3-Have an oral agreement, 4-Have a written plan, 5-Have started implementing the plan, 6-have finished transferring management
[3] 1-Not at all, 2-Small amount, 3-Moderate amount, 4-Large amount, 5-Extremely large amount
[4] 1-Not at all, 2-Slightly, 3-Somewhat, 4-Very much, 5-Extremely
[5] 0-First or founding generation, 1-Second generation, 2-Third, 3-Fourth, 4-Fifth or more generation

Table 1 continued

	Profit	$0 = Profit\ is\ 49{,}000\ or\ less,$ $1 = 50{,}000, or\ more$
	Role satisfaction (rolesat)	To what extent are you satisfied with your role in the business: not at all, slightly, somewhat, very much or extremely?[6]
	Successor identified (succiden)	Has the family business identified a successor or successors? $1 = Yes, 0 = No$
	Size	Currently, how many of the full-time and part-time/seasonal employees working for the business?
	Affordability (afford)	I worry about whether my heirs or successors can afford to purchase my family business.[7]
	Goal	I plan to transfer the family business to a family successor even if it puts my own personal wealth and livelihood at increased risk.[8]
	Capital (K)	Is there enough capital to implement the transfer of the business? $1 = Yes, 0 = No$
	Income (Y)	Is there enough income to support a change in the business management and ownership? $1 = Yes, 0 = No$
	Successor's openness A to C (openA, openB, openC)	Has the senior generation attempted to explore or discover the preferences of the heirs as part of the planning process?[9] Has the senior generation actively engaged in discussing possible transfer plan alternatives with heirs or successors?[10] Has the senior generation developed a succession plan and shared the plan with heirs or successors?[11]
	Education (onwer's education level)	What is the highest grade or year of school you completed? $1 = four - year\ college\ or\ higher,$ $0 = otherwise$

[6] 0-Not at all, 1-Slightly, 2-Somewhat, 3-Very much, 4-Extremely
[7] 0-Strongly disagree, 1-Slightly disagree, 2-Neither disagree nor agree, 3-Slightly agree, 4-Strongly agree
[8] 0-Strongly disagree, 1-Slightly disagree, 2-Neither disagree nor agree, 3-Slightly agree, 4-Strongly agree
[9] 0-Not at all, 1-Slightly, 2-Somewhat, 3-Very much, 4-Extremely
[10] 1-Yes, 0-No
[11] 1-Yes, 0-No

Independent Variables

Several independent variables are relevant and unique to each equation. In the control equation (third equation), the education level of the incumbent is unique. Davis and Harveston (1998) indicate that certain demographic characteristics of the owner/manager, including education and age, have impacts on the individual making decisions regarding succession. This is in line with what the Three-Circle Model suggests. Education may also lead owners to pursue new business opportunities (Robinson & Sexton, 1994), to consider new technology (Mishra & El-Osta, 2007) so that the level of control may go up. One could conjecture that receiving education on business operations and succession had a negative relationship with the senior's control and influence over the business as succession process moved forward.

Variables unique to conflict/tension equation (second equation) are role clarity, role satisfaction, and the degree of family functioning. As the conceptual model suggests that, each individual in the family business system has multiple roles. Moreover, during the succession process, roles of two generations are expected to constantly change over the time, resulting in the change of the difference in control and influence for the business over time. Therefore, role clarity and role satisfaction are critical to keep conflict/tension at a certain level. Danes and Olson (2003) suggest that lack of role clarity in a family business causes more family tension. Danes and Lee (2004) find that the level of role satisfaction affects family business tensions.

An indicator on family functioning is also vital to the optimization of a family business, as suggested by the Three-Circle Model. Many researchers have investigated methods to better access the actual situation of family functioning, such as the Family

APGAR assessment (Smilkstein, Ashworth, & Montano, 1982), the F-PEC Scale of Family Influence (Astrachan et al., 2002), and the Family Climate Scales (Bjornberg & Nicholson, 2007). However, these assessments measure how families function with a heavy focus on the family itself, whereas our conceptual model suggests that a family business optimizes its utility jointly, instead of looking at a subsystem solely. Therefore, in this paper, we use a new family business functioning assessment: FB-Brag, created by Wiatt and Marshall (2016). The advantage of using FB-Brag as a family assessment tool is that it allows users to measure family business functioning from a variety of viewpoints, in a way that holistically incorporates family and business functionality into one assessment (Wiatt & Marshall, 2017). Moreover, it reduces the long list of questions in previous scales to simply four questions, which are: 1) “How often are you satisfied that you can turn to people at home and work for help when something is troubling you?”; 2) “How often are you satisfied that others in your family and business accept and support your ideas or thoughts?”; 3) “How often are you satisfied with the way others in your family and business share time together?”; 4) “How often are you satisfied with the outcome when a decision has to be made in favor of what is best for the family versus the family business?” The rating scale is 1 = Never, 2 = Hardly ever, 3 = Some of the time, 4 = Most of the time, 5 = All of the time. The total available points is 20, which is considered as the most functional. The lower the number, the more dysfunctional a family business. In my sample, question 4 above was asked in a different way: “How often do conflicts arise where a decision has to be made in favor of what is best for the family versus the family business?” The rating scale is 1 = Never, 2 = Hardly ever, 3 = Some of the time, 4 = Most of the time, 5 = All of the time. Therefore, family business functioning in my sample ranges from 0 to 16 and 16 is considered as the most functional.

Variables unique to the succession outcome equation (the first equation) are: the junior's affordability to purchase the business, business goals, triggers that makes the incumbent think of a succession plan, and business demographics, such as size, entity, and enough income and capital to support actual transfers. Junior's purchasing ability comes from the question: "To what extent do you agree or disagree: I worry about whether my heirs or successors can afford to purchase my family business?" The distribution changes from "strongly disagree" (0) to "strongly agree" (4). Business goal is a variable from the question: "To what extent do you agree or disagree: I plan to transfer the family business to a family successor even if it puts my own personal wealth and livelihood at increased risk?" This question measures how important the incumbent's view the social goals of the business apart from the business's economic value. Triggers that encourage incumbents to think about planning or starting succession are also important. Incumbents answered either yes (1) or no (0) to the following five questions: "1) Have any health reasons prompted or would health reasons prompt you to think about succession planning? 2) Has your want to retire prompted or would it prompt you to think about succession planning? 3) Has your want to bring a new generation into the business prompted or would it prompt you to think about succession planning? 4) Has your want to take over the family business prompted or would it prompt you to think about succession planning? 5) Have any other reasons not already mentioned prompted or would they prompt you to think about succession planning?" Size is the total number of employees working in a family firm, including full-time workers and part-time workers. Entity is from the question: "Is your business divided into multiple business entities?" Enough income or capital to fund transfers is also vital to succession outcomes. Sharma et al. (2000) suggest that since most incumbent leaders rely on income from the business to fund retirement, they are unwilling to push forward succession if they believe the business functions worse without them.

There are some other independent variables added into more than one equation that are critical to the empirical model. The first control variable is generation. Davis and Harveston (1999) suggest that conflict across generations comes from two aspects: generation and generational shadow (p. 311). They indicate that conflict will be higher among family firms headed by second-generation leaders than among those firms headed by the founder. In a small or medium-sized family business, many employees are also family members. The social influence the founder extends to the level of conflict present (or felt) among members of the family business during social and business interaction (Davis & Harveston, 1999). Davis and Harveston (1998) also mention the founder's social influence, suggesting that the family business will gradually develop its "upper echelon", consisting of the core family owners and managers, and the kinship, consisting other family members who do not work for the business. The kinship will be larger and more types of family relationship will be developed when the latter generations head the firm. The generation variable comes from the response to the question: "Are you a first or founding generation, a second generation, a third generation, a fourth generation or a fifth or more generation owner?"

Profit, served as a measure of business performance, is another important variable. Many scholars suggest that the business is less likely to be transferred to the next generation if the business has low profitability, though Molly et al. (2010) conclude that there is no evidence that a family firm's profitability is affected by succession (p. 131). To avoid potential endogeneity raised from omitting an independent variable, profit is also added into the model. In order to have successful transfers, a profitable business makes it more attractive to the next generation.

The incumbent's openness is also an important factor. Brun de Pontet et al. (2007) indicate that incumbents are more satisfied with the succession process than are their successors (p. 339). One of the possible reasons is that incumbents are the principal decision maker in the process of transfers and draw up succession plans. Moreover, Brun de Pontet et al. (2007) suggest that incumbents are more likely to perceive themselves "more ready" to let go of the leadership power than their successors believe to be true. A significant perceived control difference affects the effectiveness of the transfer plan. Therefore, a better communication between the incumbent and the successor helps the business operate smoother. The degree of incumbent's openness, whether the incumbent is willing to explore the successor's preferences, to share and to discuss succession plan and succession plan alternatives with successor and other family members, shows the true level of control and affects succession outcomes.

Last, the identification of a successor is a critical control variable. Successor identification is the most important early stage of the transfers. Brun de Pontet et al. (2007) suggest that whether or not a successor has been identified measures the succession readiness of a family firm. Glauben et al. (2002) find a significant relationship between family succession and the designation of a successor. One could expect that the states of being in a family firm would be different before and after successor identification. However, the designation of a successor does not have a direct relationship with succession outcome because there is no indication of a strong relationship between successor identification and the progress on transfers that is made after it.

A compete summary of descriptive statistics can be found in Table 2. For each variable, some respondents indicated “Refused”, “Do not know” or “Does not apply”. These observations are listed as “N/A case” in Table 2. The next chapter presents the empirical results and a discussion on the results.

Table 2: Descriptive Statistics

Continuous variables	**Mean**	**St. Dev.**	**N/A Cases**	**Full Sample**
Age	56.02	11.86	29	471
Size	11.77	31.10	20	480
Number of generations	1.65	0.71	19	481
Binary variables	**Freq.**	**Percentage**	**N/A Cases**	**Full Sample**
Succession outcome (1=Advanced)	150	31.12	18	482
Conflict (1=High)	133	27.94	24	476
Control (1=High)	153	31.74	18	482
Trigger A (1=Yes)	320	66.53	19	481
Trigger B (1=Yes)	284	59.04	19	481
Trigger C (1=Yes)	381	79.21	19	481
Trigger D (1=Yes)	264	56.17	30	470
Trigger E (1=Yes)	138	28.75	20	480
Married (1=Married)	427	88.59	18	482
Role clarity (1=Unclear)	104	21.67	20	480
Successor identified (1=Yes)	175	36.76	24	476
Capital (1=Yes)	336	72.73	38	462
Income (1=Yes)	310	64.49	19	481
Incumbent's openness B (1=High)	331	68.67	18	482
Incumbent’s openness C (1=High)	216	44.81	18	482
Profit (1=High)	135	30.68	60	440
Education (1=High)	381	79.05	18	482

Table 2 continued

Categorical variables	Value	Freq.	Percentage	N/A Cases	Full Sample
Generation	0	310	64.32	18	482
	1	73	15.15		
	2	47	9.75		
	3	28	5.81		
Role satisfaction	0	0	0	21	479
	1	7	1.46		
	2	73	15.24		
	3	254	53.03		
Affordability	0	136	28.51	23	477
	1	101	21.17		
	2	34	7.13		
	3	97	20.34		
Family business functioning	≤4	0	0	20	480
	≤10	164	34.17		
	>10	316	65.83		
Goal	0	123	25.79	23	477
	1	87	18.24		
	2	52	10.90		
	3	124	25.60		
Successor's openness A	0	52	10.79	18	482
	1	105	21.78		
	2	134	27.80		
	3	128	26.56		
Sample size	500				

Evaluation of the Hypotheses

The empirical analysis adopts the following recursive trivariate probit model:

$$Succesion\ outcome = \theta_{12} conflict + \theta_{13} control + X_1\beta_1 + \epsilon_1 \quad (1c)$$

$$conflict = \theta_{23} control + X_2\beta_2 + \epsilon_2 \quad (1b)$$

$$control = X_3\beta_3 + \epsilon_3 \quad (1a)$$

where X_1, X_2, X_3 are matrices of exogenous independent variables (including a column of ones) unique to each equation Note that X_1, X_2, and X_3 are not exactly identical. ϵ_1, ϵ_2, and ϵ_3 are disturbances. θ_{12}, θ_{13}, and θ_{23} are parameters on endogenous variables. The model is recursive. The third equation is a function of $control$ on only exogenous variables, which can be determined first. The second equation regresses of $conflict$ on $control$ and other exogenous variables. The top equation and the equation of interest is a function of $Succesion\ outcome$ on $conflict$, $control$, and other exogenous variables. Each individual equation feeds into the next one as moving from 1(a) to 1(c). Estimation of the joint likelihood of each possible outcome to this recursive multivariate probit model follows Maddala (1986), Greene (2012), and McDonald et al. (2017):

$$Pr(Succession\ outcome = 0, conflict = 0, control = 0) =$$

$$\int_{-\infty}^{-X_1\beta_1}\int_{-\infty}^{-X_2\beta_2}\int_{-\infty}^{-X_3\beta_3}\phi_3(\epsilon_1,\epsilon_2,\epsilon_3,\rho_{12},\rho_{13},\rho_{23})d\epsilon_1\,d\epsilon_2 d\epsilon_3 \tag{2}$$

where ρ_{ij} is the correlation coefficient between ϵ_i and ϵ_j, $i = 1, 2, 3$, $j = 1, 2, 3$, $i \neq j$, and ϕ_3 is the trivariate normal distribution probability density function. Note that the subscript 3 is used to indicate trivariate normal distribution, instead of the third equation.

Test for the Hypotheses 1 and 2

Looking at marginal effects from the estimated regression model serves as a means to address Hypotheses 1, 2a, and 2b. The reason to use marginal effects to assess the impact of the independent variables on the targeted variables is that unlike in a linear regression, the parameters in limited-dependent variable models do not represent the effects of "x" on "y" because the probability function is not linear. Instead, the effects are shown by the partial derivatives, i.e., marginal effects.

There are three marginal effects to evaluate:

$$Pr(Y_1 = 1|Y_2 = 1, Y_3 = 1, \bar{X}) - Pr(Y_2 = 1|Y_2 = 1, Y_3 = 0, \bar{X}) \tag{3}$$

$$Pr(Y_2 = 1|Y_3 = 1, \bar{X}) - Pr(Y_2 = 1|Y_3 = 0, \bar{X}) \tag{4}$$

$$Pr(Y_1 = 1|Y_2 = 1, Y_3 = 1, \bar{X}) - Pr(Y_2 = 1|Y_2 = 0, Y_3 = 1, \bar{X}) \text{ [12]} \qquad (5)$$

Equation (3) corresponds to Hypothesis 1, which states that businesses with high control are more likely to engage in a less advanced succession process. The first term in Equation (3) calculates the probability of a business engaging in frequent succession activities given the high levels of conflict and control. The second term measures the probability of a business having a high level of succession activities given that it has high level of conflict and low level of control. Therefore, the difference between these two measures the effect of a business moving from low level of control to high level of control on the likelihood of this business being at an advanced level of succession process. This number would be negative if a high conflict business with low level of control were more likely to have more succession activities than the high conflict business with high level of control. Similarly, Equation (4) measures the average marginal effects of the control level on the conflict level. The first term calculates the probability of the firm having high level of conflict given that it has a high level of control. The second term measures the probability of having a high level of conflict given the low level of control. A positive difference between the two terms would support the statement: a firm with lower level of control is expected to have a lower level of conflict. Equation (5) can test Hypothesis 2b. It measures the marginal effect of a business moving from low conflict to high conflict on succession outcome given that it is a high-level control business.

[12] Because Y_1, Y_2, Y_3 are binary variables, the marginal effects can be presented by equations indicating the discrete changes. Y_1, Y_2, Y_3 represent succession outcome, level of conflict, and level of control respectively here for notation convenience.

Test for the Hypotheses 3

Parameters ρ_{ij} are correlation coefficient between each two error terms, measuring the correlation between the outcomes after the influence of the included factors are account for (Greene, 2012). Therefore, they serve as an important measure of endogeneity to test Hypothesis 3. By doing Wald test on ρ_{12} can test for endogeneity between succession outcome and conflict/tension; similarly testing the significance ρ_{13} is a measure for endogeneity between succession outcome and control, and ρ_{23} is a test for endogeneity between conflict/tension and control. When the relevant ρ_{ij} is not significant, using a more complex model to estimate is not necessary, and the model reverts to a simpler bivariate or a univariate specification (Sajaia, 2008).

CHAPTER 5: RESULTS AND DISCUSSION

This chapter presents the empirical results. There are three subsections. First subsection is a summary of descriptive statistics. The second subsection is a discussion of the results of the recursive multivariate probit model. Last subsection focuses on the results of a recursive bivariate probit model on succession outcome and conflict, and a separate univariate probit model on generational shadow (control).

Descriptive Results

Table 2 displays the complete descriptive statistics. Means and standard deviations are calculated for continuous variables, and frequencies and percentages for binary and categorical variables. The business owners reported that 31.12 percent was comprised of businesses with at least a written plan for succession planning in either management or ownership transfers. These businesses engaged in advanced succession process. There was 27.94 percent of the businesses sampled considered to be high-level conflict businesses, whereas the remaining 72.06 percent of the sample was considered low-level conflict businesses. Businesses categorized as high-level control took up 31.74 percent of the sample, which means these business owners indicated that the senior generation was at least somewhat unwilling to give up control by delegating management to heirs or successors. One should note that control being "0" does not mean there is no generational shadow; rather, it means that the business has a less severe case of generational shadow. Similarly, control being "1" means that the business has a relatively more severe generational shadow. The distribution of control is symmetric, as presented in Figure 10. There were 156 (out of 482) business owners indicated that the extent of the senior generation prepared to give up control is somewhat (number "3" corresponds to "somewhat"). There were 119 businesses indicated that the senior generation is slightly willing to let go of the power (number "2" corresponds to "slightly"). There were 123 businesses indicated that the senior is very much willing to give up the management control to the next generation (number "4" corresponds to "very much"). Any business with an indicated number smaller than "4" (i.e., "1", "2", and "3") is considered a high-level-control business.

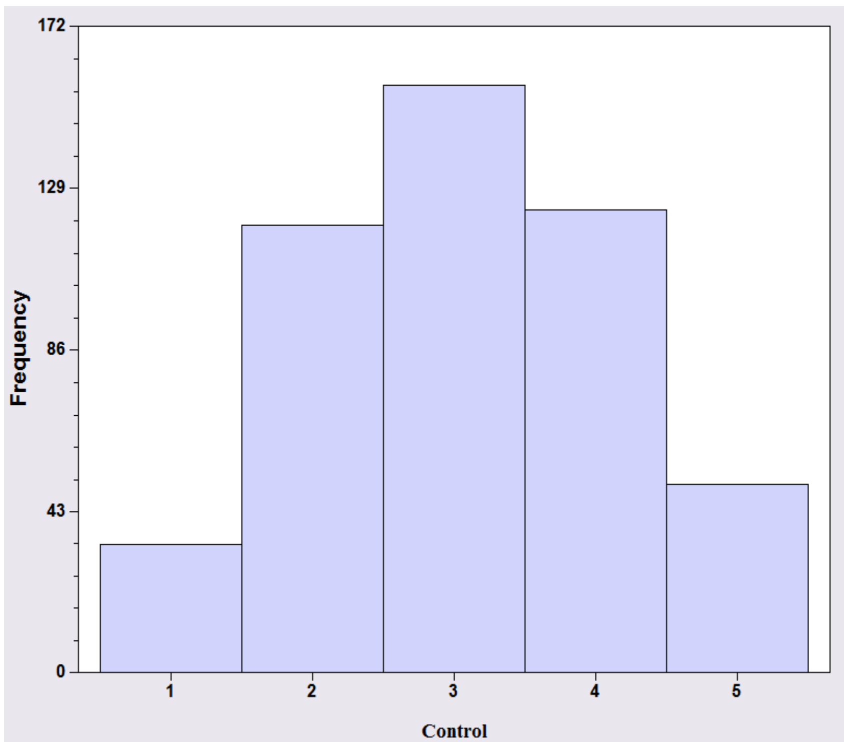

Figure 10 Sample Distribution of Control

The businesses in the sample have 1.65 generations involved in the day-to-day management on average. The mean of the owner's age is 56.02. Most of the businesses (310 out of 482) are experiencing the operation of the founding generation, which is 64.32 percent of the total sample. There were 73 businesses passing the business to the second generation. The average size of the business is 11.77 employees (including both family and non-family employment). There was 175 (out of 476) businesses having a successor that has already been identified. There were 316 (out of 480) businesses indicating that the family business systems function very well. The summary indicates that less than 40 percent of family businesses have an experience in transition. Only 36.76 percent of the businesses has an appointed successor, which has a negative relationship with the progress towards succession; this also indicates a negative relationship between conflict/tension and the degree of family business functioning.

Multivariate Probit Model Results

Table 3 displays the coefficients and the associated standard errors from the recursive multivariate probit estimation.[13] Note that Table 3 does not contain marginal effects to test the Hypotheses. For notation simplicity, we denote Y_1, Y_2, Y_3 as succession outcome, conflict/tension and control, respectively. Through coefficient estimates will we be able to interpret the signs of each independent variable on the direction of influence of each variable on the outcome variables. Moreover, the correlation coefficients allow us to evaluate the possibility of the suspect simultaneity of three dependent variables.

The first hypothesis to address is Hypothesis 3 (H_3*: The succession outcome, conflict/tension, and the incumbent's degree of over-control are simultaneously determined.*). The Wald tests on correlation coefficients ρ_{12}, ρ_{13}, and ρ_{23} serve as the tests for the endogeneity between succession outcome and conflict/tension, succession outcome and control, and conflict/tension and control, respectively. For example, the parameter ρ_{12} is the estimated correlation of the error terms in the succession outcome and conflict/tension equations. The standard error on ρ_{12} suggests that it is significantly

[13] The multivariate regression coefficients were estimated using Limdep v10.0.

different from zero at 6 percent significance level. Therefore, the succession stage of a family business and the level of conflict/tension that business has presents simultaneously in the family business system. The second correlation coefficient, ρ_{13}, measures the correlation of the error terms in the succession outcome equation and the control equation. The standard error on ρ_{13} is 0.7834. The Wald Test suggests, the z-score on ρ_{13} is 0.23, resulting in a p-value equaling 0.8160, which is not statistically significant. Therefore, control is exogenous with the succession outcome. The last parameter ρ_{23}, serving as an indication for the endogeneity between conflict/tension and control, has a standard error 0.2522 with p-value at 0.5990. Therefore, ρ_{23} is not statistically different from zero, suggesting that given the control variables in the model, control is exogenous with conflict/tension. To conclude Hypothesis 3, conflict is endogenous with succession outcome, but control is an exogenous independent variable affecting conflict/tension and succession outcome.

ρ_{12} being significantly different from zero is strong evidence of the existence of unobservable variables affecting the outcomes between succession outcome and conflict/tension simultaneously. The positive correlation between the error terms suggests that there are some unobservables positively correlated with succession outcome and conflict. This finding directly confirms the suspected self-selection that has been proposed in Chapter 2. Family businesses choosing to start a succession plan, and be at an advanced stage tend to have a relatively low level of conflict/tension before they start the plan, but then dealing with various issues during the succession process brings more conflict/tension among individuals.

Table 3: Multivariate Probit Model Results

Variables	Y_3 Control		Y_2 Conflict/tension		Y_1 Succession outcome	
	Coefficient	Std. Errors	Coefficient	Std. Errors	Coefficient	Std. Errors
Control			0.0341	(0.4064)	-0.4062	(1.2877)
Conflict/tension					-0.3317	(0.4085)
Generation	0.1044	(0.0780)	0.1419	(0.0720)**	0.1484	(0.0819)*
Age	0.0106	(0.0069)	-0.0061	(0.0065)	-0.0013	(0.0076)
Profit			0.0700	(0.0584)	0.1175	(0.0575)**
Openness A	-0.4208	(0.0737)***			0.0400	(0.1946)
Openness B	0.0329	(0.1780)			-0.2369	(0.2126)
Openness C	-0.4283	(0.1830)**			0.7926	(0.2704)***
Successor identified	-0.3362	(0.1829)*			0.3612	(0.2591)
Size					0.0052	(0.0040)
Affordability					-0.0515	(0.0532)
Goal					0.0009	(0.0556)
Capital					-0.0109	(0.2417)
Income					0.0543	(0.2324)
TriggerA					0.0348	(0.1780)
TriggerB					-0.3179	(0.1694)*
TriggerC					-0.5135	(0.2350)**
TriggerD					0.0273	(0.1842)
TriggerE					0.0902	(0.1867)
Successor identified * control					-0.6521	(0.3818)*
Successor identified * conflict					0.0604	(0.3635)
Number of generations	-0.0591	(0.1122)	0.0771	(0.1204)		
Role clarity			0.7802	(0.1743)***		
FB functioning			-0.1923	(0.0372)***		

Table 3 continued

Role satisfaction			-0.2289	(0.1214)*		
Married	-0.2135	(0.2345)				
Education	-0.0127	(0.0735)				
Constant	0.2398	(0.5533)	2.0370	(0.6536)***	-0.2667	(0.8391)
	Correlation coefficients					
ρ_{12}	0.4236	(0.2198)*				
ρ_{13}	0.1823	(0.7834)				
ρ_{23}	0.1326	(0.2522)				
Sample size			382			

*** *p<0.01, ** p<0.05, *p<0.*

Bivariate Model on Succession and Conflict & Univariate Model on Control

Since ρ_{13} and ρ_{23} are not significant, multivariate model reverts to a recursive bivariate probit model on succession and conflict/tension, indicated by a significant correlation coefficient ρ_{12}, and a univariate probit model on control. The estimated coefficients on independent variables are displayed in Table 4 and Table 5. Marginal effects for the control function are shown along with the coefficients in Table 5. Again, we will be able to interpret the direction of impact of each independent variables on dependent variables for the bivariate model.

Control

The results are very similar to what the multivariate probit model results on control function. Three variables significantly decrease the probability of having a high degree of control. The first variable is the senior's degree of openness to explore or to discover the preferences of the heirs as part of the planning process. The negative coefficient (-0.4141) suggests that a family business with a senior who actively takes into consideration the heirs' preferences has a higher probability of having a low degree of control. The marginal effect, -0.1225, indicates that family businesses with a higher degree of incumbent's willingness to explore heirs' interests have a 12.25 percent lower chance to be impacted by high-level control than those family businesses with a lower degree of incumbent's willingness. The marginal effect is significant at 1 percent significance level. The second significant variable is the senior's degree of willingness to share the plan with heirs or successors. The negative coefficient (-0.3358) suggests a negative impact. The marginal effect is -0.1009, meaning that family businesses with a senior who is willing to share the succession plan to the (potential) successor have a probability of having a high degree of control 10.09 percent lower compared to those businesses with a senior who is unwilling to share the succession plan. The marginal effect is significant at 5 percent significance level. The third variable is a measure on whether or not a successor has been identified in a family business system. Family business with a successor identified have a 13.75 percent lower probability of having a high degree of control compared to those businesses where the successor has not been identified yet.

Succession Outcome and Conflict/tension

The results from the recursive bivariate probit model are very similar to what the multivariate probit model has suggested. The results offer neither a significant association between control and conflict/tension, nor a significant relationship between conflict/tension and succession outcome, though there is a positive coefficient on conflict/tension with respect to control, and a negative coefficient on succession outcome with respect to conflict/tension or with respect to control. Unexpectedly, this finding is consistent with what the marginal effects from the multivariate probit model.

Several other significant exogenous variables need extra attention. For conflict/tension equation, generation, role clarity, the degree of family business functioning, role satisfaction have significant impacts on the dependent variable. The coefficient on generation is positive meaning that family businesses operated by the next generation are more likely to have a high conflict/tension level. This finding is in line with Davis and Harveston (1999) that the later the generation operates the farm, the higher the conflict/tension will be. The reason is that founder has a special role in creating and retaining peace and harmony in a family business through his social influence to each individual in the system (Davis & Harveston, 1999). The coefficient on role clarity is negative meaning that if there is any confusion over the roles and responsibilities of each position or individual in the system, the probability of having severe conflict/tension is higher. The coefficient on family business functioning is negative, meaning that the probability of having a high level of conflict/tension is higher for businesses with a low family business functioning. The negative coefficient on role satisfaction suggests that businesses with individuals who are satisfied with their roles are more likely to have a low level of conflict/tension then those with individuals who are not satisfied with their roles.

For the succession outcome equation, exogenous variables – profit, incumbent's openness, successor identification, and an interaction term between succession identification and control – play critical roles. The positive coefficient on profit suggests that businesses with higher profit are more likely to be at an advanced progress towards succession compared to businesses with lower profit. The coefficient on incumbent's openness is positive, meaning that businesses whose senior is open to share the succession plan with heirs and successor(s) are more likely to have an advanced progress towards succession. Whether or not a successor (or successors) has been selected to take over the business in the near future is a significant indicator showing how much progress towards succession a business has made. A business with a clear successor is more likely to achieve more accomplishments towards succession than a business without a successor. In addition, the coefficient on the interaction term between successor identification and control is significant and negative. This suggests that the marginal effect of successor identification on succession outcome does not only depend on successor identification itself, but also depend on the level of control. Having a successor, businesses with a high level of control are less likely to reach an advanced succession stage than those with a low level of control.

On the other hand, the marginal effect of control on succession outcomes only depends on successor identification because the coefficient on control is not significant but the interaction term is significant. That is, the marginal effect on succession outcome from switching from low control to high control is associated with the level of successor identification. If a successor has not been identified, there is no significant difference towards succession outcome between businesses with high control and businesses with low control. If a successor has been identified, businesses with high level of control are at a less advanced stage than businesses with low level of control.

Table 4: Bivariate Probit Model Results

Variables	Y_2 Conflict/tension Coef.	Std. Errors	Y_1 Succession outcome Coef.	Std. Errors
Control	0.2238	(0.1709)	-0.1165	(0.2339)
Conflict/tension			-0.3178	(0.4061)
Generation	0.1396	(0.0709)**	0.1419	(0.0769)*
Age	-0.0060	(0.0064)	-0.0019	(0.0067)
Profit	0.0723	(0.0575)	0.1193	(0.0563)**
Openness A			0.0747	(0.0720)
Openness B			-0.2406	(0.2086)
Openness C			0.8314	(0.1821)***
Successor identified			0.3889	(0.2116)*
Size			0.0053	(0.0040)
Affordability			-0.0516	(0.0526)
Goal			0.0014	(0.0551)
Capital			-0.0111	(0.2392)
Income			0.0537	(0.2328)
TriggerA			0.0354	(0.1768)
TriggerB			-0.3219	(0.1679)*
TriggerC			-0.5219	(0.2284)**
TriggerD			0.0291	(0.1835)
TriggerE			0.0905	(0.1854)
Successor identified * control			-0.6401	(0.3734)*
Successor identified * conflict			0.0558	(0.3580)
Number of generations	0.0920	(0.1160)		
Role clarity	0.7790	(0.1725)***		
FB functioning	-0.1934	(0.0364)***		
Role satisfaction	-0.2281	(0.1214)*		
Constant	1.9601	(0.6096)***	-0.4190	(0.4882)
	Correlation coefficients			
ρ_{12}	0.4069	(0.2185)*		
Sample size		382		

**** p<0.01, ** p<0.05, *p<0.1*

Table 5: Univariate Probit Model on Control

Variables	Y_3			
	Control			
	Coefficient	Std. Errors	Partials	Std. Errors
Generation	0.0411	(0.5080)	0.0122	(0.0176)
Number of generations	-0.0574	(0.0594)	-0.0170	(0.0283)
Age	0.0070	(0.0958)	0.0021	(0.0017)
Married	-0.1592	(0.0058)	-0.0482	(0.0685)
Education	-0.0416	(0.2215)	-0.0123	(0.0206)
Openness A	-0.4141	(0.0698)***	-0.1225	(0.0173)***
Openness B	0.1265	(0.0657)	0.0368	(0.0464)
Openness C	-0.3358	(0.1625)**	-0.1009	(0.0459)**
Successor identified	-0.4655	(0.1505)***	-0.1375	(0.0409)***
Constant	0.5157	(0.5080)		
Sample size	464			

**** $p<0.01$, ** $p<0.05$, *$p<0.1$*

Tests of Hypothesis 1 and 2

This subsection will focus on the implied marginal effects used to test for Hypothesis 1 and 2. The results are shown in Table 6[14]. The test of Hypothesis 1 will be displayed first (H_1*: A business in which the incumbent is relatively more willing to cede control makes more advanced progress towards succession than a business in which the incumbent is unwilling to cede control, holding the level of conflict constant.)*. The test is conducted by calculating the implied marginal effects of control on the probability of being at an advanced stage of the succession planning process. The results are both negative for the multivariate model and the bivariate model. The multivariate model suggests that those with high level of control are 13.68 percent less likely to make advanced progress towards succession compared to their low-control counterparts, holding the level of conflict/tension constant. The bivariate model, similarly, suggests that it is 6.01 percent less likely for high-control businesses to hold an advanced standing, holding the level of conflict/tension constant.

The second row in Table 6 is a test for Hypothesis 2a (H_2a: *A family business that has a relatively high level of incumbent over-control is more likely to have a high level of conflict/tension across generations.*). The marginal effect of the level of control on the probability of having a high level of conflict/tension. The results are positive with 5.05 percent estimated by the multivariate model and 8.50 percent by the bivariate model. The conclusion on these two numbers is that businesses with high-control are 5.05 percent (or 8.50 percent) more likely to have a high level of conflict/tension. To test for Hypothesis 2b (H_2b*: A family business that has a relatively high level of conflict/tension is less likely to*

[14] Marginal effects are calculated by R x64 3.2.3.

carry on succession planning than if it had a lower level of conflict, holding the level of over-control constant.), the marginal effect, -10.60 percent and -10.37 percent, are calculated, meaning that businesses with high level of conflict/tension are 10.60 percent (or 10.37 percent) less likely to make advanced progress towards succession than if they had a low level of conflict/tension.

The marginal effects shown above are implied marginal effects. Standard errors are not calculated along with these partials. Greene (2010) indicates hypothesis testing on partial effects of nonlinear empirical model is of less information and could be omitted from the analysis (Greene W. , 2010). Greene (2010) also suggests a useful approach to proceed in empirical work. Statistical testing can be conducted on the coefficients and the model specification when the empirical model is built on the context of the environment and statistical principles (Greene W. , 2010). Partial effects can be presented in a way of implications of the estimated model (Greene W. , 2010). Therefore, in this empirical model, given the fact that the coefficients on control in the first and second equation, and the coefficients on conflict/tension in the first equation are not significant, we can reject Hypothesis 1 and 2. Although the implied marginal effects give us the direction and the magnitude of the relationships between control and succession outcome, control and conflict/tension, conflict/tension and succession outcome in the drawn sample, there are no significant causal effects from control and conflict/tension to succession outcome.

Table 6: Implied Marginal Effects

Hypothesis	Marginal Effect Direction	Multivariate Probit	Bivariate Probit
H_1	Marginal effect of switching from low control to high control for businesses with high conflict on the probability of having an advanced succession	-0.1368	-0.0601
H_2a	Marginal effect of high control on the probability of high conflict/tension	0.0505	0.0850
H_2b	Marginal effect of switching from low conflict to high conflict for businesses with high control on the probability of having an advanced succession	-0.1060	-0.1037

CHAPTER 6: CONCLUSION

The goal of this thesis is to estimate the casual relationship among the degree of generational shadow, the degree of conflict/tension, and succession outcome for small and medium-sized family farms. One of the major contributions of this thesis is that the empirical model is built on a combined theoretical framework of the Three-Circle model and the life cycle theory. The results show that there is a simultaneity between succession outcome and conflict/tension because businesses self-selecting into advanced succession outcome based on their level of conflict/tension. By taking into consideration endogeneity into the model, the results are consistent estimates of the effect that generational shadow has on succession outcome (Hypothesis 1), the effect of generational shadow on conflict/tension (Hypothesis 2a), and the effect of conflict/tension on succession (Hypothesis 2b).

A multivariate probit model, followed by a bivariate probit model, is employed to analyze the relationships. The multivariate probit model consists of three simultaneous equations, each with a binary dependent variable (succession outcome, conflict/tension, generational shadow). I, then, found strong evidence suggesting that conflict/tension and succession outcome are endogenously related, but I did not find associated evidence indicating endogeneity between conflict/tension and generational shadow nor between succession outcome and generational shadow. Therefore, the multivariate probit model converts to a bivariate model of two simultaneous equations (succession outcome and conflict/tension) and a univariate model (generational shadow). The bivariate model shows the similar result that endogeneity is detected. I posit that this is because family businesses choosing to start a succession self-select into a state of high level of conflict/tension. These businesses may tend to have a relatively low level of conflict before they start the plan, but dealing with various issues during the succession process brings more conflict to each individual in the system.

The implied marginal effects, computed from the empirical model serve as evidences for three hypotheses. The marginal effect of switching from low control to high control for businesses with high conflict on the probability of having an advanced succession is 13.68 percent by the multivariate model (Hypothesis 1). This marginal effect is 6.01 percent estimated by the bivariate probit model. The marginal effect of high control on the probability of high conflict/tension is 5.05 percent by the multivariate model (Hypothesis 2a). This number is 8.5 percent by the bivariate probit model. The marginal effect of switching from low conflict to high conflict for businesses with high control on the probability of having an advanced succession is -10.6 percent by multivariate model and -10.37 percent by bivariate probit model. However, since the coefficients on control and conflict/tension in equations are not significant, these implied marginal effects are only effective in the context of this particular sample. We reject Hypothesis 1 and 2, and conclude that: 1) high conflict/tension and advanced progress towards succession simultaneously exist; 2) generational shadow potentially does harm to succession outcome and conflict/tension, but the negative effects are minor.

The results provide practitioners in family business field some implications, and shed light on future research regarding succession. First, this research uncovered the relationship between conflict/tension and succession outcome, providing practitioners a foundation to deal with conflict/tension during succession. The results demonstrate that by integrating simultaneity, an increase in conflict/tension does not necessarily lead to a tardy progression towards succession. Instead, an increase in conflict/tension can only be used as an indicator assessing the degree of the engagements and efforts towards succession a family business has made. Accompanied with succession outcome, the level of conflict/tension is expected to rise for the reason that different generations have been discussing various issues more transparently and directly than if the succession did not start. Therefore, this increase in (perceived) conflict/tension is not the primary cause of a less advanced stage in succession process. A potential direction for future research is to identify the chronological dynamics of conflict/tension in a family business by collecting in a way to separate the perceived level of conflict/tension according to different stages of succession, and by comparing the change of the level of conflict/tension at different stages. This suggests us that a model on reverse causal effects as Figure 11 depicts would be of interest. The simultaneity between succession outcome and conflict/tension suggests that the progress and success of the transfer process may have an impact on the level of conflict/tension. The identification of the chronological dynamics of conflict/tension will enable researchers to evaluate the effects of existing conflict/tension in a family business system on the level of generational shadow. Second, generational shadow is not a significant factor damaging the sustainability of family businesses, although the implied marginal effects indicate a potential negative causal relationship from generational shadow to conflict/tension, and to succession outcome. One of the reasons for us to draw this conclusion is that the levels of generational shadow chosen by family firms cluster around the level “3”, leaving the sample a smaller variation on this variable. Therefore, we were not able to investigate fully the dynamics of generational shadow on succession. An improvement on this matter would be identifying the existence of generational shadow for each stage of the process of succession. By doing so, we would be able to reduce the categories of generational shadow level from five entries to two, increasing the variation in generational shadow.

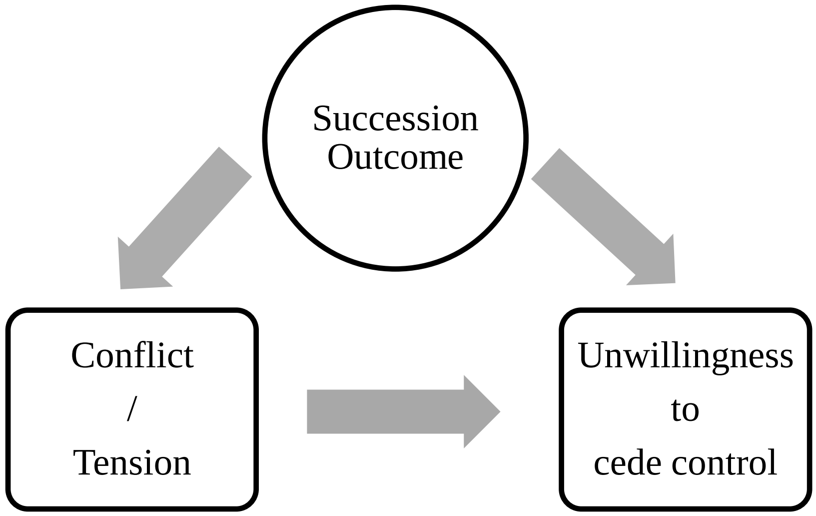

Figure 11 Reverse Causal Effects

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