The Microeconomics of Family Business

caixanova

ASOCIACION GALLEGA DE LA EMPRESA FAMILIAR

INDITEX

INSTITUTO DE LA EMPRESA FAMILIAR

ISBN 978-84-9745-578-7

9 788497 455787

Working Paper 1
Documento de Trabajo 1

The Microeconomics of Family Business

Eduardo L. Giménez-Fernández
José A. Novo-Peteiro

UNIVERSIDADE DA CORUÑA

Red de Cátedras de Empresa Familiar

The Microeconomics of Family Business

Eduardo L. Giménez-Fernández
José A. Novo-Peteiro

THE MICROECONOMICS OF FAMILY BUSINESS

ISBN (Collection): 978-84-9745-650-0
ISBN (Book): 978-84-9745-578-7
Legal Deposit: C-4038-2010

Editorial Management: Netbiblo, S. L.
Production Management: Gesbiblo, S. L.

Printed in Spain

Acknowledgements

The authors would like to thank the Galician Association of Family Business (AGEF), Caixanova, Inditex and the Spanish Family Enterprise Institute (IEF) for their financial support.

Contents

1 Introduction

During the last decades the academic research in the area of family business has grown notably. A wide variety of tools and approaches from different disciplines have illuminated our understanding on the distinctive features and problems faced by any family firm. And, more precisely, on the interaction among each member of the family's different goals and interests concerning the firm, whether as manager, owners, workers or potential heirs.[1] In fact, many authors have claimed for building and improving the conceptual knowledge base as a priority in this field.[2]

With respect to economic theory, despite the significance of family firms even in developed economies, only few works have been interested in unveiling the decision making process concerning the family members interacting with and within the family business in an economic environment. One reason may be that, to tackle with the family firm's features, different theoretical frameworks are required comprising, for instance, the classical consumer theory, the theory of the firm, the theory of human capital, financial economics, or the agency theory of asymmetric information. In fact, the existing theoretical literature displays disparate analytical settings as the foundation of empirical works or focuses on a particular facet of the family business, but without a unified and comprehensive framework. Thus building and improving the conceptual knowledge base for the economic theory approach to study the family business may also be considered as a priority. In this work, we aim to present a unified framework founded upon the standard microeconomics theory to analyze the family firm.

From an analytical point of view, the challenge for economic

[1] A comprehensive survey on methodologies and issues can be found in Wortman (1994) or Sharma (2004).

[2] See for example Wortman (1994), Chrisman *et al.* (2003) or Poutziouris *et al.* (2006).

theory lies on analyzing the different decision making process concerning the family business but integrating the two distinctive features of these type of firms: first, the decisions at the family are jointly taken with decisions at the firm; and second, the family ties among those members interacting within the family firm may affect the decisions taken at the firm.

In the former, the objectives of the family and firm are close-linked, although in some cases they are not coincident and, as a result, a number of conflicts arise. An illustrative example are the pecuniary rents extracted from the firm by some family members. In other words, the decision-making process is a complex mixture of the interaction and reciprocal influence among a heterogenous set of individuals, as the well-known three-circle model describes. These agents comprise not only family members working for the firm, but also other family members, and even non-family members, belonging to the ownership and/or management circles. This requires that a theoretical economic model must identify who takes the decisions at the family concerning the firm, as well as enumerate idiosyncratic features concerning the different agents interacting with the firm, such as the heterogeneity among the family members (abilities, income, etc.), or the asymmetric information on the economic performance at the firm. A formal model that includes this features would clarify the disparity of results in the existing literature pointing to these features as a cause of non-maximizing behavior of family businesses with respect to non-family firms.

In the latter, the family ties affect those decisions concerning the firm, which requires a particular analytical treatment. For instance, a distinctive characteristic for any family firms concerns the desire of being transferred to the family's next generation. In order to clearly understand the succession conflicts, the altruistic motivations of the family members must be formally depicted. A formal model that includes this features would clarify the disparity of results in the existing literature

pointing to these features as a cause of inefficiency and as a threat for the firm's survival and, in other cases, these characteristics are pointed out as a source of competitive advantage with respect to non-family firms.

The purpose of this chapter is to shed light on these issues by surveying the recent formal theoretical literature on family business in order to integrate and systematize these contributions within a common framework. For that purpose, we study the family firm decisions by means of the standard microeconomic tools to articulate the dominant problems and conflicts in family business and to contribute to a better understanding of the specificities of these firms.

Our classification of this literature will be developed along the following two issues of interest concerning family firms: the maximizing behavior of family firms and the survival of the family business, by means of the succession to a family heir or of professionalization by an external manager. First, we study the the maximizing behavior of family firms by developing a basic microeconomics model to characterize the founder as a utility maximizer which possesses the double role of consumer and owner-manager of a firm, then deciding simultaneously at the family and firm levels. This kind of framework will allow us to study family firms in terms of certain specific characteristics such as the intensity of labor, growth and control, or non-pecuniary benefits, among others. Second, we study the owner-manager's decisions for the survival of the family business by developing a principal-agent model. These decisions are chosen between leaving the firm to a family member or hiring a professional-manager. We show that the consideration of the family altruistic motivations and the professional qualification of the family members are crucial for this decision. We demonstrate that the parental altruism of the founder towards his children are not enough for the survival of the family firms. Thus, we investigate whether explicit consideration of features like two-sided altruism –i.e., a parent altruistic with his child, and a child altruistic with her parent–, as well as succession commitments and a qualified heir account for the firms management remains within the family. Finally, in the case that no ascendant altruism exists or the heir is not qualified enough, we show under what legal structures of ownership protection allows the owner-manager to seek a professional manager for the family firm survival.

The chapter is structured according to this classification. In Section 2 we review how the literature has approached to the specific features of family firms by considering the owner-manager decisions in both a static and dynamic frameworks. Section 3 studies family firms in terms of the principal-agent model and considers the succession decision in a scenario of altruism and succession commitment. Section 4 investigates whether explicit consideration of institutional legal settings (more specifically, the minority shareholders legal protection) and the financial markets development affects the ownership and management decisions in family firms. Section 5 concludes by proposing some potential links between the research in family business and some related topics of the economic theory.

2 The Owner-manager as an Utility Maximizer

The distinctive characteristic of the family firm is that the decisions at the family are taken jointly with the decisions at the firm. The goals pursued by the former may be closely-linked to the objectives of the latter, yet they need not to be coincident. Thus, some decisions are aimed to achieve some particular family goals at the expense of the firm. This trade-off has been studied formally in the early literature on family firm.

A number of works have analyzed the decisions taken by the family intertwined with those taken at the firm in a standard

microeconomics setting. Next, we present a common framework developed in this literature. There are two agents: a family, represented by the owner-manager, and the firm.

The owner-manager. The family is represented by a single individual, denoted to by the *owner-manager*, who is the owner and the only worker of the firm, and who also runs the business alone.[3] This single individual is endowed with an exogenous wealth $\mathbf{W}$, and an amount of available time T that can be devoted to labor or leisure activities. Also, he is the owner of the firm, so he has all the shares, $\theta = 1$. His welfare is enhanced by devoting time to leisure activities, l, and consuming a goods purchased in the market, $\mathbf{c}$. In addition, he may increase welfare by consuming goods only provided by the family firm, $\mathbf{b}$, a vector of goods whose quantity finally consumed results from the decisions taken at the family firm. These goods can be gathered into two groups: non-pecuniary goods $\mathbf{B}$ that must involve an expenditure or a cost for the firm;[4] and, the purely amenity goods $\mathbf{A}$ derived from the mere existence or the decisions taken when running the firm, which does not come at the expense of firm's profits but providing amenity benefits (see, e.g. Demsetz and Lehn 1985).[5] We will assume that the individual's *preferences* can be represented by a twicely differenciable, strictly

[3] Alternatively, Ng (1974) and Feinberg (1975) considers that the managerial services can be hired outside the family, and the hired manager is a perfect substitute to the owner-manager himself, who is just as efficient in the managerial role as the owner manager and zero-cost of monitoring is needed. However, see Olsen (1977, Sec. III) for a theoretical and empirical critic of this external option. This market option is not important for the problem here studied, as pointed out by Hannan (1982).

[4] Feinberg (1975) puts some extreme examples such as "pretty (but inefficient) secretaries, lavish offices, and discrimination by race, sex, or religion in employment decisions." (pp. 131).

[5] "The satisfaction a father may derive from having his son work in the family enterprises, or [...] the effect of prejudice on the part of the employer (owner-manager) toward one of his employees." (Olsen 1977, pp. 1390) These amenity potentials also comprises social, political and cultural influence.

quasiconcave, increasing, continuous utility function, $U(\mathbf{x})$ with $\mathbf{x} = (\mathbf{c}, l, \mathbf{b})$.

The firm. The firm produces a single good y by combining a number of inputs $\mathbf{y} = (y^1, y^2, y^3, ..., y^M) \in \Re^M_+$. These inputs may comprise labor N, human capital H –which includes management abilities–, physical capital K, and, other inputs, whether fixed or variable, each represented by y^m, with $m = 1,...M$. In addition, the firm may provide some goods to the family that cannot be obtained outside the firm or purchased in any open market. These non-pecuniary goods may required to be purchased by the firm, B, and may be used as an input. The technology will be represented to by a twicely differenciable, concave, strictly increasing, continuous production function $y = f(\mathbf{y})$. In a market economy the firm interacts with other firms in an economic environment both in the good and the inputs markets. We will consider that this environment is competitive (the case of alternative market structures are left to conclusions). Thus, the firm will consider as exogenous both the price of the good produced, p^y, and the price of all other inputs purchased in the market, w^m.

Considering this simple theoretical framework, a bulk of the literature has been inquired on the family and the firm are –or are not– utility and profit maximizers. Other works have been concerned with investment decisions in the family firm when providing non-pecuniary goods to the family. We cover these issues in this section in static and dynamic frameworks.

2.1 The Family Firm in a Static Model

2.1.1 The Basic Model

In this section we present an static model that can be seen as an extension of different works found in the literature.[6] In this

[6] See Feinberg (1975), Olsen (1977), Hannan (1982) and Formby and Millner (1985). See also Graaff (1950-1), Olsen (1973), Ng (1974) and Lapan and Brown (1985) in the case that no amenity benefits are considered.

section we simplify the notation as follows. The family consumes only one consumption good, $\mathbf{c} = c$, and only a non-pecuniary good is considered $\mathbf{b} = B$; in addition, he has an exogenous monetary wealth endowment, i.e. $\mathbf{W} = W$. The firm produces among others with labor, $y^1 = N$, and the non-pecuniary good $y^2 = B$, as inputs.

We can consider the case of an owner-manager solving simultaneously the problem for the family and the firm for a given prices of goods and inputs at a single period of time. He chooses the family's good consumption, leisure and non-pecuniary consumption, and the firm's output and input factors that maximize the welfare of the family $U(c, l, B)$ subject to three conditions. First, the family's temporal constraint

$$n + l = T; \tag{1}$$

second, the family's monetary constraint

$$p^c c \quad = \quad W + w^N n + \theta\pi(y, \mathbf{y}), \tag{2}$$

where p^c is the price of the consumption good and π represents the profits. Finally, the firm's profits are

$$\pi(y, \mathbf{y}) = p^y f(\mathbf{y}) - w^N N - w^B B - \sum_{m=3}^{M} w^m y^m, \tag{3}$$

where p^y is the price of the good produced by the family firm, and w^m the price of the input m with $m = 1, ..., M$.

Provided the profits are not taken as exogenous into the owner-manager problem, the firm's profits (3) can be explicitly considered the as income by the family. Thus, the family's monetary constraint (2) becomes

$$p^c c + w^B B = W + p^y f(n, B, y_3, ..., y_M) - \sum_{m=3}^{M} w^m y^m.$$

The first-order conditions are the following,

$$\frac{p^c}{p^y}\frac{U_l(\mathbf{x})}{U_c(\mathbf{x})} = f_N(\mathbf{y}) = \frac{w^n}{p^y} \tag{4}$$

$$f_{y_m}(\mathbf{y}) = \frac{w^m}{p^y} \qquad m = 3, \ldots M \tag{5}$$

$$f_B(\mathbf{y}) = \frac{w^B}{p^y} - \frac{p^c}{p^y}\frac{U_B(\mathbf{x})}{U_c(\mathbf{x})} \tag{6}$$

First, the optimal condition (4) refers to the labor decisions. The family sacrifices leisure to supply labor and then increase consumption, until the welfare lost by the last unit of foregone leisure equals the welfare gain for increasing consumption due to an increase in labor income. The firm demands for labor until the marginal productivity of the last unit of labor hired equals its costs of hiring. Note that both decisions, the family's supply and the firm's demand for labor, are compatible. Also observe that the *owner-manager imputed wage* is found from the interaction between the family's supply of labor and the family firm's demand for labor, and it is *not* the exogenous "wage rate that would be paid to a hired manager," that is, to an imperfect substitute of the family manager.[7]

Second, the optimal condition (5) refers to the firm's demand for an input $m = 3, \ldots M$; that is, the input m is purchased (or hired) until the marginal productivity of its last unit equals its marginal costs. Because of the competitive (and partial equilibrium) setting assumed, the supply of any input m is exogenously given, which is infinitely elastic as its price is constant.

Finally, the optimal condition (6) refers to the firm's demand for the non-pecuniary good. Observe that if non-pecuniary benefits do not enhance welfare, i.e. $U_B(c, l, B) = 0$, the input B will be hired until the marginal productivity of its last

[7]This issue has already noticed by Hannan (1982), contrary with most of the literature, e.g. Olsen (1973, 1977), Ng (1974), Feinberg (1975, 1980, 1982), Schlesinger (1981), and Fomby and Millner (1985).

unit equals its marginal costs. Then, as observed by Odded (1973) "the profit and utility are simultaneously maximized." (pp. 393). Alternatively, when the non-pecuniary good increases welfare, the firm does not demand the non-pecuniary input until the marginal productivity of the last unit of non-pecuniary good purchased or hired equals its costs. Due to the well-being of the family is directly affected by the decisions taken at the firm concerning the non-pecuniary good, an *externality* exists. This external effect is considered in the marginal rate of substitution, the last term of the righthand side. This entails that there exits an overprovison of the non-pecuniary good, because of the concavity of the production function, with respects to the case that the externality does not exist. Yet, no inefficiency arises, because the family takes consumption and productive decisions simultaneously, and then internalizes all mutual external effects.

2.1.2 An Extension: Decisions on Productive Factors

In this section we extend the previous framework to consider the consequences of two distinctive features that affect family firms: the higher cost of capital and the higher productivity of labor in family firms with respects non-family businesses. The former refers to the limited portfolio diversification and a higher cost of capital due to higher risk premium faced by those firms displaying a concentration of ownership and decision-making process (See, for example, Galve and Salas, 2003). The latter refers to the advantage of the family controlled firms concerning the high family members' motivation, implication, specific knowledge and skills.

We present an static model that can be seen as an extension of Galve and Salas (1996, 2003 Sec. 2.2). The framework is the same as before, but the family does not play any role but to provide labor inelastically to the firm. This could be seen as considering $U(\mathbf{c}, l, \mathbf{b}) = U(c, 0, 0)$, so maximizing the firm profits is independent to the family decisions. The firm produces with labor, $y^1 = N$, and capital $y^2 = K$, as inputs.

The firm profits are given by (3), to find the first order conditions (5). We will distinguish family and a non-family firms by the ownership structure, then denoted to by $\theta = 1$ and $\theta < 1$ respectively. Provided the cost of capital is higher in family firms than in non-family firms and the productivity of labor is higher in family firms, we can prove the following result.

Proposition 2.1.1 ***Labor intensity in family firms.*** *Consider two firms, a family and non-family businesses, differing on the ownership structure and similar in size, that is, with the same number of workers. Then, the family firm will be more labor intensive than the non-family firm, i.e.*

$$\frac{K(\theta = 1)}{N(\theta = 1)} < \frac{K(\theta < 1)}{N(\theta < 1)}.$$

The proof is simple. By dividing the first order conditions for capital and labor, we find that $w^K(\theta) f_N(\mathbf{y}; \theta) = w^N(\theta) f_K(\mathbf{y}; \theta)$. The cost of capital and the productivity of labor are higher for the family firm than for non-family firms, i.e. $w^K(\theta = 1) f_N(\mathbf{y}; \theta = 1) > w^K(\theta < 1) f_N(\mathbf{y}; \theta < 1)$. Thus, as wages are competitively determined and equal for both firms, two firms with the same number of workers result in a higher productivity of capital for a family firm than for a non-family firm. Due to the marginal productivity of capital is decreasing, the stock of capital will be lower for family firms than for non-family firms, $K^*(\theta = 1) < K^*(\theta < 1)$, and accordingly the labor intensity will be higher.

Moreover, as a straightforward consequence of this proposition, in the case that the availability of capital would be limited for family firms due to financial restrictions, the additional restriction $K \leq \overline{K}$ must be included to the firm's problem. Thus,

Corollary 2.1.2 *Consider two firms, a family and non-family firms, similar in size, that is, with the same number of workers. In the case that the family firm faces a financial constraint, i.e. $K^*(\theta = 1) \leq \overline{K}$, then the family firm will be more labor intensive than the non-family firm, i.e.*

$$\frac{K(\theta = 1)}{N(\theta = 1)} < \frac{K(\theta < 1)}{N(\theta < 1)}.$$

In this case, the first order condition for any input holds at (5), except for the capital that becomes

$$p^y f_K(\mathbf{y}; \theta = 1) = w^K(\theta = 1) \geq w^K(\theta < 1).$$

This entails that the productivity of capital for family firms are higher than in the case that there is no capital restrictions, and then it follows that $K^*(\theta = 1) = \overline{K} \leq K^*(\theta < 1)$.

This theoretical finding presents an empirical hypothesis to be tested, as it shows a positive relationship between the variations of the rate of return and the variations of the size in family firms, and a null relation for non-family firms; in other words, family firms tend to be characterized by a suboptimal size. This relationship can also be also found in our framework. The firm's profitability can be expressed as follows

$$R = \frac{p^y f(\mathbf{y}) - w^N N}{K},$$

a concave function because of the concavity of technology $f(\mathbf{y})$. Then, the variation in the firm's profitability under changes in capital is

$$\frac{dR(N^*)}{dK} = \frac{p^y f_K(\mathbf{y}) - R(N^*)}{K}.$$

The term $p^y f_K(\mathbf{y}) - R(N^*)$ is the difference between marginal and average return on capital at the optimal labor level $N = N^*$. This difference may be positive, negative or zero depending upon whether there are increasing, decreasing or constant returns to scale.

To illustrate this issue, asume that labor and capital are the only inputs and take the Cobb-Douglas production function. Then above expression is equal to

$$p^y f_K(\mathbf{y}) - R(N^*) = (\alpha + \beta - 1)\frac{p^y f(\mathbf{y})}{K}.$$

Under constant returns to scale ($\alpha+\beta = 1$ differences in productive efficiency will be proportionally translated into differences in profitability, i.e. $dR(N^*)/dK = 0$. When dR/dK is positive, its value increases with A, the level of efficiency (the firm's and family's specific level of efficiency. Therefore, to test for differences in efficiency among firms when only data on profitability are available, we can test for differences in the slope of the locus of size-rate of return combinations.

2.2 The Family Firm in a Dynamic Model

2.2.1 The Basic Model

The fact that the decisions at the family are simultaneously taken with the decisions at the firm also allows for the owner-manager to take intertemporal decisions seeking long-run family goals. This is the case when he has children and desires to transfer the family business after he retires. Whenever the owner is concerned about long-run goals, such as the well-being of his children, then the issue of the intertemporal compatibility between profit maximization of the business and the utility maximization of the family arises again. In this section we analyze the effect of descendant altruism for the family firm decisions, i.e., the existence of a non-pecuniary good that enhance the family welfare as a result of leaving the company to his children, an issue that requires a dynamic model.

Next, we present a dynamic model that can be seen as an extension of James (1999). We simplify the notation as follows.

The economic decisions are taken in two periods of time, denoted to by $t = 1$ and 2. The family founds a firm by investing capital at $t = 1$, and only produces at period $t = 2$ with a technology that makes use labor and capital. We will assume that the marginal productivity of capital for small units of capital is extremely high; that is, $\lim_{K_1 \to 0} f_K(\mathbf{y}) = +\infty$. Finally, after period $t = 2$, the capital suffers a depreciation $\delta \in [0, 1)$, so that the capital stock at the end of period $t = 2$ is $K_2 = (1 - \delta)K_1$.

The family consumes only one consumption good at each period, $\mathbf{c} = (c_1, c_2)$; the family is endowed with an initial wealth at each period $\mathbf{W} = (W_1, W_2)$; and, the owner-manager enhances the family's welfare by consuming at each period and by leaving the company to his children, a single non-pecuniary good at period 2,[8] i.e. $\mathbf{b} = K_2$; thus, $u(\mathbf{c}, K_2) \equiv U(\mathbf{c}, l, \mathbf{b})$.[9]

Finally, in what respects the financial structure, we will assume that there exists a financial security z that can be purchased or sold at period $t = 1$ at a given price q, with an exogenous return $(1 + \overline{r})$ representing the gross *market return*.

Under this environment, we can consider the case of an owner-manager solving simultaneously the intertemporal problem for the family and the firm for a given prices of goods and inputs. He chooses the family's goods consumption, leisure and security, and the firm's output and input factors that maximize the welfare of the family $u(\mathbf{c}, (1 - \delta)k_1)$ subject to three conditions. First, the family's temporal constraint (1) at period $t = 2$; second, the family's monetary constraint for the periods $t = 1$ and $t = 2$

$$\begin{aligned} p_1^c c_1 + z + k_1 &= W_1, \\ p_2^c c_2 &= W_2 + (1 + \overline{r})z + w^N n + w^K k_1 + \theta\pi(y, \mathbf{y}) \quad (7) \end{aligned}$$

[8] We differ from the treatment given by James (1999) to this non-pecuniary good. James assigns as a non-pecuniary good a function of the return of the company at the period $t = 2$.

[9] James (1999) additionally assume that the utility function is separable between periods $U(\mathbf{c}, l, \mathbf{b}) = u(c_1) + \beta u(c_2, K_2)$, with $\beta \in (0, 1]$.

where p_t^c is the price of the consumption good at period t. Finally, the firm's profits are

$$\pi(y, \mathbf{y}) = p^y f(\mathbf{y}) - w^N N - w^K K_1 - \sum_{m=3}^{M} w^m y^m. \qquad (8)$$

Additionally, as indicated, the owner-manager is the only worker and, as leisure enhance him no welfare, he supplies inelastically all the time $N = T$.

Provided the profits are not taken as exogenous into the owner-manager problem, the firm's profits (8) can be explicitly consider as family's income. Thus, the family's monetary constraint (7) becomes

$$p_2^c c_2 = W_2 + (1 + \overline{r}^*)z + p^y f(n, k_1, y_3, ..., y_M) - \sum_{m=3}^{M} w^m y^m.$$

The first-order conditions are the following,

$$\frac{p_2^c}{p_1^c}\frac{U_{c_1}(\mathbf{x})}{U_{c_2}(\mathbf{x})} = (1 + \overline{r}^*) \qquad (9)$$

$$\frac{(1 + \overline{r}^*)}{p^y} - \frac{p_2^c}{p^y}(1 - \delta)\frac{U_K(\mathbf{x})}{U_{c_2}(\mathbf{x})} = f_K(\mathbf{y}) = \frac{w^K}{p^y} \qquad (10)$$

$$\frac{w^m}{p^y} = f_{y_m}(\mathbf{y}) \qquad m = 1, 3, \ldots M$$

The intuitions provided by the optimal conditions are analogous as the previous section, except for the optimal condition (10) that refers to the productive investment decision, i.e. the non-pecuniary good. For this input, the market return is higher than the productivity of capital. Due to the well-being of the family is directly affected by the decisions taken at the firm concerning the capital investment, an *externality* exists, but again no inefficiency arises.[10] The external effect is considered in the

[10] Observe that in the case that no externality would exist, e.g. $u(\mathbf{c}, K_2) = u(\mathbf{c}, 0)$, then the rate of return paid by both assets, capital and the financial security, must be the same, $w^K = (1 + \overline{r}^*)$.

marginal rate of substitution, the second term of the left-hand side. This entails the following result.

Proposition 2.2.1 ***Investment in capital family firms with descendant altruism.*** *Descendant altruism of the owner-manager in terms of preference for leaving the company to his children leads to an overinvestment in the capital good in family firms with respect to non-family firms.*

The proof is straightforward from (10) and the concavity of the production function. In other words, this result implies that "investment in the firm by the proprietor will be higher than in the case of a non-family business." (James 1999, p.46).[11]

2.2.2 An Extension: Growth and Firm Control in Family Firms

It is often argued that personal preferences concerning growth, risk, and ownership-control may be the driving forces behind a "peculiar financial logic" of family firms. As Gallo *et al.* (2004) point out generally accepted principles of financial management establish that the ultimate objective of the financial function is to maximize the value of the company's stock in terms of the market price. However, in family firms "the stock is not only its price, but it includes other considerations such as passing

[11] James (1999) considers that the non-pecuniary good is the return of the firm at period $t = 2$, that is $\mathbf{b} = \theta\pi(y, \mathbf{y})$ in our terminology, instead of the remaining stock of capital at the end of period $t = 2$, θK_2. Note that this is a rather weird depiction of altruism. The profits are part of the family's period 2 income, see (7), which is completely consumed... but also "this return of the company is also included in the proprietor's utility function." (pp. 46). We can only interpret James's non-pecuniary benefits as the owner-manager is proud to leave his children a firm yielding a certain level of profits, and expecting the firm will keep providing this amount of profits in the future. Yet, we believe that leaving the ownership of the firm, i.e. $\theta K_1(1 - \delta)$, to his children is what really enhances the owner-manager's welfare.

on a 'tradition,' offering job opportunities to family members, and staying in power for long periods of time." (p.314) In this section we explore the effect of the existence of amenity benefits for the owner-manager concerning the control and growth of the family firm.

We present a dynamic model that can be seen as an extension of Galve-Górriz *et al.* (2003, Sec. 2.3). The framework is the same as in the previous section, but the family does not play any role but to provide labor inelastically to the firm. The economic decisions are taken in infinite periods of time, denoted to by $t = 1, 2, ...$ The firm produces with a technology that makes use labor and capital. Concerning capital, the family's investment at each period t becomes productive at the following period $t+1$, a process that involves a transaction cost represented by an increasing and convex function $\phi(k_{t+1}/k_t; \theta)$, which depends on the ownership structure of the firm. In addition, the capital suffers a full depreciation $\delta = 1$. We will assume that the marginal productivity of capital for small units of capital is extremely high; that is, $\lim_{K \to 0} f_K(\mathbf{y}) = +\infty$.

The family is the owner of the initial given stock of capital K_1. The owner-manager consumes only one consumption good at each period, $\mathbf{c} = (c_1, c_2, ...)$; and, the family's welfare is enhanced by consuming at each period. In addition, the family may (or may not) enhance welfare by consuming two goods providing by the firm: an amenity benefit concerning the degree of the ownership of the firm, $\mathbf{A} = \theta$; as well as the non-pecuniary good "discounted value of the firm," $\mathbf{B} = V$; Then, the i.e. $\mathbf{b} = (\theta, V)$, so $u(\mathbf{c}, \gamma\mathbf{b}) \equiv U(\mathbf{c}, l, \mathbf{b})$, with $\gamma = 1$ or 0 depending on the amenity benefits exist or not.

Finally, we will assume that there exists a financial security z that can be purchased or sold at period t at a given price q, with an exogenous return $(1 + \overline{r})$ at $t+1$ representing the gross *market return.*

The owner-manager's budget constraint for any period t is

$$p_t^c c_t + [1 + \phi((k_{t+1}/k_t); \theta)]\, k_{t+1} + z_t =$$
$$= w_t^N n_t + w_t^K k_t + \theta \pi_t(y_t, \mathbf{y}_t) + (1 + \overline{r}) z_{t-1}.$$

Consider the intertemporal budget constraint at the initial period $t = 1$:

$$\sum_{t=1}^{\infty} \frac{1}{(1+\overline{r})^{t-1}} \left[p_t^c c_t + \left[1 + \phi\left(\frac{k_{t+1}}{k_t}; \theta \right) \right] k_{t+1} \right] =$$
$$= \sum_{t=1}^{\infty} \frac{1}{(1+\overline{r})^{t-1}} \left[w_t^N n_t + w_t^K k_t + \pi_t(y_t, \mathbf{y}_t) \right].$$

Now, consider the following consumption pattern for the family. At every period, the family consumes only the labor income, i.e. $p_t^c c_t = w_t^N n_t$, so all returns are reinvested. Then, considering the intertemporal budget constraint, we can find the market value of the family firm as the discounted stream of future dividends at period $t = 1$. That is,

$$V_{t=1} = \sum_{t=1}^{\infty} \frac{1}{(1+\overline{r}^*)^{t-1}} \left[w_t^K k_t + \pi_t(y_t, \mathbf{y}_t) - \left(1 + \phi\left(\frac{k_{t+1}}{k_t}; \theta \right) \right) k_{t+1} \right]$$
$$= \sum_{t=1}^{\infty} \frac{k_t}{(1+\overline{r}^*)^{t-1}} \left[R_t - I_t \right],$$

where $R_t = [p_t^y f(\mathbf{y}_t) - w_t^N n_t]/k_t$ is the firm's profitability at period t, and $I_t = (1 + \phi((k_{t+1}/k_t); \theta)) k_{t+1}/k_t$ is the investment rate at period t. Now assume that the firm grows at a constant net rate g, so $k_t = (1+g)^{t-1} k_1$. Considering the stationary case where the rate of return and investment rate are constant, then

$$V^s = \frac{R - I(g; \theta)}{\overline{r}^* - g} k_1 (1 + \overline{r}^*). \tag{11}$$

This is the market value of the flow of discounted stream of constant dividends at period $t = 1$. Observe that the investment

$I(g;\theta)$ depends on the growth cost function and the kind of ownership of the firm, i.e. $I(g;\theta) = (1 + \phi(g;\theta))g$.

Next, we consider two cases depending on non-pecuniary goods provided by the firms are considered or not.

No goods provided by the firm enhance welfare, i.e. $\gamma = 0$. First consider the case that no goods are provided to the family by the firm. Then, the optimal growth rate of the firm is found by differenciating (11), $dV^s/dg = 0$. That is,

$$V^{s*} = \frac{dI(g^*;\theta)}{dg},$$

where $V^{s*} = k_1[R - I(g^*;\theta)/\overline{r}^* - g^*]$. Note that

$$\frac{\partial^2 V}{\partial g^2} = \frac{K}{(\alpha - g)}\left[-c''(g)(\alpha - g) + (1 + K)(V - c'(g))\right]$$

is negative for g^*.

Goods provided by the firm enhance welfare, i.e. $\gamma = 1$. Following to the arguments of the previous section concerning the optimal level of K, it can be assumed that g depends on θ. More specifically, the growth rate of capital is negatively affected by family control; that is, $g(\theta)$ with $g'(\theta) < 0$. This, constraint stems from the financial restrictions set to external funds to preclude investors outside the family firm.

The family's problem is to choose the degree of control θ that maximizes its welfare. The first order conditions for this choice variable is

$$U_\theta(\mathbf{x}) + U_V(\mathbf{x})\frac{dV}{dg}\frac{dg}{d\theta} = 0. \qquad (12)$$

Thus, we can prove the following result.

Proposition 2.2.2 *The market value of the family firm is increasing with the growth of the size of the firm at the optimum constant growth rate that maximizes the family welfare.*

To proof this proposition, remember that the welfare is increasing in the firm control and its market value, i.e. U_θ, $U_V > 0$, and $dg/d\theta < 0$. Thus, to fulfill the identity (12), dV/dg must be positive.

This proposition entails that the interest of the family to control a stationary growing family firm makes that not all the opportunities to create economic value along the growth path. This result entails the following corollary.

Corollary 2.2.3 *a) The ratio market value, V, and the value at the cost of the productive assets of the family firm will be lower than in a non-family firm with a similar productive efficiency.*
b) The growth rate of a family firm will be lower than in a non-family firm with a similar productive efficiency.
c) For two firms of similar age, the average size of the family firm will be lower than in a non-family firm with a similar productive efficiency.

Proof. Part a) is straightforward from the picture 2.2., where the growth and the value of the firm at its maximum without restrictions and whenever g is chosen by the family, both are lower: $g^{**} > g^*$ and $v(g^{**}) > v(g^*)$.

Observe that this corollary assumes a similar productive efficiency. In the case the family firm has comparative advantage on motivation and control, then it could be possible that it reaches a higher productive efficiency than a non-family firm. That is, $v(g)$ for a family firm may dominate to the same value of the corresponding function to the non-family firm. Comparing function $v()$ between family and non-family firms requires to take into account some difference in the function as well as in their values, as both firms choose different growth rates.

3 Family Firm in the Principal-agent Model

A second distinctive fact of the family firm concerns with the relationship among the family members interacting within the firm. These members are linked with family ties that may affect the decisions taken at the firm. This may result in a variety of individual behavior, such as loyalty or shrinking, which may benefit or damage the firm. A number of academic works have displayed this trade-off between the family and the business within a microeconomics model based on the theory of agency.

The basic version of the principal-agent model considers two economic agents: the informed party, whose information is relevant for the common welfare, and the uninformed party. This party will propose a "take it or leave it" contract and therefore request a "yes o no" answer, giving all bargaining power to one of the parties. Salanié (1998) points out that the principal-agent game is a Stackelberg game, in which the leader —the one who proposes the contract–, is called the *principal* and the follower –the party who just has to accept or reject the contract—, is called the *agent*. Accordingly, the principal-agent model can be considered as a simplifying device that avoids the complexity of bargaining under asymmetric information.

In the context of the theory of the firm, agency problems arise from the separation of ownership and management leading to a principal-agent relationship in which managers (i.e. the agent) may not make decisions that are in the best interest of owners (i.e. the principal).

In what respects to family firms, there are two opposing perspectives on the dimension of the agency costs. One view asserts that these costs may be alleviated because the non-separation of ownership and management naturally aligns the owner-manager's interests.[12] Moreover individual family members are engaged in altruistic behaviors wherein they subjugate their self-interests for the collective good of the family. Altruism is modelled in terms of preferences where the welfare of one individual is positively linked with the welfare of others. This provides a self-reinforcing incentive because efforts to maximize one's own utility allow the individual to simultaneously satisfy both other-regarding and self-regarding preferences. The alternative view argues that governance arrangements of family firms need not remove nor even reduce agency costs and, in fact, family firms might even suffer from specially high agency costs.[13] Agency relationships in family firms are distinctive because they are embedded in the parent-child relationships and therefore are characterized by altruism. This view considers that parent's altruism can cause family firm's specific agency costs because it can induce parents to take inefficient decisions at the firm level. In this sense, they could be faced with a "Samaritan's dilemma" in which their actions give beneficiaries incentives to take actions or make decisions that may harm their own welfare such as free riding, shirking or remaining dependent upon their parents. In this section, we cover these issues.

[12]This view can be inferred from Jensen and Meckling (1976) and Fama and Jensen (1983).

3.1 The Basic Model

The literature dealing with the conflict of interests between the family and the business based on the theory of agency considers the family as represented by two individuals: the owner of a firm, who also runs the business alone, and will be termed owner-manager principal; and a family relative who works for the firm, that will be called the worker agent.

The owner-manager principal. A family member, usually the parent, is the owner of the firm, and devotes all his time to managerial activities at the firm. Among these activities we

[13]This perspective can be found in Chami (2001), Schultze *et al.* (2001, 2002, 2003), Salas (2000) or Galve and Salas (2003).

can find hiring labor and monitoring. His welfare may be enhanced by two elements. One is his own consumption of goods purchased in the market, $\mathbf{c}^p$; other is his relative's welfare, thus displaying *descendant altruism.* The literature considers separability of preferences between both elements; also, the principal is assumed to be risk-neutral with respects consumption, so preferences can be represented by a twicely differenciable, increasing, continuous utility function, $u_p(\mathbf{c}^p)$. Thus, his preferences will be represented by $U_p(\mathbf{c}^p, \beta_p, \mathcal{U}_a) = u_p(\mathbf{c}^p) + \beta_p \mathcal{U}_a$, where $\beta_p \geq 0$ is a parameter of descendant altruism, an intercohort discount factor; and, $\mathcal{U}_a$ is the welfare of the family relative working for the firm.

The worker agent. There exists an additional family member –usually a child–, who, if working for the firm, will devote all his time to working activities in exchange of a wage, w^N. Her welfare may be also affected by three elements: it is increased by consuming goods purchased in the market, $\mathbf{c}^a$, and by considering her relative's welfare, thus displaying *ascendant altruism*; in addition, it is reduced by the effort e required at work, an unobservable variable to the manager principal. The literature considers separability of preferences between these elements. Thus, her preferences will be represented by $U_a(\mathbf{c}^a, e, \beta_a, \mathcal{U}_p) = u_a(\mathbf{c}^a) - C(e) + \beta_a \mathcal{U}_p$, where $u_a(\mathbf{c}^a)$ is a twicely differenciable, increasing, continuous utility function; $C(e)$ is an increasing, strictly convex function, which will be assume to be $C(e) = \frac{k}{2}e^2$ with $k > 0$; $\beta_a \geq 0$ is a parameter of ascendant altruism, an intercohort discount factor; and, $\mathcal{U}_p$ is the welfare of the family manager.

The firm. The firm produces a single good y by combining a number of inputs $\mathbf{y} \in \Re^M_+$, which comprise the worker agent's effort e. The technology will be represented to by a twicely differenciable, concave, strictly increasing, continuous production function $y = f(\mathbf{y})$. In a market economy the firm interacts with other firms in an economic environment both in the good and

the inputs markets. We will consider that this environment is competitive. Thus, the firm will consider as exogenous both the price of the good produced, p^y, and the price of all other inputs purchased in the market, w^m with $m = 1,..., M$.

Because of expositional purposes we focus on the simplest version of the model in which the principal-agent model can be treated as a leader-follower model. Obviously, variations in the characteristics of the utility functions (i.e. the degree of risk aversion of the agents, which we consider constant and equal to zero), the contract design (a lineal contract in our case), or the explicit consideration of uncertainty can lead us to different parametric results and even to the non-existence of optimal solutions.[14] Accordingly, the simplicity of our model is at no cost; for instance, issues concerning the risk sharing between the parent manager and the child worker concerning the firm's uncertainties cannot be explicitly considered. Yet, as will be shown, most of the basic qualitative results obtained in this section will be also found in the literature.

Next, we first present the efficient allocations as a benchmark in order to show that agency problems result in inefficient allocations. Then it is shown under what conditions altruism and succession commitments can either contribute to the survival of a family firm, or threaten its continuity.

3.2 The Efficient Allocations

If no agency problems exist, the principal would offer a wage and the agent would make enough effort to jointly maximize welfare. In this section, we briefly present those efficient allocations that will allow us to compare the magnitude of the inefficiency arising because of the presence of agency conflicts.

[14]For a complete description of the principal-agent model, see Salanié (1998) or Macho-Stadler and Pérez-Castrillo (1997). The application to family firms can be found in Chami (2001) and Galve-Górriz *et al.* (2003, Sec. 1.6).

In this section we will simplify notation. Each family member consumes only one consumption good, $\mathbf{c}^i = c^i$, and the utility function on consumption is linear, i.e. $u_i(\mathbf{c}^i) = c^i$ for $i = p,\ a$. The firm produces only with the worker's effort, $y^1 = e$, and we will assume a linear technology $f(e) = Ae$, where A represents the constant marginal productivity of effort.

To find the Pareto optimal allocations, consider a social planner jointly maximizing a weighted principal's and agent's welfare

$$\mathcal{U} = \alpha_p U_p(c^p, 0, 0) + \alpha_a U_a(c^a, e, 0, 0),$$

where α_i is the planner weight for the agent $i = p,\ a$.[15] The planner chooses the level of effort and the output share that maximizes overall welfare subject to the production outcome $y = f(e)$, and the share of output among the agents $c^p = y(1 - w)$ and $c^a = wy$, with $w,\ e \in [0, 1]$. First-order conditions are the following

$$\begin{aligned} e\left[\alpha_p A(1-w) + \alpha_a(Aw - ke)\right] &= 0 \\ (w-1)w\left[-\alpha_p Ae + \alpha_a Ae\right] &= 0. \end{aligned}$$

The optimal allocations depend on the weight ratio α_p/α_a, as shown in the following result.

Proposition 3.2.1 ***Pareto efficient allocations.*** *Consider an environment as described. The Pareto efficient allocation are the following:*

1. *Case $\alpha_a \geq \alpha_p$. If both individuals are weighted the same, $\alpha_a = \alpha_p$, the optimal effort will be $\widehat{e} = A/k$, the share is undefined $\widehat{w} \in [0, 1]$, and the overall welfare is $\widehat{\mathcal{U}} = \alpha_p A^2/(2k)$.*
   The same allocation is achieved if the agent's welfare has a higher weight, $\alpha_a > \alpha_p$, except for all income is given to her, i.e. $\widehat{w} = 1$.

[15] Observe that considering altruism only affects the individual weights.

2. *Case $\alpha_p > \alpha_a$. If the principal's welfare has a higher weight, the optimal effort will be $\widehat{e} = (\alpha_p/\alpha_a)A/k$, no output share is provided to the worker agent, i.e. $\widehat{w} = 0$, and the overall welfare is $\widehat{\mathcal{U}} = (\alpha_p^2/\alpha_a)A^2/(2k)$.*

3.3 The Agency Problem in Non-family Firms: The Inefficient Allocations

We consider the same environment as before but no altruism exists, so $\beta_a = \beta_p = 0$. Thus, we turn to the case where the agency problem exists between a manager and a worker in non-family firms, or between the owner-manager of a family firm and a worker not belonging to the family.

The owner-manager principal hires labor activities. The timing of the labor hiring process is as follows. First, the owner-manager offers a wage contract, w; second, the worker agent accepts the contract; then, she decides the level of effort; and finally, the firm's output is realized and wages are paid. We will considered that the wage perceived by the agent is proportional to the production, which is observable by both, the manager and the child; that is, we consider that $w^N = wy$, where $0 < w < 1$. Observe that, because wages paid are proportional to output, this entails that in absence of ascendant altruism the agent will be better off, and accept a job offer, if her effort falls into the interval $e \in [0, 2A/k]$; otherwise, the worker agent will receive strictly negative welfare and will not work for the firm, i.e. $e = 0$.

As usual, the model is solved by backwards induction. The worker agent first chooses her optimal level of effort by maximizing her welfare $U_a(c^a, e, 0, 0)$ subject to $c^a = wAe$. The first-order condition provides the supply function of effort which depends on the wages received in compensation,

$$e(w) = w\frac{A}{k}. \tag{13}$$

Observe that the level of effort is proportional to the wages paid. Thus the incentives for increasing effort to the non-family worker agent are only guided by wages.

Lemma 3.3.1 Work effort incentives in non-family firms. *Consider the environment described without altruism, i.e.* $\beta_a = \beta_p = 0$. *Then* $\partial e/\partial w = A/k > 0$.

The owner-manager, as the principal, chooses the optimal wage that maximizes his welfare $U_p(c^p, 0, 0)$ subject to $c^a = (1-w)Ae$ and taking into consideration the optimal effort level chosen by the agent (13). Observe that we can establish an analogy between the managers's revenue and the firm resulting profits, i.e. $\pi(w, e) = u_p(c^p)$, which will be useful in the next subsections. The optimal wage is $w^*(\beta_p, \beta_a) = w^*(0,0) = 1/2$, and then the optimal level of effort $e^*(0,0) = e(w^*(0,0)) = A/(2k)$.

As a consequence, the owner-manager's and the non-family worker agent's welfare are $U_p(c^{p*}(0,0)) = A^2/(4k)$, and $U_a(c^{a*}(0,0), e^*(0,0)) = A^2/(8k)$ respectively, so the allocation is found to be inefficient from Proposition 3.2.1: the worker makes an inefficient effort, $e^*(0,0) < \widehat{e}$, then resulting in an overall lower welfare and a lower firm profits, i.e. $\mathcal{U}^*(0,0) = U_p(c^{p*}, 0, 0) + U_a(c^{a*}, e^*, 0, 0) < \widehat{\mathcal{U}}$ and $\pi(w^*(0,0), e^*(0,0)) < \pi(\widehat{w}, \widehat{e})$ respectively. The reason is that the worker agent takes her decisions without taking into account the manager's welfare. The internalization of this external effect will be crucial to understand why the agency problems might be mitigated within a family firm, resulting in a Pareto improvement allocation. This will be shown in the following sections.

3.4 The Agency Problem in Family Firms with Altruism

In this section we present a static model that can be seen as a non-stochastic version of Chami (2001) and Galve-Górriz *et al.* (2003, Sec. 1.6). We will consider two cases: first, the ascendant altruism case with an altruistic parent and a selfish child who does not expect to inherit the business; and second, the two-sided altruistic case, which we could understand as the role of loyalty and trust. Finally, the last subsection extends the model to a two-period case in order to study the role of succession and inheriting the business.

3.4.1 One-sided Altruism: Descendant Altruism

In this section, we analyze the case where the agency problem exists between the owner-manager and a family worker in a family firm, in which there exists only descendant altruism with an altruistic parent, i.e. $\beta_p > 0$, and a selfish child who does not expect to inherit the business, i.e. $\beta_a = 0$. The way altruism is modelled consist in considering that the parent is concern with the overall welfare of the child, hence $\mathcal{U}_a = U_a(c^a, e, 0, 0)$ (see Chami 2001, Sec. II).[16]

As usual, the model is solved by backwards induction. As in the previous section, the worker agent first chooses her optimal level of effort by maximizing her welfare $U_a(c^a, e, 0, 0)$ subject to $c^a = wAe$, resulting in the supply function of effort (13), which depends on the wages received in compensation. Observe that when there is no ascendant altruism, i.e. $\beta_a = 0$, the child

[16] Although the assumption $\beta_i \in [0,1]$ it common in the literature, it could also be considered the possibility of a very generous and charitable parent by letting $\beta > 1$, that is, the parent values more the child's welfare than his own welfare. This happens, for instance, when the founder is willing to give up present welfare in order to increase the future profits of the family firm. This possibility is studied in Galve-Górriz *et al.* (2003, Sec. 1.6) by considering two different parameters of altruism on the child's welfare: one referred to her welfare on consumption $\beta_p^c = 1$, and other referred to her cost of effort $\beta_p^{C(e)} \geq 1$. This may stem from the different results found in Galve-Górriz et al contribution, some of them the opposite of those obtained in this section. However, considering two altruistic parameters for the same individual seems to be an odd formulation of altruism.

behaves as any other non-family worker, so her incentives for increasing effort are only guided by wages. This is shown in the following result, similar to Chami (2001, Lemma 1).

Lemma 3.4.1 Work effort incentives in family firms with non-ascendant altruism. *Consider the environment with no-ascendant altruism, i.e.* $\beta_a = 0$. *Then* $\partial e/\partial w = A/k > 0$.

The owner-manager, as the principal, chooses the optimal wage that maximizes his welfare $U_p(c^p, \beta_p, U_a(c^a, e, 0, 0)) = u_p(c^p) + \beta_p[u_a(c^a, e) - C(e)]$ subject to $c^p = (1-w)Ae$, $c^a = wAe$ and taking into consideration the optimal effort level supplied by the agent (13). Now, the optimal wage is $w^*(\beta_p, 0) = 1/(2-\beta_p)$, and then the optimal level of effort $e^*(\beta_p, 0) = e(w^*(\beta_p, 0)) = A/[(2-\beta_p)k]$. It is easy to see that, as a consequence of his altruistic motivations, the parent pays a higher wage to his child.

Proposition 3.4.2 ***Wages under one-sided altruism.*** *Consider the environment with descendant but not ascendant altruism, i.e.* $\beta_p > 0$ *and* $\beta_a = 0$. *In contrast to a non-family business, (family) workers receive a higher compensation wage in family firms, i.e.* $w^*(\beta_p, 0) > w^*(0, 0)$.

Observe that the child has no incentive to seek employment elsewhere, as she uses his parent's altruism to get paid higher. This is the same result as Chami (2001, Prop. 2) but in a different environment.

Three comments are in order. First, observe that in our simple model the child's effort is higher than a non-family employee's effort, i.e. $e^*(\beta_p, 0) > e^*(0, 0)$. This contrast with other results found in the literature (e.g., Chami 2001, Sec. II, or Galve-Górriz *et al.* 2003, Sec. 1.6.2). In stochastic environments concerning uncertain productive outcome, e.g. a state-dependant wage resulting from a stochastic productivity parameter A and unobservable levels of effort, the parental altruism provides higher wage insurance to the child. Because of her opportunistic behavior, the child behaves as a free-rider at the firm —a kind of "bad boy" (or, in our case, bad girl)—, and the parent is content with lower effort and lower income. Yet, these works also found that descendant altruism increase the worker's compensation.

Second, despite inefficient, this result represents a Pareto improvement with respects the previous case, as both agents the owner-manager and the worker improve in welfare terms. That is, the owner-manager's and the worker agent's welfare are $U_p(c^{p*}(\beta_p, 0), \beta_p, U_a) = A^2/[2(2-\beta_p)k]$ and $U_a(c^{a*}(\beta_p, 0), e^*(\beta_p, 0), 0, 0) = A^2/[2(2-\beta_p)^2 k]$, respectively.

Finally, the firm's profits, $\pi(w^*(\beta_p, 0), e^*(\beta_p, 0)) = [A^2(1-\beta_p)]/[(2-\beta_p)^2 k]$, are now lower than in the previous section when the principal was not altruistic towards the agent, as shown in the following result.

Proposition 3.4.3 ***Profits under one-sided altruism.*** *Consider the environment with descendant but not ascendant altruism, i.e.* $\beta_p > 0$ *and* $\beta_a = 0$. *In contrast to non-family business, profits are lower in family firms, i.e.* $\pi(w^*(\beta_p, 0), e^*(\beta_p, 0)) < \pi(w^*(0, 0), e^*(0, 0))$, *then putting in trouble its own existence.*

This result coincides with that found under a different setting by Galve-Górriz *et al.* (2003, Sec. 1.6). At the view of Section 2, the reason is already known. Observe that hiring the child becomes a non-pecuniary good for the owner-manager $\mathbf{B} = \beta_p \mathcal{U}_a$. Hence, as long as the owner-manager takes his decisions simultaneously with the decisions at the firm, this may allow him to divert some resources from the firm to achieve some particular altruistic own goals, in this case improve his child's welfare. Yet, this entails that descendant altruism may put in trouble the existence of the firm in the long-run. As Chami (2001, Sec. II) points out, "unless the family business is operating in an imperfectly competitive market (...) paternalism cannot be a reason for why family businesses continue to exist and compete with other business entities in the long run. For the family business to continue to survive in a competitive market, the family and the business are better off having the parent replace the child with another nonfamily employee. In this case altruism will be absent, and the parent can then make side transfers to the child without having the child influence the business profits directly through his effort level."

To sum up, to understand why a family business survive along time we must explore reasons other than parental altruism. The following two sections provide two possibilities suggested in the literature: trust and succession commitment.

3.4.2 Two-sided Altruism: Descendant and Ascendant Altruism

In this section, we analyze the case where the agency problem exists between the owner-manager and a family worker in a family firm, in which there exists descendant altruism with an altruistic parent, i.e. $\beta_p > 0$, as well as ascendant altruism with an altruistic child, i.e. $\beta_a > 0$, who is involved and identified with the goals of the family firm and the family. The way altruism is modelled consist in considering that the each family member is concern with the overall welfare of the other, hence $\mathcal{U}_a = U_a(c^a, e, 0, 0)$ and $\mathcal{U}_p = U_p(c^p, 0)$ (see Chami 2001, Sec. III). In this sense, following to Bernheim and Stark (1988) or Chami and Fullemkamp (2002), reciprocal altruism between individuals can be identified as trust when the weight on the other person's utility is close to unity.

As usual, the model is solved by backwards induction. As in the previous section, the worker agent first chooses her optimal level of effort by maximizing her welfare $U_a(c^a, e, \beta_a, u_p(c^p)) = u_a(c^a, e) - C(e) + \beta_a u_p(c^p)$ subject to $c^a = wAe$ and $c^p = (1 - w)Ae$, resulting in a supply function of effort that depends on the wages received in compensation

$$e(w; \beta_a) = [w + \beta_a(1-w)]\frac{A}{k}$$

Observe that in the case that ascendant altruism exists, i.e. $\beta_a > 0$, the child incentives for increasing effort are guided by wages and altruism.

Lemma 3.4.4 Work effort incentives with ascendant altruism. *Consider the environment with ascendant altruism, i.e. $\beta_a > 0$. Then, for any $w \in [0, 1)$, $\partial e/\partial w = (1-\beta_a)A/k > 0$ for $\beta_a \in (0, 1)$.*

Observe that this result is independent of the parent being altruistic. Moreover, in the case the child displays a high degree of altruism towards her parent, decreasing her wage leads her to increase effort. This could arise to an opportunistic behavior by a non-altruistic manager parent.[17] The next result compare the work effort in family and non-family businesses.

Proposition 3.4.5 ***Work effort with ascendant altruism.*** *Consider the environment with ascendant altruism, i.e. $\beta_a > 0$. Receiving the same labor compensation, the child's effort is higher than a non-family employee's effort, i.e. $e(w; \beta_a) > e(w; 0)$ for any $w \in [0, 1]$.*

Note that this is the same result as Chami (2001, Prop.3) in a different economic environment. The proof is straightforward, because $\partial e(w; \beta_a)/\partial \beta_a > 0$ for any given wage w. The more altruistic is the child towards her parent, The more her internalization of the impact of her own actions on her parent's

[17] Observe that an increase of the degree of ascendant altruism beyond of considering her parent's welfare more important than hers, i.e. $\beta_a \geq 1$, decreases effort. Yet, this does not mean that this is an equilibrium outcome, as a corner wage offer may result optimal, e.g. $w = 0$, which falls outside the Lemma 3.4.4.

welfare. As a result, the presence of agency conflicts between the manager and the worker is mitigated.

The owner-manager, as principal, chooses the optimal wage that maximizes his welfare $U_p(c^p, \beta_p, U_a(c^a, e, 0, 0)) = u_p(c^p) + \beta_p[u_a(c^a, e) - C(e)]$ subject to $c^p = (1-w)Ae$, $c^a = wAe$ and taking into consideration the optimal effort level chosen by the agent (3.4.2). The interaction of both altruism results in an optimal wage share. Because of the value of the wage share is restricted to the interval $w \in [0,1]$, this sets a bound on the available wage contract to be proposed by the manager. We will restrict our analysis to the case β_a, $\beta_b \in [0,1]$. In this case the optimal wage share is

$$w^*(\beta_p, \beta_a) = \begin{cases} \frac{1-2\beta_a+\beta_p\beta_a^2}{(1-\beta_a)(2-\beta_p-\beta_a\beta_p)}, & \text{if } \beta_a \leq \Omega(\beta_p) \\ 0, & \text{if } \beta_a \geq \Omega(\beta_p) \end{cases},$$

with $\Omega(\beta_p) = [1-(1-\beta_p)^{1/2}]/\beta_p$; and, then the optimal level of effort is

$$e^*(\beta_p, \beta_a) = \begin{cases} \frac{1-\beta_a\beta_p}{2-\beta_p-\beta_a\beta_p}\frac{A}{k}, & \text{if } \beta_a \leq \Omega(\beta_p) \\ \beta_a\frac{A}{k}, & \text{if } \beta_a \geq \Omega(\beta_p) \end{cases}.$$

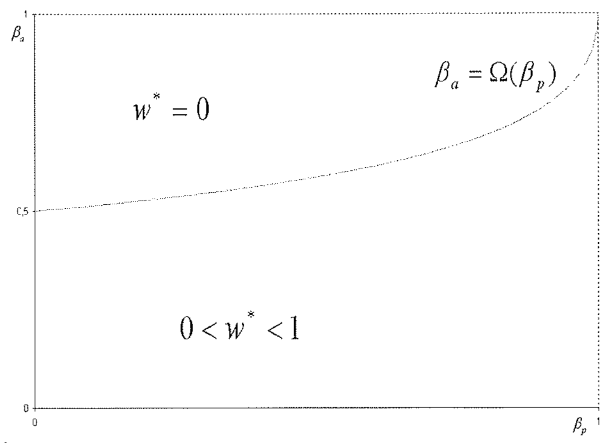
Observe that these optimal results depicts all cases concerning the relationships between manager and workers, and is depicted in Figure 1: the paternalistic case, i.e. one-sided descendant altruism, $\beta_p > 0$ and $\beta_a = 0$; the altruistic child case, i.e. one-sided ascendant altruism, $\beta_p = 0$ and $\beta_a > 0$; the non-family business (or worker) case, i.e. no altruism, $\beta_p = 0$ and $\beta_a = 0$; and the two-sided altruism, $\beta_p > 0$ and $\beta_a > 0$.

The findings for $\beta_a \geq \Omega(\beta_p)$ is the 'good boy' case (the 'good girl,' in our case). The child will make a work effort in the firm even if there exists no monetary incentives, i.e. the area denoted to by $w^* = 0$ in Figure 1. This effort to achieve the family firm goals without any compensation have been denoted

to in the literature as *loyalty*. This behavior happens even with non-descendant altruism, $\beta_p = 0$ (see Y-axes in Figure 1). Thus, the child's ascendant altruism towards her parent, or the general goals and interests of the family, constitutes one of the mainstay of the efficiency of the family business.

To proceed forward with the analysis, we present the following result, similar to Chami (2001, Lemma 2). It shows how the optimal wage contract and effort are modified under different degrees of altruism.

Figure 1: **The wage contract under two-sided altruism.** Case β_a, $\beta_b \in [0,1]$. Note that one-sided altruism is also represented, both descendant –X-axes– or ascendant –Y-axes.



Lemma 3.4.6 Optimal wage, work effort and profits under different degrees of altruism. *Consider the environment with descendant and ascendant altruism, i.e.* β_p, $\beta_a \in [0,1]$. *Then, for* $\beta_a \leq \Omega(\beta_p)$,

1. **Different degrees of descendant altruism.**

$$\begin{aligned}
\frac{\partial w^*(\beta_p,\beta_a)}{\partial \beta_p} &= \frac{1}{(2-\beta_p-\beta_p\beta_a)^2} > 0;\\
\frac{\partial e^*(\beta_p,\beta_a)}{\partial \beta_p} &= \frac{1-\beta_a}{(2-\beta_p-\beta_p\beta_a)^2}\frac{A}{k} > 0;\\
\frac{\partial \pi^*(\beta_p,\beta_a)}{\partial \beta_p} &= \frac{-\beta_a}{(2-\beta_p-\beta_p\beta_a)^4}\frac{A^2}{k} < 0.
\end{aligned}$$

2. **Different degrees of ascendant altruism.**

$$\frac{\partial w^*(\beta_p,\beta_a)}{\partial \beta_a} = -\frac{2(1-\beta_p)(1-\beta_p\beta_a)}{(1-\beta_a)^2(2-\beta_p-\beta_p\beta_a)^2} < 0;$$

$$\frac{\partial e^*(\beta_p,\beta_a)}{\partial \beta_a} = -\frac{\beta_p(1-\beta_p)}{(2-\beta_p-\beta_p\beta_a)^2}\frac{A}{k} < 0;$$

$$\frac{\partial \pi^*(\beta_p,\beta_a)}{\partial \beta_a} =$$

$$= \frac{(1-\beta_p)^2+(1-\beta_p\beta_a)^2+(1-\beta_p\beta_a)\beta_p(1-\beta_a)}{(1-\beta_a)^2(2-\beta_p-\beta_p\beta_a)^4}\frac{A^2}{k} > 0.$$

Three comments are in order. First, the higher degree of parental altruism β_p, the higher the wages paid by the manager, a result that extends to two-sided altruism the findings in Proposition 3.4.2 for one-sided altruism. In addition, observe that the child's effort is higher. This could be interpreted as the altruistic child's response to her parent's altruism. Yet, in

the altruistic child's response to her parent's altruism. Yet, in our model this also happened in the previous one-sided altruism case. The child, despite being altruist with her parent, still reacts increasing working effort under monetary incentives, as already noted in Lema 3.4.4. As noted before, this may not be the case in other models with uncertainty and other contract design.

Second, the higher degree of ascendant altruism β_a, the lower wages are paid by the family manager. This is interesting because the manager, despite being altruistic, also may display an opportunistic behavior towards an altruistic worker, thus paying her child less. Thus, the child faces a trade-off between putting more working effort because of being more altruistic, or putting less effort because of being paid less. This trade-off is displayed by differentiating the optimal condition (3.4.2)

$$\frac{\partial e(w^*(\beta_p,\beta_a);\beta_a)}{\partial \beta_a} = [1-w^*(\beta_p,\beta_a)]\frac{A}{k} + (1-\beta_a)\frac{\partial w^*(\beta_p,\beta_a)}{\partial \beta_a}\frac{A}{k}$$

so that the first term represents the positive altruistic motive, while the second term represents the negative compensating motive. In our model the latter offsets the former, thus resulting in a lower working effort.

Finally, concerning the firm's profits observe that profits decrease the higher degree of parental altruism β_p for any degree of descendant altruism $\beta_a \in [0,1]$, a result that extends to two-sided altruism the findings in Proposition 3.4.3 for one-sided altruism. In addition, profits increase the higher degree of the ascendant altruism of the child, β_a. Graphically, see Figure 1, this entails that higher profits are found leftwards and upwards. The following result compare the amount of profits under two-sided altruism with respect to those achieved in previous sections.

Proposition 3.4.7 ***Profits under two-sided altruism.*** *Consider the environment with two-sided altruism, i.e.* β_p, $\beta_a \in [0,1]$. *Then,*

1. ***Non-enough altruistic child case.*** *For* $\beta_a < \Omega(\beta_p)$, *profits are lower in family firms in contrast to non-family business i.e.*

$$\pi(w^*(\beta_p,\beta_a), e^*(\beta_p,\beta_a)) < \pi(w^*(0,0), e^*(0,0));$$

2. ***The "good boy" (or good girl) case.*** *For* $\beta_a \geq \Omega(\beta_p)$ *profits are higher in family firms in contrast to non-family business i.e.*

$$\pi(w^*(\beta_p,\beta_a), e^*(\beta_p,\beta_a)) = \beta_a A^2/k \geq \pi(w^*(0,0), e^*(0,0));$$

3. ***The outstanding child case.*** *For* $\beta_a = 1$ *profits achieve its highest value*

$$\pi(w^*(\beta_p,1), e^*(\beta_p,1)) = \frac{A}{k} > \pi(w^*(\beta_p,\beta_a), e^*(\beta_p,\beta_a)).$$

The first result is found at the bottom area of Figure 1. This is the case that the descendant altruism is too high, at least with respect ascendant altruism. The parent extracts pecuniary benefits from hiring his child, then putting in trouble the existence of the family firm. As indicated in the comments of Proposition 3.4.3, whether the child is not enough identified with the goals of the family, it is better off the manager to hire a non-family worker and then divert no resources from the firm to achieve some particular altruistic own goals in order to the firm may survive in the long-run.

The second result is found at the upper area of Figure 1. For any given descendant altruism, $\beta_p \in [0,1]$, in the case the child involvement with the goals of the family is so high that she works for no wage compensation, then the profits of the

family are higher under two-sided altruism than in the case of non-family business. This 'good boy' case is remarkably when the child make an enough effort even if no descendant altruism exists, i.e. $\beta_p = 0$ and $\beta_a \geq 1/2$. In this case, the non-altruistic manager undertakes an opportunistic behavior by paying no wages in exchange with a high effort for the worker.

In addition, note also that the higher the ascendant altruism the more efficient allocation is found. In the third result, we state that in the case that $\beta_a = 1$ full efficiency is achieved, i.e. $e^*(\beta_p, 1) = \widehat{e}$, and for any descendant altruism $\beta_p \in [0,1]$, the firm's profits $\pi(0, e^*(\beta_p, 1))$ are the highest for any degree of descendant altruism $\beta_a \in [0,1]$.[18] This result is similar with the result found under a different setting by Galve-Górriz *et al.* (2003, Sec. 1.6), although they found that only the non-descendant altruism case is the efficient one, i.e. $\beta_p = 0$ and $\beta_a = 1$; that is, the upper-left corner in the Figure 1.

To sum-up, Proposition 3.4.7 is an important result as it entails that two-sided altruism may explain the survival of the family firm along time, whenever there exists an enough involvement of the child with the family firm. This is formalized by a relative high degree of descendant altruism with respects to descendant altruism. In addition, it is pointed out that the existence of descendant altruism is not enough to put the family firm out of trouble: a rude and tough family manager (i.e. lowering β_p) may not turn low into high profits, at least for a range of low degree of ascendant altruism (i.e. $\beta_a < 0.5$).

Note that it has been frequently argued that trust is a distinctive feature that separates successful family business from nonfamily ones or unsucceessful family business[19]. These results could then explain why family businesses arise and succeed. In

[18]Despite beyond the scope of this section, observe that for a higher degree of altruism the child will not make any additional effort as, according to Lemma 3.4.4, her wages must be further reduced which is not possible.

[19]See, for example, Gersick *et al.* (1997), Davies (1997) or Sundaramurthy (2008) among others.

other words, under certain circumstances which have to do with the degree and intensity of reciprocal altruism, trust would provide the family business with a competitive edge versus other firms in the market.

3.5 Succession

In this section we study the case when the owner desires to transfer his child the family business after he retires. We inquire whether the succession commitment along with descendant altruism, accounts for the family business survival, an issue that requires a dynamic model.

Next, we present an dynamic model with descendant altruism and a succession commitment, an extension of the previous framework to two periods that can be seen as an version of Chami (2001, Sec. IV). The economic decisions are taken in two periods of time, denoted to by $t = 1$ and 2. There exists descendant altruism with an altruistic parent, i.e. $\beta_p > 0$, but there is no ascendant altruism, i.e. $\beta_a = 0$, who is not involved and identified with the goals of the family firm but with her owns goals for the future. The succession commitment consist in, at the beginning of period $t = 1$, the owner-manager faithfully promises a family member who works for the firm, that she will be the owner of the family firm at period $t = 2$.

The parent and the child overlap at the first period. The owner-manager consumes only for one period of time, i.e. $\mathbf{c}^p = (c^p, 0)$, while the worker agent consumes one consumption good at each period, $\mathbf{c}^a = (c_1^a, c_2^a)$. Descendant altruism is modelled as before: the parent is concern with the overall welfare of the child, hence $\mathcal{U}_a = U_a(\mathbf{c}^a, e, 0, 0)$. We also consider separability of preferences, so the worker agent's preferences will be represented by $U_a(\mathbf{c}^a, e, 0, 0) = u_a(c_1^a) + \gamma u_a(c_2^a) - C(e)$, where $u_a(c_t^a)$ is a twicely differenciable, increasing, continuous utility function for $t = 1, 2$; the cost function $C(e)$ is defined as before; and $\gamma < 1$ is a parameter of intertemporal discount factor. Note

that the succession commitment is modelled by considering that the worker agent considers her future consumption depends on her present work effort decisions, so $\gamma > 0$.

Finally, at the period $t = 1$ the firm produces only with the worker's effort, $y_1^1 = e$, and a linear technology $f_1(e) = A_1 e$; while at the period $t = 2$ the firm produces with the same worker's effort than in period $t = 1$, $y_2^1 = e$, and a linear technology $f_2(e) = A_2 e$, where A_t represents the constant marginal productivity of effort for $t = 1, 2$.[20]

As usual, the model is solved by backwards induction. The worker agent first chooses her optimal level of effort by maximizing her welfare $U_a(\mathbf{c}^a, e, 0, 0) = u_a(c_1^a) + \gamma u_a(c_2^a) - C(e)$ subject to $c_1^a = wA_1 e$ and $c_2^a = A_2 e$, resulting in a supply function of effort that depends on the wages received in compensation

$$e(w; \beta_p, \beta_a, \gamma) = e(w; \beta_p, 0, \gamma) = w\frac{A_1}{k} + \frac{\gamma A_2}{k}.$$

Observe that as no ascendant altruism exists, i.e. $\beta_a = 0$, the child behaves as any other non-family worker, so her incentives for increasing effort are only guided by wages, as already shown in Lemma 3.4.1. However, her effort is higher under the succession commitment as the next result, similar to Chami (2001, Prop. 5), shows.

Proposition 3.5.1 ***Work effort with succession commitment.*** *Consider the environment where the child expects to take*

[20] Observe that under this formulation, the worker decides to make the *same* work effort in both periodos. Despite its oddness, we follow Chami's formulation. Anyway, this could have some sense under a reinterpretation of the model by considering the role of the successor. For example, the child could decide different levels of work effort in each period but both decisions could be connected, allowing for some kind of accumulation of knowledge, experience effect or acquisition of managerial abilities. Under this interpretation, it would be easy to understand our assumption that the productivity of the effort A differ across periods, unlike Chami's assumption that is constant.

over the family firm, i.e. $\gamma > 0$. *Receiving the same labor compensation, the child's effort is higher than any other worker who does not expect to inherit the family firm, i.e.* $e(w; \beta_p, 0, \gamma) > e(w; \beta_p, 0, 0)$ *for any given* $w \in [0, 1]$ *and any* $\beta_p > 0$.

The proof is straightforward. Note that the child being selfish, i.e. $\beta_a = 0$, but expecting to inherit the business, $\gamma > 0$, makes her effort will be higher than a non-family employee *and* also higher than any other family worker who does not expect to inherit the business. Thus, the succession commitment makes the difference. As a result, the presence of agency conflicts between the manager and a worker who will inherit the family firm is mitigated.

The owner-manager, as principal, chooses the optimal wage that maximizes his welfare $U_p(c^p, \beta_p, U_a(\mathbf{c}^a, e, 0, 0)) = u_p(c^p) + \beta_p[u_a(c_1^a) + \gamma u_a(c_2^a) - C(e)]$ subject to $c^p = (1-w)Ae$, $c_1^a = wA_1e$, $c_2^a = A_2e$ and taking into consideration the optimal effort level chosen by the agent (13). Now, the optimal wage is

$$w^*(\beta_p, 0, \gamma) = \begin{cases} \frac{1}{2-\beta_p} - \frac{2\gamma A_2}{A_1}\frac{1-\beta_p}{2-\beta_p}, & \text{if } 1 \geq \Psi(\psi, \beta_p) \\ 0, & \text{if } 1 \leq \Psi(\psi, \beta_p) \end{cases},$$

with $\Psi(\psi, \beta_p) = \psi(1 - \beta_p)$ and $\psi = \gamma A_2 / A_1$; and, then the optimal level of effort is

$$e^*(\beta_p, 0, \gamma) = \begin{cases} \frac{A_1 + \gamma A_2}{(2-\beta_p)k}, & \text{if } 1 \geq \Psi(\psi, \beta_p) \\ \frac{\gamma A_2}{k}, & \text{if } 1 \leq \Psi(\psi, \beta_p) \end{cases}.$$

Next, we present the following result that shows how the optimal wage contract and effort are modified under different parameters.

Lemma 3.5.2 Optimal wage, work effort and profits under different value of the parameters. *Consider the environment with descendant altruism and succession, i.e.* $\beta_p > 0$, $\beta_a = 0$, *and* $\gamma > 0$. *Then, for* $1 \geq \Psi(\psi, \beta_p)$

1. **Different degrees of descendant altruism.**

$$\begin{aligned} \frac{\partial w^*(\beta_p, 0, \gamma)}{\partial \beta_p} &= \frac{1}{(2-\beta_p)^2}\frac{A_1 + \gamma A_2}{A_1} > 0; \\ \frac{\partial e^*(\beta_p, 0, \gamma)}{\partial \beta_p} &= \frac{1}{(2-\beta_p)^2}\frac{A_1 + \gamma A_2}{k} > 0; \\ \frac{\partial \pi^*(\beta_p, 0, \gamma)}{\partial A_2} &= \frac{(2-\beta_p)(A_1 + \gamma A_2)^2}{(2-\beta_p)^4}(1 - 2\beta_p) \\ & \begin{cases} > 0 & \text{if } \beta_p < 1/2; \\ < 0 & \text{if } \beta_p > 1/2 \end{cases}. \end{aligned}$$

2. **Different degrees of the intertemporal discount.**

$$\begin{aligned} \frac{\partial w^*(\beta_p, 0, \gamma)}{\partial \gamma} &= -\frac{A_2(1-\beta_p)}{A_1(2-\beta_p)} < 0; \\ \frac{\partial e^*(\beta_p, 0, \gamma)}{\partial \gamma} &= \frac{A_2}{k(2-\beta_p)} > 0; \\ \frac{\partial \pi^*(\beta_p, 0, \gamma)}{\partial \gamma} &= \frac{2\gamma(1-\beta_p)(A_1 + \gamma A_2}{k(2-\beta_p)^2} > 0. \end{aligned}$$

3. **Different degrees of productivity at period** $t = 2$.

$$\begin{aligned} \frac{\partial w^*(\beta_p, 0, \gamma)}{\partial A_2} &= -\frac{\gamma(2-\beta_p)}{A_1(2-\beta_p)} < 0; \\ \frac{\partial e^*(\beta_p, 0, \gamma)}{\partial A_2} &= \frac{\gamma}{k(2-\beta_p)} > 0; \\ \frac{\partial \pi^*(\beta_p, 0, \gamma)}{\partial A_2} &= \frac{2A_2(1-\beta_p)(A_1 + \gamma A_2}{k(2-\beta_p)^2} > 0. \end{aligned}$$

Four comments are in order. First, observe that the higher degree of parental altruism β_p, the higher the wages paid by the manager. Recall that the child reacts increasing working effort under monetary incentives, as already noted in Lema 3.4.1.

Proposition 3.5.3 ***Wages under one-sided altruism and succession commitment.*** *Consider the environment with descendant but not ascendant altruism, i.e.* $\beta_p > 0$ *and* $\beta_a = 0$*, and a child's expectation to take over the firm. In contrast to a family worker who does not expect to inherit the firm, the child receive a lower compensation wage in family firms, i.e.* $w^*(\beta_p, 0, \gamma) < w^*(\beta_p, 0, 0)$.

It is easy to see that, as a consequence of the child expectation to take over the family firm, the parent will reward the child by reducing the incentive wage component. That is, the manager has an opportunistic behavior at period $t = 1$ towards a worker who expects to take over the firm at $t = 2$. However, this wage is not as higher as those obtained whenever altruism exists but the child will not inherit the firm.

Theorem 3.5.4 ***Wages and working effort under different scenarios of altruism and succession commitment.*** *Consider the same environment considered without ascendant altruism,* $\beta_a = 0$*, for the following cases where there is: no altruism and no succession* ($\beta_p = \gamma = 0$)*; descendant altruism and no succession* ($\beta_p > 0$ *and* $\gamma = 0$)*; and, descendant altruism and succession* ($\beta_p > 0$ *and* $\gamma > 0$)*. Then, it is verified*

$$w^*(\beta_p, 0, 0) > w^*(\beta_p, 0, \gamma) > w^*(0, 0, 0);$$

and,

$$e^*(\beta_p, 0, \gamma) > e^*(\beta_p, 0, 0) > e^*(0, 0, 0).$$

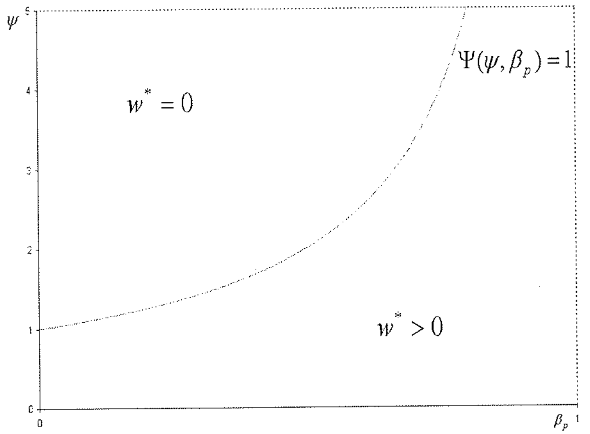
This result is not surprising if we think that the contract offered by the manager to the worker is a payment in two periods of time: (i) a wage wA_1e in the period $t = 1$; and, (ii) the value of the outcome A_2e in the period $t = 2$. Thus, the discounted value of the income received by the worker who expects to inherit the family firm, $A_1ew + \gamma A_2e = [(A_1 + \gamma A_2)/(2 - \beta)]^2/k$, will be higher than the income received by other worker who has not such an expectation. Then, she will put more effort for higher wages are her main incentive to increase work effort as shown in (13).

Second, the child's effort is higher under a parental succession commitment. This could be interpreted as the child's response to her parent's altruism, but this needs not to be the case. As shown in the previous comment, the heir is not ascendant altruistic and the higher overall income received will be her only incentive to work harder.

Third, the higher the technological productivity at period $t = 2$, A_2, and the intertemporal discount factor, γ, the lower wage and the higher work effort. Observe that the higher discounted future income, γA_2, the more opportunistic behavior may display the manager, as he receives more income at period $t = 1$ in exchange of the promise of higher income for the worker at $t = 2$. Moreover, for a high enough valuation of the future income or for a high enough productivity at $t = 2$, the worker might be still work for the firm despite receiving no monetary compensation $w^*(\beta_p, 0\gamma) = 0$ (see Figure 2).

Finally, concerning the firm's profits observe that profits increase for low degree of parental altruism and decrease for high enough degree of parental altruism β_p, a result that extends to the case of succession commitment the findings in Proposition 3.4.3 for one-sided altruism. In addition, profits increase the higher degree of intertemporal discount parameter, and the more productive is technology at period $t = 2$. Graphically, see Figure 2, this entails that higher profits are found upwards. Observe that the parameter $\psi = \gamma A_2/A_1$, the ratio between the firm's productivity when the manager is the child with respect when the manager is the parent, can be interpreted as a a degree of the smartness of the child, for instance her managerial abilities to run the firm. The following result compare the amount of profits if heritance exist with respect to those achieved in previous sections.

Figure 2: **The wage contract under descendant altruism and succession commitment.** Case $\beta_a = 0$, $\beta_b \in [0, 1]$ and $\gamma = 0$. $\psi = \gamma A_2/A_1$ represents the productivity ratio between period $t = 1$ and $t = 2$. Note that the descendant one-sided altruism is also represented at the X-axes.



Proposition 3.5.5 ***Profits under succession commitment.*** *Consider the environment with descendant altruism and heritance, i.e.* $\beta_p > 0$, $\beta_a = 0$ *and* $\gamma > 0$. *Then,*

1. ***The clumsy boy (or girl) case.*** *For* $1 \geq \Psi(\psi, \beta_p)$ *profits are lower in family firms in contrast to non-family business i.e.*

$$\pi(0, 0, 0)) > \pi(\beta_p, 0, \gamma) > \pi(\beta_p, 0, 0);$$

2. ***The smart child case.*** *For* $1 \leq \Psi(\psi, \beta_p)$, *profits are higher in family firms in contrast to non-family business and one-side altruism, i.e.*

$$\pi(\beta_p, 0, \gamma) > \pi(0, 0, 0)) > \pi(\beta_p, 0, 0);$$

The first result is found at the bottom area of Figure 2. This is the case that the descendant altruism is too high, or the heir is not so smart to become the family firm into a more productive business. The parent extracts pecuniary benefits from hiring his child, then putting in trouble the existence of the family firm. Analogously to the comments of Proposition 3.4.3, whether the child is not enough qualified to run the firm, it is better off the manager to hire a non-family worker and sell the firm in the market, or to hire the family worker and hire a manager to run the firm in the future. Thus divert no resources from the firm to achieve some particular altruistic own goals may allow the firm to survive in the long-run.

The second result is found at the above area of Figure 2. This is the case that the girl is clever enough to become the family business so productive at period $t = 2$, i.e. ψ, that she is able to work for no wage compensation at period $t = 1$. Thus, the profits of the family are higher under succession commitment and a smart heir than in the case of non-family business. This 'smart boy' case is remarkably when the child make an enough effort even if no descendant altruism exists, i.e. $\beta_p = 0$ (see Y-axes in Figure 2). In this case, the non-altruistic manager undertakes an opportunistic behavior by paying no wages in exchange with a high effort for the worker.

To sum-up, Proposition 3.5.5 is important as it entails that the succession commitment may explain the survival of the family firm along time, whenever the heir is smart enough to become the family firm into a more productive one. This is formalized by a relative high ratio between the marginal productivities of work effort across periods, ψ. In addition, it is pointed out that the succession commitment itself is not enough to put the family firm out of trouble. First, a rude and tough family manager (i.e. lowering β_p) may not turn low into high profits, at least for the case where the child is not very smart (i.e. $\psi < 1$). Second, firms with low altruistic owner-manager and clumsy heirs will survive only by professionalizating the firm.

4 The Role of Institutional Imperfections

4.1 Legal Imperfections and the Professionalization of Family Firms

There exist several explanations for a family firm control preservation stemmed from influential elements external to the business. One of them is the prevailing legal system concerning the shareholder protection.[21] Under some poor legal protection such a separation between ownership and control could become very costly, e.g. in terms of monitoring . This explanation is based on the possibility of expropriation that comes with control. The argument can be employed to study both the separation of ownership and management, and the professionalization decision in the family firm as two sides of the same problem. In other words,

[21]Obviously, national fiscal laws (more specifically, inheritance and capital gains taxes) influence the decisions on firm intergenerational transmission. This subject is beyond the scope of this paper.

the decision of maintaining the ownership can be influenced by the capacity of the professional manager to expropriate benefits: if legal protection is low, concentrated ownership and no separation of ownership and management is the natural outcome which prevents profit diversion by non-family managers.

4.2 The Basic Model

This literature considers three agents: the owner of a firm, who also runs the business alone, and will be termed to by *owner-manager*; a non-family manager who can be hire to run the firm, that will be called the *professional-manager*; and the firm.

The owner-manager. The family is represented by a single individual, which is the owner of a firm, i.e. $\theta = 1$, the only worker of the firm, and who also runs the business alone. He is endowed with managerial knowledge h^p and an amount of available time $T = 1$ that can be devoted to leisure or to firm's related activities. His welfare is enhanced by devoting time to leisure activities, l^p, and consuming goods purchased in the market, $\mathbf{c}^p$. In addition, he may increase welfare by consuming purely amenity goods only provided by the family firm, $\mathbf{b} = \mathbf{A}$, derived from the mere existence or the decisions taken when running the firm, which does not involve any expense for the firm. The literature considers separability of preferences between these elements. Thus, his preferences will be represented by $U_p(\mathbf{c}^p, l^p, \mathbf{A}) = u_p(\mathbf{c}^p, l^p) + \mathbf{A}$, where $u_p(\mathbf{c}^p, l^p)$ is a twicely differenciable, increasing, concave, continuous utility function. Finally, in the case that a professional management from outside of the family is hired to run the firm, the owner-manager may still monitoring her performance at the firm. We will consider that this activity involves him a cost of leisure $C(m)$.[22]

[22]Observe that this costs are associated to lost of utility. The alternative possibility of attaching this cost to the firm would entail the problem to specify how the decision is taken: it would be a fixed cost for the firm, yet to be decided by the family.

The professional-manager. There exists an additional agent endowed with managerial knowledge h^a and an amount of available time $T = 1$ that can be devoted to leisure or to labor. This agent, if hired, will replace the owner-manager in the firm by devoting all her time to management activities in exchange of a wage. Her welfare is increased by consuming goods purchased in the market, $\mathbf{c}^a$, and leisure, l^a, and her preferences will be represented by a twicely differenciable, strictly increasing, continuous utility function, $U^a(\mathbf{x}^a) = u_a(\mathbf{c}^a, l^a)$.

The firm. The firm produces a single good y by combining a number of inputs $\mathbf{y} \in \Re^M_+$, which comprise the management services H. The technology will be represented to by a twicely differenciable, concave, strictly increasing, continuous production function $y = f(\mathbf{y})$. In a market economy the firm interacts with other firms in an economic environment both in the good and the inputs markets. We will consider that this environment is competitive. Thus, the firm will consider as exogenous both the price of the good produced, p^y, and the price of all other inputs purchased in the market, w^m with $m = 1, ...M$.

Finally, the person who manages the firm chooses the level of expropriation, partially impeded by law, and, in the case of the professional-manager, she is subject to being monitored by the firm's owners. This non-contractible expropriation decision can be modelled as a choice of the manager's private benefits share $\phi \in [0, 1]$, such that dividends are a proportion $(1 - \phi)$ of the firm profits. This expropriation is limited by legal shareholder protection: the law sets an upper bound $\overline{\phi} \in [0, 1]$ on the fraction of revenues that can be diverted by the party in control. Stronger legal protection corresponds to lower value of $\overline{\phi}$. As in Burkart *et al.* (2003) this upper bound is irrespective of the form in which those benefits are enjoyed; that is, wages in excess of market value are already incorporated in this proportion.

Considering this simple theoretical framework, several works have inquired whether the optimality of the separation between

ownership and management despite the agency costs. Other works are concerned with the optimality of the separation between family and external ownership.

4.3 The Separation of Ownership and Management

Next, we present an model, based on Burkart *et al.* (2003). In this section we will simplify notation. The firm produces only with management services, i.e. qualified labor, as the input, $y^1 = HN$, and we will assume a linear technology $f(HN) = AHN$, where A represents a technological parameter. Both managers may only consume one consumption good, $\mathbf{c}^i = c^i$, and their respective utility functions are linear on consumption and leisure, i.e. $u_i(\mathbf{c}^i, l^i) = c^i + \varphi(l^i - T)$ with $i = a$ and p. Observe that, whoever manages the firm chooses the optimal labor decisions by devoting all the time to work, i.e. $n^i = T(= 1)$ for $i = a$ and p, so the disutility of the effort is represented by φT. The owner-manager's cost function of monitoring the professional-manager, if hired, is $C(m) = (k/\varphi)m^2/2$ (see Pagano and Röell 1998).

The model is static, but it is comprised by the following subperiods. The owner-manager has to decide at date 0 whether to appoint a professional manager to run the firm or keep management in the family. Simultaneously he decides what fraction $1 - \theta$ of the shares to sell to dispersed shareholders and, if the founder appoints to a professional, he also offers a wage, w^{HN}. At date 1 the professional manager accepts or rejects the offer to run the company. At date 2 the family, as a shareholder, decides the monitoring intensity m that reduces private benefit extraction in a proportion $m \in [0, 1]$. At date 3 the firm generates revenues that depend on the identity of the manager. If control remains inside the family, total revenues generated are $y^p = f(h^p n^p) = Ah^p$; if a professional manager runs the firm, total revenues are $y^a = f(h^a n^a) = Ah^a$.

Following Burkart *et al.* (2003), professionalization questions arise when the founder or his heir are not the best manager, as otherwise there is no reason to sell equity and the family will naturally retain management. Next, we study two cases. First, the founder retains management and second, a manager is hired.

4.3.1 No Separation of Ownership and Management

If ownership and management are not separated, the owner-manager keeps running the firm, i.e. $n^a = 1$. At date 3, his decision on how to allocate the profits $\pi(y^p, h^p n^p)$ —defined as in (3)— is constrained to divert no more than $\overline{\phi}$ of the revenues as private benefits. Thus, he will extract the legal upper bound $\overline{\phi}$. Absent a professional manager, there is neither date 2 monitoring nor a date 1 job acceptance decision. His decision at date 0 concerns with the fraction of shares to sell to outside investors. The owner-manager maximizes his welfare $U^p(c^p, l^p, A)$ subject to the temporal constraint $l^p + n^p = T$ and $c^p = w^{HN} n^p + \theta(1-\overline{\phi})\pi(y^p, h^p n^p) + (1-\theta)\overline{\phi}\pi(y^p, h^p n^p) + B$. Note that $\theta(1-\overline{\phi})\pi(y^p, h^p n^p)$ is the value of his date 3 block, and $(1-\theta)\overline{\phi}\pi(y^p, h^p n^p)$ is the proceeds form selling $1-\theta$ shares at date 0. Since diversion is efficient, the optimal ownership structure is indeterminate when ownership and management are separated, as shown in the following result.

Lemma 4.3.1 *(Burkart et al. 2003, Lemma 1) For any* $\overline{\phi} \in [0,1]$, $U^p(c^p(\theta^*), 1, A) = y^p + A - \varphi$ *and* $\theta^* \in [0,1]$.

To summarize, the case of no separation does not yield precise predictions, notably for the ownership structure.

4.3.2 Separation of Ownership and Management

As usual the model is solved by backward induction. At date 3 total revenues under the professional manager are y^a, and the

law stipulates that $(1-\overline{\phi})\pi(y^a, h^a)$ must be paid out to shareholders as dividends. What fraction of the remaining $\overline{\phi}\pi(y^a, h^a n^a)$ is actually diverted depends on monitoring. At date 2 the owner-manager has to choose a monitoring intensity. For a given block θ and for a given wage rate w^{HN}, the owner-manager maximizes his welfare $U^p(c^p, l^p, 0)$, subject to $c^p = \theta\pi(y^a, h^a) + (m - \overline{\phi})y^a$, and the temporal constraint $l^p + C(m) = T$. Hence, the optimal monitoring level is

$$m(\theta) = \min\left\{\overline{\phi}, \theta\frac{y^a}{k}\right\}.$$

At date 1, the professional manager decides to run the firm, by maximizing her welfare $U^a(c^a, l^a)$, subject to $c^a = w^{HN} n^a - (m - \overline{\phi})y^a$, and the temporal constraint $l^a + n^a = T$. Thus, she will agree as long as $U^a(c^a(\theta, m), 1) \geq 0$, that is if the sum of the wage and the private benefits exceeds her utility of effort. This participation constraint can be written at

$$m(\theta) \leq m(w^{HN}, \overline{\phi}) \equiv \overline{\phi} + \frac{w^{HN} - \varphi}{y^a}.$$

Note that higher ownership concentration and better legal protection –i.e. low $\overline{\phi}$– make it more difficult to satisfy the professional manager's participation constraint, whereas higher wages make it easier. This is the basic trade-off when ownership and management are separated.

At date 0 the owner-manager chooses the ownership structure and the wage to maximize his welfare $U^p(c^p, T - C(m(\theta)), 0)$, subject to $c^p = \pi(y^a, h^a) + (m(\theta) - \overline{\phi})y^a$ and the professional manager's participation constraint $m(\theta) \in [0, m(w^{HN}, \overline{\phi})]$.

Observe that if the owner-manager chooses an ownership structure such that $\overline{\phi} < \theta^* y^a / k$ then the professional manager is able to divert no private benefits, $m(\theta^*) = \overline{\phi}$; thus, the owner-manager would have to offer a wage $w^{HN*} = \varphi$ to induce her to accept the job. By choosing an ownership structure such that $\overline{\phi} > \theta^* y^a/k$ the owner-manager leaves some private benefits to the professional manager by monitoring less $m(\theta^*) = \theta^* y^a/k$. Inserting this level into the owner-manager's welfare yields $V^p(\theta, w^{HN}; \overline{\phi}, k)) \equiv U^p(c^p(\theta^*, m(\theta^*)), T - C(m(\theta^*)), 0)$ with $dV^p(\theta, w^{HN})/d\theta = (1-\theta)y^{a2}/k \geq 0$ and $dV^p(\theta, w^{HN})/dw^{HN} = -1 < 0$, provided the professional manager accepts the job, i.e. $m(\theta^*) \leq \overline{m}$. This is the case whenever $y^a/k + \varphi/y^a \leq \overline{\phi}$.

The following result summarizes the ownership and wages decisions of the owner-manager.

Lemma 4.3.2 *(Burkart et al. 2003, Lemma 2)*

(i) Under strong legal protection, i.e. $\overline{\phi} \leq \varphi/y^a$, *then the owner-manager sells the firm* $\theta^* = 0$, *there is no monitoring* $m(\theta^*) = 0$, *the wage offer is* $w^{HN*} = \varphi - \overline{\phi} y^a$, *and* $V^p(\theta^*, w^{HN*}; \overline{\phi}) = y^a - \varphi$.

(ii) Under a moderate legal protection, i.e. $\overline{\phi} \in \left[\frac{\varphi}{y^a}, \frac{\varphi}{y^a} + \frac{y^a}{k}\right]$, *then the wage offer is* $w^* = 0$, *there is some monitoring* $m^* = m(0, \overline{\phi})$, *the owner-manager sells* $\theta^* = \frac{k}{y^a}\left(\overline{\phi} - \frac{\varphi}{y^a}\right)$, *and* $V^p(\theta^*, 0; \overline{\phi}) = y^a - \varphi - \frac{k}{2}\left(\overline{\phi} - \frac{\varphi}{y^a}\right)^2$.

(iii) Under a poor legal protection, i.e. $\overline{\phi} > y^a/k + \varphi/y^a$, *then the owner-manager does not sell the firm* $\theta^* = 1$, *the monitoring level is* $m(\theta^*) = y^a/k$, *the wage offer is* $w^{HN*} = 0$, *and* $V^p(\theta^*, 0; \overline{\phi}) = y^a(1 - \overline{\phi}) + \frac{(y^a)^2}{2k}$.

When legal protection is strong (case (i)) ownership is completely dispersed, no monitoring is undertaken and the professional-manager is offered a wage that exactly induce her to accept the job. When legal protection in moderate (case (ii)) the wage offered is reduced as the professional-manager is able to divert some private benefits, and it is optimal to carry out some degree of monitoring to limit the size of the these private benefits. Because of $V^p(\theta^*, w^{HN*}; \overline{\phi}, k)$ decreases in $\overline{\phi}$ and k, less legal protection and a higher cost of monitoring entails a higher optimal level of monitoring. Finally, when legal protection is poor (case (iii)) the owner-manager cannot avoid leaving a private benefit to the professional manager, so a zero wage is offered, an it is retained full ownership of the firm.

Summarizing, the fraction of shares that the founder decides to maintain is decreasing with the degree of legal protection and the separation of ownership and management is more feasible as legal protection diminishes.

Next, we present the conditions under which the owner-manager chooses to hire a professional manager.

Proposition 4.3.3 *1. (Burkart et al. 2003, Prop.1) (i) If* $y^p + A > y^a$ *then ownership and management is never separated; and, (ii) If* $(y^a)^2/(2k) > y^p + A$ *then ownership and management is always separated.*

2. Under a moderate legal protection, i.e. $\overline{\phi} \in \left[\frac{\varphi}{y^a}, \frac{\varphi}{y^a} + \frac{y^a}{k}\right]$, *the family retains management only if his performance as a manager is notably better that the performance of the professional, i.e.* $y^p > y^a - \varphi - \frac{k}{2}\left(\overline{\phi} - \frac{\varphi}{y^a}\right)^2$.

Note that as the amenity potential is important for the owner-manager, it increases the propensity to the "no separation" outcome that we have obtained in the previous analysis.

4.4 Financial Imperfections

It is often argued that the development of financial markets has a decisive influence on the family business ownership, size and length of live. Thus, the less developed financial markets, it is more difficult to sell the firm and the source of funding are more limited, and then, the firm last longer and, as grows along time, it is bigger at the time of selling. In this section we explore the effect of the existence of financial restrictions for selling the firm concerning the control and growth of the family firm. The family firm owns and manage the firm until it is more profitable to sell the business.

We present a dynamic model that can be seen as a simplified extension of Bhattacharya *et al.* (2001) and Castañeda (2006). The framework is the same as in the previous section, but the family does not play any role but to provide labor inelastically to the firm. The economic decisions are taken in infinite periods of time, denoted to by $t = 1, 2, ...$ The firm produces with a technology that makes use labor and capital. Concerning capital, the family's investment at each period t becomes productive at the following period $t+1$. In addition, the capital suffers full depreciation $\delta = 1$. We will assume that the marginal productivity of capital for small units of capital is extremely high; that is, $\lim_{K\to 0} f_K(\mathbf{y}) = +\infty$. In particular, we follow Bhattacharya *et al.* (2001) by assuming a constant-returns of scale Cobb-Douglas technology, $f(\mathbf{y}_t) = AK_t^{\alpha}N_t^{1-\alpha}$, with $\alpha \in (0, 1]$.

The family is the owner of the initial given stock of capital K_1. The owner-manager consumes only one consumption good at each period, $\mathbf{c} = (c_1, c_2, ...)$; and, the family's welfare is only enhanced by consuming at each period, so no amenity benefits are considered. i.e. $u(\mathbf{c}) \equiv U(\mathbf{c}, l, \mathbf{b})$. In particular, we follow Bhattacharya et al (2001) by assuming $u(\mathbf{c}) = \sum_{t=1}^{\infty} \beta^t Lnc_t$, with $\beta \in (0, 1)$.

Finally, we will assume that there exists a financial security z that can be purchased at period t at a given price $q(1+\gamma)$, with an exogenous return $(1+\overline{r})$ at $t+1$ representing the gross *market return*. Analogous to Bhattacharya *et al.* (2001), we consider that $\gamma \geq 0$ represents the degree of underdevelopment of the financial markets, so the higher γ the less developed is the capital markets so the more expensive (and difficult) to sell the firm.

The owner-manager's budget constraint depends on the family owns and manages the firm, or it is already sold. Consider that at period T the firm is sold. Then, the budget constraint

are

$$\begin{aligned} p_t^c c_t + k_{t+1} &= w_t^N n_t + w_t^K k_t + \theta\pi_t(y_t, \mathbf{y}_t), \quad \text{for } t\text{=1,... } T-1 \\ p_T^c c_T + (1+\gamma)z_T &= w_T^N n_t + w_T^K k_T + \theta\pi_t(y_T, \mathbf{y}_T); \text{ and,} \\ p_t^c c_t + z_t &= (1+\overline{r})z_t, \qquad \text{for } t \geq T \end{aligned}$$

Observe that because constant-returns of scale there exists no economic profits at each period, $\pi_t(y_t, \mathbf{y}_t) = 0$ for all t, and the factors are remunerated at its marginal productivity, $w^N = (1-\alpha)f_N(\mathbf{y})$ and $w^K = \alpha f_K(\mathbf{y})$. Finally, the owner-manager devotes all his time to labor.

The owner-manager problem is to decide when to switch from a marginal decreasing returns in capital technology to a AK technology, taking into account that the switch of technology involves a cost γ. The switch will be undertaken whenever the rate of return is higher for the AK technology, after considering the cost of changing. The balance growth path for the Cobb-Douglas technology is $k_{t+1} = \beta\alpha Ak_t^{\alpha}$ for any $t < T$ converging to the steady state stock of capital $k^s = (\beta\alpha A)^{1/(1-\alpha)}$, and for the linear technology is $z_{t+1} = \beta(1+\overline{r})z_t$ for any $t > T$ (see Ljungqvist *et al.* 2000, Sec. 3.1.2). Then, at the period $t = T$, $(1+\gamma)z_T = \beta\alpha Ak_{T-1}^{\alpha}$. Accordingly, at period T the owner-manager would be indifferent between investing in capital k_T or to buy the security z_T as both provide the same marginal productivity. This entails, that the family firm accumulates capital until it reaches a threshold

$$\overline{k}(\gamma) = \left((1+\gamma)\frac{\alpha^2 A}{(1+\overline{r})}\right)^{1/(1-\alpha)}$$

beyond of which it is profitable to switch the technology. Note that this threshold is an decreasing function of the development of the financial restriction, i.e. $\partial\overline{k}/\partial\gamma > 0$.

The following results can be proved. First, we show the conditions required to guarantee that the firm will be sold, a result similar to Battacharya *et al.* (2001, Lemma 2).

Lemma 4.4.1 *Consider the family firm that faces an imperfect financial markets. There exists a degree of underdevelopment $\widehat{\gamma}$ of the financial market such that the firm will be never sell, i.e. $k^s < \overline{k}(\widehat{\gamma})$. Conversely, if $k^s > \overline{k}(\widehat{\gamma})$, then there exists a finite period $T(\widehat{\gamma})$ at which the business is sold.*

Second, we show the conditions such that the firm has a greater size under underdeveloped financial markets, a result is similar to Battacharya *et al.* (2001, Prop. 4).

Proposition 4.4.2 *Consider the same family firm operating in different economies that display different degrees of imperfect financial markets. Then, the family firm that faces higher degrees of financial market imperfections lasts longer, i.e. $T(\gamma_1) > T(\gamma_2)$ for $\gamma_1 > \gamma_2$, and, at the time of selling, the family business is larger, i.e. $\overline{k}(\gamma_1) > \overline{k}(\gamma_2)$.*

The proof is straightforward.

5 Concluding Remarks

The application of microeconomic tools have served us to explain under what conditions some distinctive features of family firms hold. These features are related to the productivity of labor, the cost of capital, the growth rate and optimal size among others. However, further efforts are needed in order to get that these distinctive features become an outcome of the analysis and not as a required assumption based upon casual observation. This framework also allowed us to explain non-pecuniary benefits in terms of an externality which derives from the fact that the well-being of the family is directly affected by the decisions taken at the firm. In this sense, we show that the founder's particular altruistic own goals can be understood as a type of non-pecuniary benefits.

The principal-agent approach has revealed that survival of family firms depends on the existence of two-sided altruism. The analysis shows that paternalistic altruism may put in trouble the existence of the firm in the long run. In this framework a succession commitment can explain the survival of family firms along time depending on the quality of the heir. Some of the results obtained in the principal-agent section need to be replicated using more sophisticated formal models which include the role of the temporal dimension and the uncertainty (among some other additional variables) about some of the key variables of the decision-making process. One of the most obvious aspect to be taken into account is the founder's uncertainty about being alive in the next future. The temporal dimension has to be included in the analysis in order to understand how family and firm take decisions and interact through stages over time.

As Greenwood (2003) remarks, one important limitation of agency theory in the context of family firm lies in the binary treatment of power in principal-agent models: principal has power and agent does not. This could be misleading because power and influence in family business can be disperse amongst several family members and because children frequently do have power or capacity to manipulate or persuade their parents to relax the criteria to which the contract was originally tied. Moreover, altruism itself can make it difficult for parents to enforce their plans (specially announced punishments), both in the case of indulgent parents and in the case that children have the capacity to take actions that can threaten the welfare of the family and the firm alike (Schulze *et al.* 2003). Changed circumstances that influence family welfare can cause parents to unilaterally alter existing agreements (for example, in the Bergstrom's case of the prodigal son). In our opinion the theory of contracts could be applied in a deeper extent than the simple principal-agent model in order to take into consideration informational asymmetries among family members, and specially in the founder-successor relationship. In this sense, not only moral hazard problems are relevant and adverse selection and signalling approaches should also be addressed when dealing with questions related to the succession decision, the process of incorporation of family members to the firm and the professionalization.

One of the aspects in which further theoretical efforts are needed is the role of non-economic motivations and goals of family firm's owners. The existing literature shows that values, culture, family network and other components of family firm's social capital have a strong influence on family firm's behavior, for example in aspects such as personal commitment, the long term planning, the human resources practices, the human capital intergenerational transfer, the successor training or the internal monitoring mechanisms, among many others. As Chrisman *et al.* (2009) point out non-economic goals are essential to explain family firms behavior because they can either exacerbate or mitigate many of their typical conflicts.

Finally, microeconomic theory provides with a wide variety of instruments and frameworks which have not been employed to study family firm's characteristics and specificities. In our opinion intergenerational family transfers is one of the most remarkable one, with regards to some dimensions of the influence that the family exerts on the firm, such as cultural transmission, knowledge and technology transfers and human capital accumulation.

References

Anderson, R. K. and. Ormiston, M. B (1983): "A Full Price Analysis of the Owner-Managed Firm", *Southern Economic Journal*, Vol. 50, Issue 1, 57-70.

Auster, R. D. and Silver M. (1976): "Comparative Statics of the Utility Maximizing Firm", *Southern Economic Journal*, Vol. 46, n. 4, 1163-1166.

Bhattacharya, U. and Ravikumar, B. (2001): "Capital markets and the evolution of family business", *Journal of Business*, 74, 2, 187-219.

Bernheim, D. and Oded, S. (1988): "Altruism within the family reconsidered: Do nice guys finish last?", *American Economic Review*, 78, 5, 1034-1045.

Brown, D. M. and Lapan, Harvey E. (1979): "The Supply of Physicians' Service", *Economic Inquiry*, vol. 17, n. 2, 269-79.

Burkart, M., Panunzi F. and Shleifer A. (2003): "Family Firms", *The Journal of Finance*, vol. LVIII, n. 5, 2167-2201.

Castañeda, G. (2006): "Economic growth and concentrated ownership in stock markets", *Journal of Economic Behavior and Organization*, 59, 2, 249-286.

Chami, R. (2001): "What is different about family businesses?", *International Monetary Fund Working Paper*, 01/70.

Chrisman, J. J., Chua, J. H. and Steier, Ll. (2003): "An introduction to theories of family business", *Journal of Business Venturing*, 18, 4, 441-8.

Chrisman, J., Kellermanns, F., Chan, K. and Liano, K. (2009): "Intellectual foundations of current research in family business: An identification and review of 25 influential articles", *Family Business Review*, 23, 1, 9-26.

Clower, R. (1952-1953): "Mr. Graaff's Producer Consumer Theory: A restatement and correction", *Review of Economic Studies*, vol. 20, n. 1, 84-85.

Davies, P. W. F. (1997): *Current issues in business ethics*, New York, Routledge.

Demsetz, H. and Lehn, K. (1985): "The Structure of Corporate Ownership: Causes and Consequences", *Journal of Political Economy*, vol. 93(6), 1155-77.

Fama, E. and Jensen, M. (1983): "Separation of ownership and control", *Journal of Law and Economics*, 26, 2, 301-325.

Feinberg, R. M. (1975): "Profit maximization vs. utility maximization", *Southern Economic Journal*, vol. 42, n. 1, 130-131.

Feinberg, R. M. (1980): "On the Consistency of Non-Profit-Maximizing Behaviour with Perfect Competition", *Southern Economic Journal*, Vol. 48, No. 2, 513-516.

Feinberg, R. M. (1982): "On the Equivalence of Profit Maximization and Utility Maximization by an Owner-manager: Reply", *Southern Economic Journal*, vol. 49, n. 2, 260-1.

Formby, J. P. and Millner E. L. (1985): "The Convergence of Utility and Profit Maximization", *Southern Economic Journal*, Vol. 51, No. 4, 1174-1185.

Galve-Górriz, C. and Salas-Fumas V. (1996): "Ownership structure and firm performance: Some empirical evidence from Spain", *Managerial and Decision Economics*, 17, 575-586.

Galve-Górriz, C. and Salas-Fumas V. (2003): *La empresa familiar en España*. Fundamentos económicos y resultados, Fundación BBVA, Bilbao.

Gallo, M. A., Tàpies, J. and Cappuyns, K. (2004): "Comparison of family and nonfamily business: Financial logic and personal preferences", *Family Business Review*, 4, 303-318.

Gersick, K. E., Davis, J. A.; McCollom Hampton, M. and Lansberg, I. (1997): *Generation to generation: Life cycles of the family business*, Boston, Harvard Business School Press.

Gersick, K. E., Lansberg, I., Desjardins, M. and Dunn, B. (1999): "Stages and Transitions: Managing Change in the Family Business", *Family Business Review*, Vol. 12, No. 4, 287-297.

Gersick, K. E., Davis, J. A., McCollom Hampton, M. and Lansberg, I. (1997): *Generation to Generation: Life Cycles of the Family Business*, Harvard Business School Press. Boston, Massachusetts.

Graaff, J. (1950-1951): "Income Effects and the Theory of the Firm", *Review of Economic Studies*, vol. 18, n. 2, 79-86.

Greenwood, R. (2003): Commentary on "Toward a theory of agency and altruism in family firms", *Journal of Business Venturing*, 18, 4, 491-494.

Hannan, T. H. (1982): "On the Equivalence of Profit Maximization and Utility Maximization by an Owner-manager: Comment", *Southern Economic Journal*, vol. 49, n. 2, 255-259.

James, H. S. Jr. (1999): "Owner as a manager, extended horizons and the family firm", *International Journal of the Economics of Business*, vol. 6, n. 1, 41-55.

Jensen, M. C. and Meckling, W. H. (1976): "Theory of the firm: Managerial behavior agency costs and ownership structure", *Journal of Financial Economics*, 3, 4, 305-360.

Ladd, G. W. (1968): "Utility Maximization Sufficient for Competitive Survival", *Journal of Political Economy*, Vol. 77, No. 4, Part 1, 478-483

Lapan, H. E. and Douglas, M. B. (1988): "Utility Maximization, Individual Production and Market Equilibrium", *Southern Economic Journal*, Vol. 55, No. 2, 374-389.

Ljungqvist, L. and Sargent, T. J. (2000): *Recursive Macroeconomic Theory*, Second edition, MIT Press.

Macho-Stadler, I. and Pérez-Castrillo, D. (1997): *An Introduction to the Economics of Information: Incentives and Contracts*, Oxford, Oxford University Press.

Mas-Collel, A., Whinston, M. D. and, Green, J. R. (1995): *Microeconomic Theory*, Oxford University Press, New York.

McFadden, D. (1976): "Robinson Crusoe meets Walras and Keynes", *Lecture Notes*, Department of Economics, University of California. Available from http://www.econ.berkeley.edu/wp/mcfadden_crusoe.pdf

Ng, Yew-Kwang (1974): "Utility and profit maximization by an owner-manager: Towards a general analysis", *Journal of Industrial Economics*, vol. 23, n. 2, 97-108.

Olsen, E. and Odgers, Jr. (1973): "Utility and Profit Maximization by an Owner-manager", *Southern Economic Journal*, vol. 39, n. 3, 389-95.

Olsen, E. and Odgers, Jr. (1977): "Utility and Profit Maximization by an Owner-manager: A Correction", *Southern Economic Journal*, vol. 43, n. 3, 1390-3.

Pagano, M. and Röell, A. (1998): "The choice of stock ownership structure: Agency costs, monitoring and the decision to go public", *Quarterly Journal of Economics*, 113, 187-225.

Piron, R. (1974): "Utility Maximization Sufficient for Competitive Survival: Comment", *Journal of Political Economy*, Vol. 82, No. 3, 654-656.

Poutziouris, P., Smyrnios, K. and Klein, S. (2006): "Introduction: The business of researching family enterprises", in Poutziouris, P., Smyrnios, K. and Klein, S. (eds.) *Handbook of Research in Family Business*, Edgar Elgar.

Salanié, B. (1998): *The Economics of Contracts*. A Primer, Massachusetts, The MIT Press.

Salas, V. (2000): "La cultura en las organizaciones", *Cuadernos de Economía y Dirección de la Empresa*, 7, 341-369.

Schlesinger, H. (1981): "A Note on the Consistency of Non-Profit-Maximizing Behaviour with Perfect Competition", *Southern Economic Journal*, Vol. 48, No. 2, 513-516.

Schultze, W., Lubatkin, M. H. and Dino, R. N. (2002): "Altruism, agency, and the competitiveness of family firms", *Managerial and Decision Economics*, 23, 247-259.

Schultze, W., Lubatkin, M. H. and Dino, R. N. (2003): "Toward a theory of agency and altruism in family firms", *Journal of Business Venturing*, 18, 4, 473-490.

Schultze, W., Lubatkin, M. H., Dino, R. N. and Buchholtz, A. K. (2001): "Agency relationships in family firms: Theory and evidence", *Organization Science*, 12, 2, 99-116.

Scitovszky, T. De (1943): "A Note on Profit Maximisation and its Implications", *The Review of Economic Studies*, Vol. 11, No. 1, 57-60.

Sharma, P. (2004): "An overview of the field of family business studies: Current statues and directions for the future", *Family Business Review*, 17, 1, 1-36.

Starr, R. M. (1997): *General equilibrium theory : an introduction*, Cambridge : University Press.

Sundaramurthy, Ch. (2008): "Sustaining trust within family businesses", *Family Business Review*, 21, 1, 89-102.

Wortman, M. (1994): "Theoretical foundations for family-owned business: A conceptual and research based paradigm", *Family Business Review*, 7, 1, 3-27.